

TDRI

Quarterly
Review

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In 2001, one survey found that while there were 16 internet users per 100 population in Bangkok, there was less than 1 internet user in Sa Kaeo, a province close to the Cambodian border. How can there be such a large gap in Thailand? What are the factors that determine the level of internet penetration? And how can the gap be narrowed? See related article on page 12.

The Minimum Wage-fixing System in Thailand

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INTRODUCTION

Minimum wages are applied and determined in many countries of the world in spite of the *pros* and *cons* of the system. Minimum wage-fixing systems can pursue different objectives, adopt different machinery and procedures, use different criteria for the determination and adjustment of minimum wage rates, and provide more or less of the intended coverage of workers. Thailand adopted a minimum wage system in 1972 and has adjusted it a number of times since then. The latest change was made in 1998 with the promulgation of the Labour Protection Act 1998 (LPA 2541).

This paper is based partly on a more comprehensive study entitled “Standard Criteria and Model for the Fixation of the Minimum Wage in Thailand” conducted by TDRI for the Research Division, Policy and Strategy Bureau, Ministry of Labour (MOL)¹ (TDRI 2005). It is aimed at providing salient and up-to-date knowledge on the minimum wage-fixing system in Thailand following the promulgation of LPA 2541. The minimum wage-fixing system in Thailand prior to this Act can be assessed in a more comprehensive study entitled “Review of Minimum Wage Fixation in Thailand” by Peetz (1996).

MINIMUM WAGE IN THAILAND AND COMPLIANCE

The minimum wage system was first applied in Thailand with the promulgation of revolutionary party decree no. 103, dated March 16, 1972. The legislation gave authority to the Ministry of Interior² to fix the minimum wage rate, wage payment, payment for working overtime and during holidays, wage rate and leave. The National Wage Committee (NWC) was appointed by the Minister of Interior to carry out the relevant tasks. The Committee was set up as a tripartite body, which, by law, comprised at least nine but no more than 15 members representing the government,

employers and employees. At the beginning, there were only nine members on the committee: seven were government representatives, with only one representative each for employers and employees.

NWC was charged with the duty of recommending wage policy to the government and fixing the minimum wage rate, which then was defined as “a wage rate which an employee deserves and is sufficient for an employee’s living”³ (Office of the National Wage Committee 1996, 74). In April 1973, the first minimum wage in Thailand was set at 12 baht per day and was applied only to the areas of Bangkok, Samut Prakan, Nonthaburi, and Pathum Thani. Since 1974, minimum wage rates have been applied to the whole Kingdom and fixed according to geographical zone. The zoning system for fixing the minimum wage has endured, although with some adjustments after the promulgation of LPA 2541. Minimum wage-fixing in Thailand does not follow a fixed schedule, although the minimum wage has generally been adjusted on an annual basis. However, it was not adjusted at all in 1976, 1984, 1986, 1988, 1997, 1999 and 2000, but was adjusted twice per year in 1974, 1989, and 1995.

When the first minimum wage was fixed in 1973, it was based on a study on the cost of living of workers in Bangkok, Nonthaburi, Pathum Thani and Samut Prakan. The criteria used subsequently to adjust the minimum wage were based primarily on the cost of living and the rate of inflation as reflected in the consumer price index. Since 1990, economic growth has been introduced into the wage adjustment calculation, according to the following formula: economic growth rate divided by two plus the inflation rate (Peetz 1996, 3). In practice, however, the minimum wage is the outcome of negotiation between employers and employees, with the involvement of governmental representatives (Peetz 1996, 4).

The minimum wages in 1998, the year in which LPA 2541 was promulgated, were 162 baht per day in Bangkok, Nakhon Pathom, Nonthaburi, Pathum Thani, Samut Sakhon, Samut Prakan, and Phuket; 140 baht in

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Chon Buri, Chiang Mai, Nakhon Ratchasima, Phang-nga, Ranong and Saraburi; and 130 baht for all other provinces. Because of the 1997 financial crisis, which resulted in widespread lay-offs, minimum wages were not adjusted for a few years (1999-2000). On January 1, 2005 minimum wages were adjusted in a range between 137 baht (the lowest) and 175 baht (the highest) (Table 1). The movement of minimum wages in large cities and provinces of least minimum wage (base minimum wage) during the period 1998-2005 is depicted in Figure 1.

One of the problems with the minimum wage system in Thailand is the high incidence of non-compliance. By definition and by law, minimum wages are to be paid to new and unskilled workers. As such, minimum wages should be applied to only a relatively small number of unskilled workers who enter the labor market for the first time or who are newly recruited. A rough estimate of the number of new and unskilled workers is fewer than 100,000 workers annually.⁴ However, there are indeed a large number of employees who are paid less than the minimum wage.

Figure 2 depicts the level of non-compliance with the minimum wage in Thailand in 2004 based on a recent survey by the Institute of Research and Academic Services, Thammasat University (Anut 2004). The figure depicts minimum wages in comparison with median wages in provinces nationwide. The vertical line

measures the median wages paid at the provincial level while the horizontal line measures the minimum wages at the provincial level. The 45-degree line measures the coordinates where median wages are equal to minimum wages. Therefore, the dots under the 45-degree line reflect the cases where median wages or the wages actually paid are less than the minimum wages. One can see from Figure 2 that in 2004 there are many provinces where median wages were lower than minimum wages.

This phenomenon is also supported by a survey undertaken by the National Statistical Office in 2002 indicating that 1.71 million workers were paid less than the relevant minimum wage rates (Department of Labour Protection and Welfare 2002). Further, in 2003 the record of labor inspection by the Department of Labour Protection and Welfare shows that the number of workers in the establishments inspected totaled 43,316 and there were 11,240 establishments out of the 108,043 establishments inspected (about 10.4%) which paid less than the required minimum wages. Compared with an estimate in 1994 that approximately 37 percent of establishments were not complying with the minimum wage law (Peetz 1996, 5), the 2004 figure shows improvement. Peetz also shows that the incidence of non-compliance was higher among small establishments than among larger establishments but that the incidence was likely to be understated.

Table 1 Minimum Wage Rate in Thailand, 1998 – 2005

Effective date	Rate (baht per day)	Province concerned
January 1, 1998	162	Bangkok, Nakhon Pathom, Nonthaburi, Pathum Thani, Phuket, Samut Prakan, Samut Sakhon
	140	Chon Buri, Chiang Mai, Nakhon Ratchasima, Phang-nga, Ranong, Saraburi
	130	All other provinces
January 1, 2001	165	Bangkok, Nakhon Pathom, Nonthaburi, Pathum Thani, Phuket, Samut Prakan, Samut Sakhon
	143	Chon Buri, Chiang Mai, Nakhon Ratchasima, Phang-nga, Ranong, Saraburi
	133	All other provinces
July 1, 2001	168	Phuket
	165	Bangkok and Metropolitan area
	146	Chon Buri
	143	Chiang Mai, Nakhon Ratchasima, Phang-nga, Ranong, Saraburi
	138	Ang Thong
	137	Chachoengsao
	135	Sing Buri and Narathiwat
133	The rest of the country	
January 1, 2002	168	Phuket
	162	Bangkok and Metropolitan area
	146	Chon Buri
	143	Chiang Mai, Nakhon Ratchasima, Phang-nga, Ranong, Saraburi
	138	Ang Thong
	137	Chachoengsao
	135	Sing Buri and Narathiwat
133	The rest of the country	

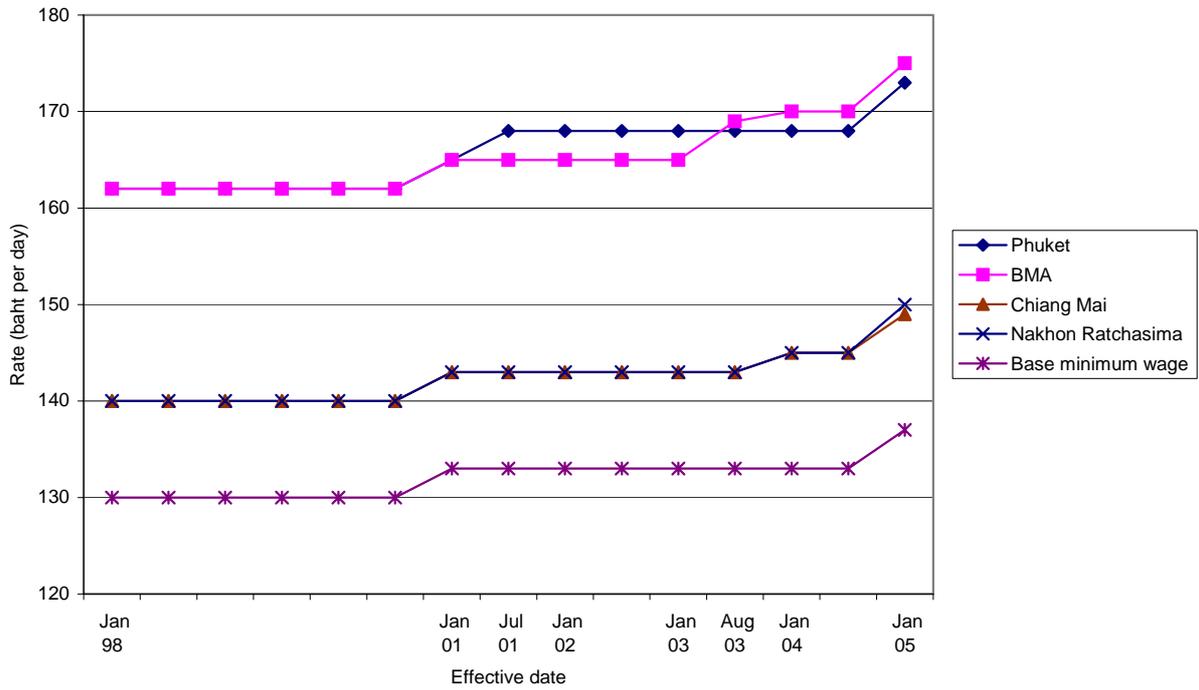
(Continued on page 5)

Table 1 (Continued)

Effective date	Rate (baht per day)	Province concerned
January 1, 2003	168	Phuket
	165	Bangkok and Metropolitan area
	150	Chon Buri
	143	Chiang Mai, Nakhon Ratchasima, Phang-nga, Ranong, Saraburi
	138	Ang Thong
	137	Chachoengsao
	135	Sing Buri and Narathiwat
	133	The rest of the country
August 1, 2003	168	Phuket
	169	Bangkok and Metropolitan area
	150	Chon Buri
	143	Chiang Mai, Nakhon Ratchasima, Phang-nga, Ranong, Saraburi
	138	Ang Thong
	137	Chachoengsao
	135	Sing Buri and Narathiwat
	133	The rest of the country
January 1, 2004	168	Phuket
	170	Bangkok and Metropolitan area
	153	Chon Buri
	145	Chiang Mai, Nakhon Ratchasima, Phang-nga, Ranong, Saraburi
	138	Ang Thong
	140	Chachoengsao
	136	Sing Buri and Narathiwat
	133-135	The rest of the country
January 1, 2005	173	Phuket
	175	Bangkok and Metropolitan Area
	157	Chon Buri
	155	Saraburi
	150	Nakhon Ratchasima
	149	Chiang Mai and Phang-nga
	147	Ranong and Rayong
	146	Phra Nakhon Si Ayutthaya
	144	Krabi and Chachoengsao
	142	Kanchanaburi, Chanthaburi, Phetchaburi, Ratchaburi, Samut Songkhram and Ang Thong
	141	Chumphon, Lamphun, Sa Kaeo and Sukhothai
	140	Kamphaeng Phet, Khon Kaen, Trang, Buri Ram, Prachin Buri, Lop Buri, Sing Buri and Suphan Buri
	139	Kalasin, Chai Nat, Chaiyaphum, Trat, Tak, Nakhon Phanom, Nakhon Si Thammarat, Nakhon Sawan, Narathiwat, Prachuap Khiri Khan, Pattani, Phatthalung, Phitsanulok, Phetchabun, Mukdahan, Yala, Roi Et, Lampang, Loei, Si Sa Ket, Sakon Nakhon, Songkhla, Satun, Surat Thani, Nong Khai, Nong Bua Lam Phu, Udon Thani, Uttaradit, Uthai Thani and Amnat Charoen
	138	Nakhon Nayok and Phichit
	137	Chiang Rai, Nan, Phayao, Phrae, Maha Sarakham, Mae Hong Son, Yasothon, Surin and Ubon Ratchathani

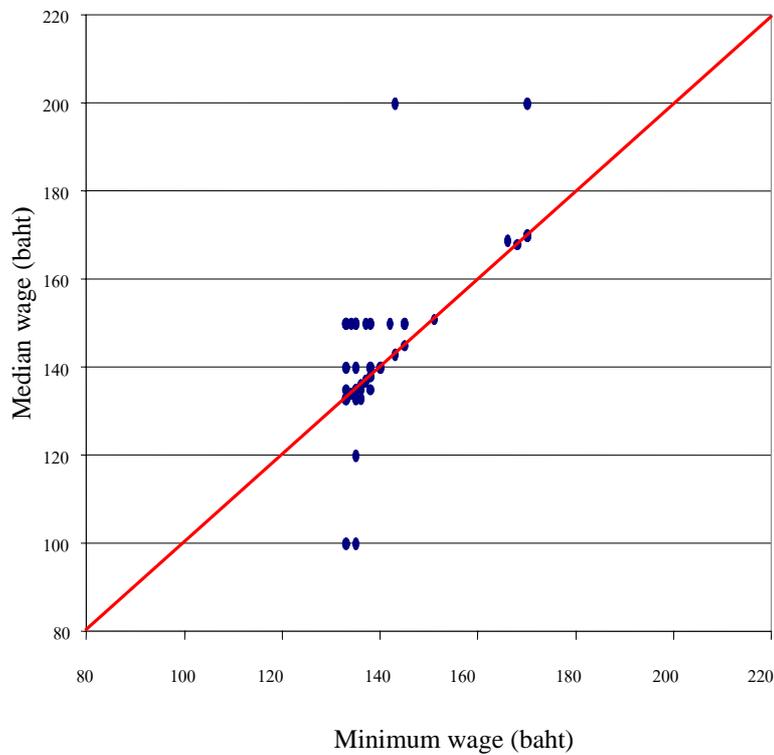
Source: TDRI. 2004. *Thailand Economic Information Kit*.

Figure 1 Minimum Wages in Bangkok Metropolitan Area (BMA), Major Cities and Base Minimum Wages, 1998 – 2005



Source: TDRI, 2004. Thailand Economic Information Kit.

Figure 2 Relationship between Median Wage and Minimum Wage at the Provincial Level, 2004



Source: Data from Anut 2004.

TOWARD THE CURRENT SYSTEM

Prior to the promulgation of LPA 2541, the minimum wage-fixing system in Thailand encountered a number of problems, particularly, non-compliance, lack of clear-cut criteria for fixing wages, lack of a clear concept or paradigm, and lack of reliable, up-to-date and consistent data. With a view to improving the system, the Thai government requested technical assistance from the International Labour Organization (ILO) in 1995. ILO provided the services of David Peetz to review the system in May 1995 in collaboration with a team of Thai researchers.

Peetz maintained that there are two main objectives of the minimum wage: one is to provide social protection (a “poverty safety net”) and the other is to enable employees to benefit from economic development and growth (“fair wages”). In Thailand conflict exists between these objectives, leading to the need to re-examine the system’s arrangements; moreover, the two objectives do not necessarily lead to the same policy conclusions (Peetz 1996, 13).

For the purpose of preventing extreme poverty, a minimum wage would be set at a certain level and updated in a manner that did not have strong repercussions for most of the wage structure. It would be updated by reference to indicators of the level of wages necessary to avoid extreme poverty. On the contrary, for the purpose of enabling employees to share in the benefits of economic growth, a minimum wage would be integrated into the existing wage structures, and adjustments to it would have implications for the level of wages generally. It would be updated by reference to measures of national economic development; it would have broader macro-economic implications that would be taken into account in its setting. Furthermore, it may relate not only to the lowest-skilled workers but also to those with varying levels and degrees of skill. This means that the objectives of the minimum wage have implications for the choice of indicators.

The minimum wage in Thailand does not fit the “poverty safety net” paradigm for a few reasons. First, the updating of the minimum wage has a flow-on effect on the rest of the wage structure. It is well known in Thailand that increases in the minimum wage set the norm for wage increases for many employees not covered by the minimum wage. This observation is also supported by a later study by TDRI (2005). Second, it has been noted that increases in the minimum wage have an observable announcement effect on prices. As such, increases in the minimum wages do not help employed workers with regard to their previous standard of living. A third observation is that the minimum wage is set by reference to the needs of an individual employee, exclusive of dependants, while a “poverty safety net” minimum wage should take into account the needs of the family. Fourth, some degree of non-compliance suggests

that the minimum wage is not fully effective in meeting poverty-alleviation objectives.

It is interesting to note that, if it were to be decided that the “poverty safety net” paradigm should be followed, one thing that would need to be done would be to make the minimum wage lower than it is currently, because that is how the minimum wage could be made to directly affect fewer employees (Peetz 1996, 16). In brief, the minimum wage policy should attempt to reconcile both the “poverty safety net” objective and the “fair wages” objective. In particular, the policy should constitute an element in policy aimed at overcoming poverty, but it should also constitute an element in policy aimed at enabling employees to share in the benefits of economic development. To take care of the two objectives, Peetz recommends a “two-tier” system of minimum wage determination in which the minimum wage comprises two parts, the “base wage” or the poverty safety net, and the “industrial base wage” or the fair wage. In other words, he recommends that the minimum wage be fixed by industry.

THE CURRENT SYSTEM

ILO’s recommendation was reviewed at a national seminar in May 1996. Subsequently, however, the idea of an industrial minimum wage was not put into practice. NWC considered that the approach would be difficult to apply. For example, first, more industrial sub-committees would need to be established in order to review industrial minimum wage rates; second, there would be too many minimum wage rates, causing confusion among employers; third, a single type of minimum wage would be easier to enforce; and fourth, the minimum wages applied to unskilled workers who do not have the power to bargain against employers no matter to what industry they belong should be equally protected (Division of Income and Minimum Wage Systems Development 2004, 2-2).

In 1997, the then Ministry of Labour and Social Welfare (MOLSW) recommended that the government adjust the minimum wage structure to comprise a national “base wage” and “provincial minimum wages,” the latter being a combination of the national base wage and an additional adjustment for provincial differences in the cost of living and other socio-economic conditions. The “base wage” is determined at the national level by NWC in order to guarantee a minimum standard of living of an employee, and “provincial minimum wages” are worked out and recommended at the provincial level by the relevant Provincial Subcommittee on Minimum Wage (PSMW) to take into account the differences in socio-economic situation and cost of living at the provincial level and to decentralize the determination of the minimum wage. The “provincial minimum wage” cannot be less than the “base wage.”

The Cabinet approved the MOLSW recommendation in principle on October 14, 1997. To put the new system into effect, MOLSW issued a ministerial order on November 6, 1997 and subsequently put the matter in the draft LPA 2541, which became effective on August 19, 1998. It can be noted that, although the fixing of the minimum wage rate by industry is not applied currently, Article 87 of LPA 2541 provides for NWC to fix minimum wage rates by industry.

1) Minimum Wage-fixing Machinery

Figure 3 depicts the minimum wage-fixing system under LPA 2541. The three main institutions of the Thai minimum wage-fixing machinery are NWC, PSMW, and the Subcommittee on Technical Affairs and Review (STAR). NWC is composed of the Permanent Secretary of the Ministry of Labour as chairperson, four representatives of the government, and five representatives each of employers and employees, and a secretary (from the Division of Income and Minimum Wage Systems Development, Policy and Strategy Bureau, Office of the Permanent Secretary). NWC is appointed by MOL and has a term of two years, which is renewable. A major function of NWC is to fix the “base wage rate” and (provincial) minimum wage rate. (The latter is done through the recommendation of PSMW). PSMW is a tripartite committee composed of the governor, provincial commerce officer, provincial industrial officer, two members representing the public’s interests, five representatives of workers, and five representatives of employers. The Provincial Office of Labour and Social Welfare serves as the secretariat. All PSMW members, except the first three and the secretariat, are appointed in each province by MOL. The main function of PSMW is to recommend to NWC minimum wage adjustments at the provincial level. However, it has no power to fix the minimum wage adjustment. STAR was appointed by NWC in 2004 to review PSMW’s recommendations for final consideration and approval by NWC. It is composed of 11 members, three each from representatives of the government, employees and employers, and secretariat and assistant secretariat from MOL. NWC and STAR are supported by a secretariat from the Policy and Strategy Bureau, whereas PSMW obtains secretariat support from the Provincial Office of Labour and Social Welfare.

2) Minimum Wage-fixing Criteria

The primary objective of the Thai system is to protect and help employed workers to earn fair wages that will enable them to make a sufficient living above the poverty level. The minimum wage is based on three principles, namely, (1) the minimum wage is a major measure of labor protection, (2) the minimum wage level

is to be determined by the previously described tripartite machinery, and (3) the fixation of the minimum wage is decentralized to the provincial level. The criteria for the determination of the wage rate at the provincial level is “the wage that is sufficient for a newly-recruited unskilled worker to make a living in his/her community” (Division of Income and Minimum Wage Systems Development 2004).

The criteria for the fixation of the minimum wage are given by LPA 2541, which stipulates that for the purpose of fixing the minimum wage and base minimum wage, NWC should study and review the current wage rate along with relevant data, in particular, the consumer price index, inflation rate, standard of living, cost of production, prices of goods and services, employer’s capacity to pay, labor productivity, GDP, and the socio-economic situation. After such a review, NWC would determine the adjustment of minimum wages together with supporting data and submit them to MOL, which will announce the new minimum wage rates in the Royal Gazette.

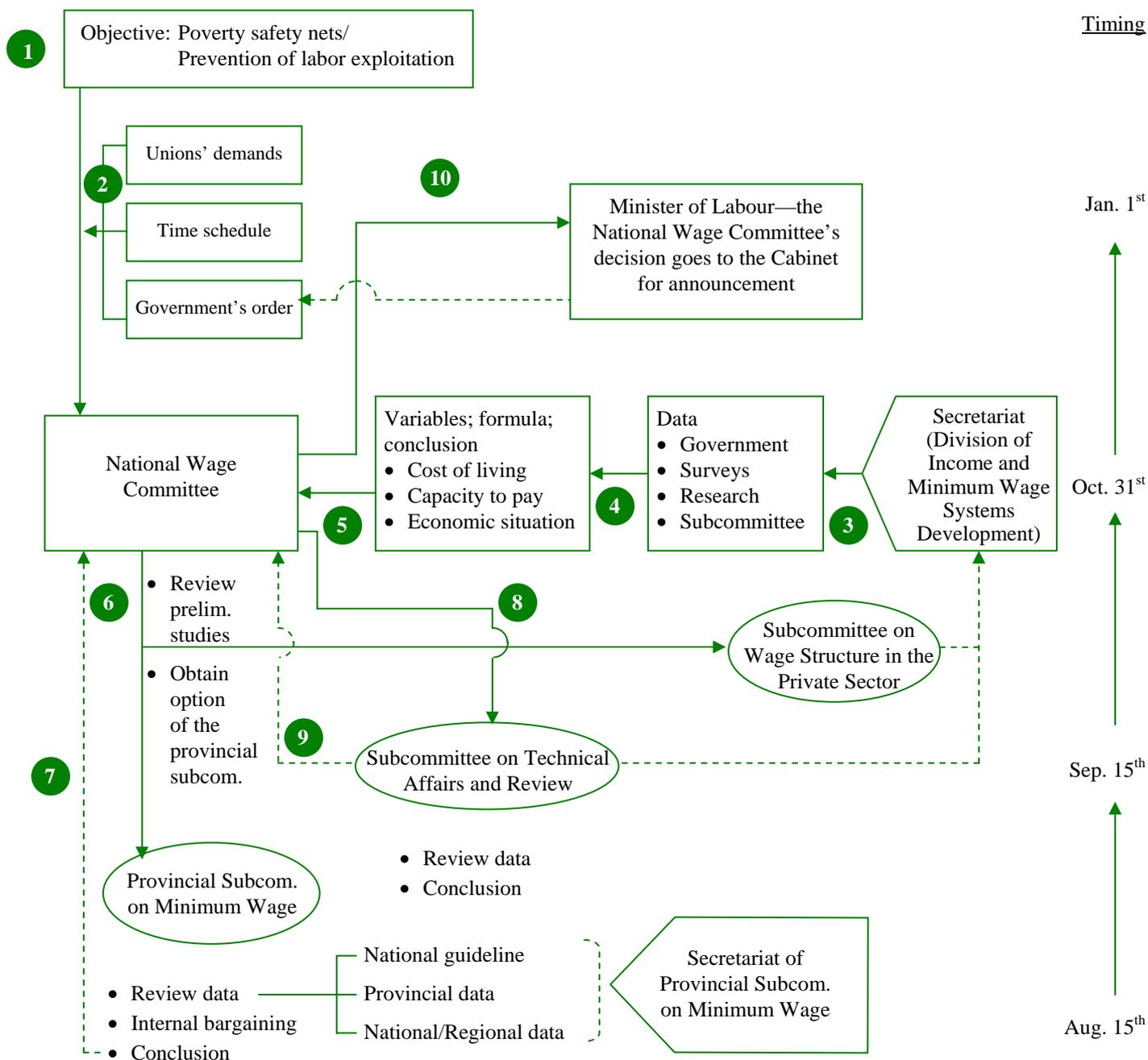
In practice, NWC gives written suggestions to PSMW on the series of indicators for minimum wage adjustment, sources of data, and the time frame for the review and submission of the recommendations. NWC does not, however, give a national guideline regarding what the new level of minimum wage should be.

STAR, however, adopts somewhat different criteria in reviewing PSMW’s recommendations. For example, it compares the proposed provincial wage rate with the province’s inflation rate. If the proposed rate does not exceed the provincial inflation rate, it gets a score of 40 compared with 30 if the proposed rate exceeds the inflation rate. Other indicators include the record of minimum wage adjustments in the previous two years, how united is the PSMW, and the justification of STAR.

3) Minimum Wage-fixing Procedure

The process of minimum wage-fixing does not follow a fixed time schedule. By and large, the adjustment of the minimum wage is initiated through three channels: when there is a demand from trade unions, a recommendation from NWC or PSMW, or by governmental order. This process depends on the economic and social situation (Office of the National Wage Committee 1996, 5). However, the 13th NWC (1997-1999) recommended that the minimum wage be reviewed at least once a year, announced 60 days in advance, and made effective on January 1. Upon receiving a signal for minimum wage adjustment, NWC will inform PSMW to make recommendations on its respective provincial minimum wages. After PSMW reviews the adjustment, it will submit recommendations to NWC, which will send the provincial recommendations for technical review by STAR. In 2004, NWC set a schedule for PSMW to submit its

Figure 3 Minimum Wage-fixing System in Thailand



Source: Thailand Development Research Institute.

recommendation on minimum wage adjustment before August 15, 2004, and for STAR to submit its review results before September 15, 2004 so that NWC could decide on the new minimum wage by October 31, 2004 and announce the application of the new rate on January 1, 2005.

4) Indicators and Data

According to Article 87 of LPA 2541, as previously mentioned, there are about nine indicators that should be used for the consideration of a minimum wage adjustment. These indicators can be classified into

three groups: first, indicators of the necessary cost of living for employees, which includes wages of kindred workers, the consumer price index, inflation rate, standard of living, and prices of goods and services; second, the capacity of employers to pay, which includes cost of production, business capacity and labor productivity; and third, national economic conditions, which include GDP and the socio-economic situation in general. In order to obtain these indicators, the secretariat office of NWC provides a list of sources of data. NWC also advises PSMW on how to weigh each indicator and calculate a total score for making its decision. In practice, the indicators can give only an idea for an initial adjustment proposal. In the past, the indicators used were limited only to the inflation rate and GDP growth rate. The decision is usually based on negotiation.

CONCLUDING REMARKS

The present system has a few problems. First, union workers and a number of academicians have extensively criticized PSMW as being not the appropriate approach for minimum wage-fixing for several reasons. For example, they claim that (a) PSMW is biased in favor of employers and it weakens the collective power of workers since at the provincial level there are only a small number of unions and most of them are not strong compared with those at the national level; (b) the selection and the appointment of representatives of workers in PSMW are not transparent processes, some of the people chosen are not even known among workers; and (c) PSMW does not have the authority to determine the province's minimum wage. Second, there is a dearth of data at the provincial level for the consideration of PSMW. Third, even at the national level, the lack of a good data system is a bottleneck for the effective review of minimum wages. For example, data on the consumer price index, inflation, GDP growth rate, etc., are available from various government agency sources; data on labor productivity, capacity to pay, and cost of production are not systematically collected; and there are no consistently-collected data on the wages of unskilled workers, by industry and by size of establishment. The lack of provincial data makes the work of STAR formidable. Fourth, non-compliance is still high. Fifth and last but not least, there are enough studies to support the review of the minimum wage and relevant policies. For example, while an objective of the minimum wage is to raise the wage level of unskilled workers so that they will be able to afford a sufficient living standard, the government does not have a strong policy and/or clear-cut policy to protect them from the influx and impact of immigrant workers from neighboring countries.

ENDNOTES

- ¹ Formerly Ministry of Labour and Social Welfare (MOLSW).
- ² The Department of Labour was then under the Ministry of Interior.
- ³ Peetz (1996, 3) erroneously indicated that "the coverage of the first minimum wage included two other members of the family, i.e., the spouse and one child."
- ⁴ Currently, the number of new workers is about 400,000-500,000 persons a year. Out of this number, about 58 percent are graduates with diplomas or higher levels of education. Thus, only 42 percent are likely to be unskilled workers. Further, about 50 percent of Thai workers work on farms. Thus, about 25 percent of the new workers are likely to work in the non-farm sectors, some of whom work in informal sectors or are self-employed. Hence, even a conservative estimate of new, unskilled workers is fewer than 100,000 persons.

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Analyzing the Problem of Digital Divides in Thailand

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1. THE PROBLEM OF THE DIGITAL DIVIDE

It is widely known that internet infrastructure and internet-related activities are highly concentrated in a few developed countries, especially in the United States. However, it is feared that such lop-sided development creates a ‘digital divide.’ There are also great disparities among Asian and Pacific countries. For example, there were 5,210 internet users per 10,000 population in South Korea in 2001 and only a little over 7 users per 10,000 population in Cambodia. In other words, South Korea is 700 times more “wired” than Cambodia.

There is also another level of the digital divide: the divide within a country. In the case of Thailand, for example, the National Statistical Office (NSO) found that there were 16 internet users per 100 population in Bangkok in 2001 while there was less than 1 (0.9) internet user per 100 population in Sa Kaeo, a province close to the Cambodian border; that is, Bangkok has almost 18 times the internet penetration as Sa Kaeo. How can there be such a large gap? What are the factors that determine the level of internet penetration in a country or in a region within a country? How can the digital divide be narrowed?

2. MODEL OF INTERNET ADOPTION

In this section, we analyze the problem of the digital divide in Thailand. We adopt a model that identifies factors that determine the level of information technology (IT) adoption within Thailand. Our analysis is based on a quarterly labor force survey, conducted by NSO between January and March 2001. About 78,000 households with 178,263 individuals at least 11 years old were covered by the survey. In addition to the demographic profiles of the sample collected for the purpose of the labor force survey, an additional question was added to determine if an individual had used the internet during the previous 12 months. The answer to the question was a binary choice of usage or non-usage.

A model to analyze the factors that determine the usage of the internet needs to deal with binary-choice data. Thus, the use of ordinary least square (OLS) estimator, designed for a dependent variable with continuous values, is not applicable. We adopted a binary logistic regression model. Table 1 shows the variables used in our model. The dependent variable in this regression is the natural logarithm of the odds that an individual is an internet user. The explanatory variables are variables representing characteristics of the individual, including educational level, sex, age, marital status, income, etc. The regression equation is expressed as shown below:

$$\ln(P_i / (1 - P_i)) = \beta_0 + \beta_1 \text{URBAN}_i + \beta_2 \text{MALE}_i + \beta_3 \text{AGE}_i + \beta_4 \text{SINGLE}_i + \beta_5 \text{STUDENT}_i + \beta_6 \text{WORKING}_i + \beta_7 \text{FIRM-SIZE}_i + \beta_8 \text{WAGE}_i + \beta_9 \text{YEARS-IN-SCHOOL}_i$$

i = individual index,

P_i = Probability that an individual i is an internet user

Table 2 shows the result of the analysis. From signs and the significant levels of each variable obtained from the regression analysis, we can assess the qualitative impact of an attribute on the probability that the person is an internet user:

- AGE: The sign of the coefficient of AGE is significantly negative, indicating that the propensity to use the internet declines with age. This may reflect the fact that younger persons tend to acquire new technological skill more easily than older persons.
- SINGLE: The sign of the coefficient of SINGLE is significantly positive. This may reflect the fact that a single person tends to have more time to acquire the required technological skills and more time to use the internet.

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Table 1 Variables Used in the Logistic Regression Model

Variable	Name	Definition
Internet user	NET	NET = 1 if the individual has used the internet at least once in the last 12 months. NET = 0 otherwise
Location	URBAN	URBAN = 1 if the individual is living in a municipal area. URBAN = 0 otherwise
Sex	MALE	MALE = 1 if the individual is male. MALE = 0 otherwise
Age	AGE	Age of the individual
Marital status	SINGLE	SINGLE = 1 if the individual is single. SINGLE = 0 otherwise
Study status	STUDENT	STUDENT = 1 if the individual is a student. STUDENT = 0 otherwise
Educational background	YEARS-IN-SCHOOL	Number of years in school, ranging from 0 (no education) to 16 (university education)
Work status	WORKING	WORKING = 1 if the individual is working. WORKING = 0 otherwise
Firm size	FIRM-SIZE	Size of firm or organization that the individual is working for. FIRM-SIZE = 1 if the individual works for a firm with at most 4 employees. FIRM-SIZE = 2 if the individual works for a firm with 5-9 employees. FIRM-SIZE = 3 if the individual works for a firm with at least 10 employees.
Total wages	WAGE	Total wage of a worker, which is the sum of wage or basic salary, overtime payment and major in-kind incomes. This variable is applicable only to employed workers.

Source: National Statistical Office of Thailand. The 2001 Survey of Information Technology.

Table 2 Result of the Logistic Regression to Explain Probability of Using the Internet

	Coefficient	Exp(Coefficient)
URBAN	0.184*** (.007)	1.201
MALE	0.54 (.318)	1.056
AGE	-0.008** (.029)	0.992
SINGLE	0.421*** (.000)	1.523
STUDENT	1.816*** (.000)	6.147
WORKING	0.314 (.196)	1.369
FIRM-SIZE	0.338*** (.000)	1.402
INCOME	0.000* (.059)	1.000
YEARS-IN-SCHOOL	0.581*** (.000)	1.788
Constant	-10.522*** (.000)	0.000

Note: *** significant at 1%, ** significant at 5%, * significant at 10%

- **URBAN:** The sign of the coefficient of URBAN is significantly positive. This may reflect that telecommunication infrastructure is more developed in municipal areas than in remote areas. It may also indicate that a person seeking advice about how to use the internet is more likely to find it in municipal areas.
- **STUDENT:** The sign of the coefficient of STUDENT is significantly positive. This can be interpreted as many people have access to the internet at their schools or university.
- **YEARS-IN-SCHOOL:** As the sign of the coefficient of YEARS-IN-SCHOOL is significantly positive, the probability of using the internet increases with the number of years in school of the individuals. This is likely due to the fact that the use of the internet requires basic computer literacy.

It is interesting to find that gender does not have any significant impact on the probability of using the internet. This may be due to the fact that Thailand has largely achieved gender equality. It also rejects the belief that females tend to be less capable of using new IT than males. The situation may be different in other countries where gender equality has not been achieved.

The above model also enables us to assess the quantitative impact of each personal attribute on the probability of the person being an internet user. The exponent of the coefficient of a binary variable, shown in the last column of Table 2, approximates the number of times the person with the specific attribute is more likely to be an internet user.¹ For example, a person who is a student is about 6.1 times more likely to be an

internet user than a non-student, keeping other variables constant. For an attribute with real or integer values, the exponent represents the increased probability of an individual being an internet user for an additional unit of the attribute.² For example, an additional year in school means that the person is 1.79 times more likely to be an internet user.

3. DISCUSSIONS AND CONCLUSION

From the above analysis, it is found that the level of internet adoption depends on a number of factors. In other words, the problem of the “digital divide” is not a simple phenomenon but should be viewed as a combination of a number of divides: urbanization divide, age divide and education divide.

Owing to its multifaceted nature, the problem of the digital divide should be addressed not only from an economic perspective, but also from a socio-cultural one. From this perspective, it would be imperative to increase the level of education and provide internet access and training to potential users in schools, universities, workplaces and community access points. Also, it would be beneficial to develop content in local languages.

ENDNOTES

- ¹ For an explanatory variable X_i with binary values, a person with $X_i = 1$ is e^{β_i} times as likely to be an internet user as a person with $X_i = 0$.
- ² For X_i with real or integer values, e^{β_i} represents the increased probability of being an internet user for an additional unit of X_i .



Movement of Health Care and Information Technology Professionals in Thailand: Impact Implications of AFAS

Yongyuth Chalamwong
Paradon Tansaewee*

This paper is focused on the short-term movement (in and out) of professionals in two specific sectors, namely health care and information technology (IT), in Thailand and the implications of the ASEAN Framework Agreement on Services (AFAS). The data used are mainly from both primary sources (interviews with government agencies, professional bodies and the private sector) and secondary sources (government agencies and relevant studies and research). The first section presents the background to Thailand's commitments to AFAS, domestic labor market and the international migration of workers. The second part deals with quantitative data and analysis of migration trends, demand and supply. The third section describes relevant laws and regulations concerning employment of foreign medical and IT professionals in Thailand as well as the laws and regulations affecting Thai nationals who want to work abroad. In the fourth section, information on barriers to the international mobility of medical and IT professionals is provided. Discussion of these matters and recommendations are presented in the last section.

1. INTRODUCTION

1.1 Thailand's Commitments to AFAS¹

AFAS was signed by the ASEAN Economic Ministers (AEM) during the fifth ASEAN Summit held on December 15, 1995 in Bangkok. AFAS follows the structure and approach of the General Agreement on Trade in Services (GATS), and attempts to liberalize and strengthen service sectors within the ASEAN countries. Liberalization in services is achieved through negotiations among Member States to arrive at GATS – plus commitments. This means, for WTO members, that AFAS commitments offer more new service sectors not

covered under GATS. In the third round of negotiations, which ended in December 2004, Thailand made commitments in five subsectors. These include the following: (1) business services: accounting, taxation, architecture, engineering, computers, economic and market research, and translation; (2) construction services; (3) telecommunication services: fixed-line telephones, mobile phones, telegraph and paging; (4) tourism and travel-related services: hotels and restaurants; and (5) maritime transport services. To date, no specific sector commitment in health and related services has been made. The most recently revised conditions of AFAS commitments in the fourth package are as described below.

- Full commitments (none) in cross-border supply (mode 1).
- Full commitments (none) in consumption abroad (mode 2).
- Foreign commercial presence (mode 3) must be through joint ventures (in the form of companies or partnerships) among foreigners and Thai partners. The shareholding of the foreign shareholders must not exceed 25 percent for the telecommunication services sector and 49 percent for other sectors. Business transactions in the five sectors must be conducted under relevant Thai laws and regulations.
- The period of stay for natural persons is prolonged (mode 4). Executives, experts and specialists who are transferred from overseas headquarters to work in a subsidiary company in Thailand are allowed to stay up to four years. Businesspersons are allowed to stay no longer than one year.

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The fourth round of negotiations is currently being conducted (having started in January 2005 and scheduled to end in December 2006). The intention of this round is to cover more priority sectors such as telecommunication and IT, health care and tourism in order to correspond with the policy of the ASEAN Economic Community (AEC) which will facilitate the free flow of goods and services by 2020 as stated in the 2003 Bali Concord II. A High-Level Task Force (HLTF) was established to complete Mutual Recognition Arrangements (MRAs) for major professional services to assist in the free movement of professionals, skilled laborers and talent by 2008, through the establishment of a "Professional Exchange."

1.2 Domestic Labor Market

Recent employment statistics from the Labor Force Survey show significant increases in the number of doctors and IT professionals in Thailand, i.e., computer-system designers and analysts, programmers and other computer professionals. On the other hand, the trend for nurses is roughly the same as previously surveyed, but still showing an upward trend (Table 1). One critical factor contributing to a sharp increase in the employment of physicians is the government's policy to promote the country as the "Medical Hub of Asia." However, this policy is likely to worsen the traditional problem of inequitable distribution of doctors in both urban and rural areas of Thailand. Similarly, the remarkable increase in the employment of IT professionals primarily is the result of government's policy to promote the local IT sector. The software industry is one among five strategic industrial clusters in the national master plan for industrial development. The policy stimulates increasing demands, especially in the private business sector.

1.3 International Migration of Workers

Thailand is classified as a net importer of foreign workers since the country began in 1996 to allow illegal

immigrant workers from neighboring countries to be registered (Yongyuth 2005). In 2003, the total net migration was 952,859 (1,100,628–147,769; Table 2). It is expected that this number will further increase as a result of the government's introduction of another quasi-amnesty in late 2003. Table 2 shows the number of legal immigrant workers who have been granted permanent residence and permission to take up temporary employment under the Immigration Act of 1978 and the Investment Promotion Act. In 2003, there were 100,628 foreign workers in Thailand, approximately half of them in Bangkok. The principal sending countries are Japan, United Kingdom, India, China and the United States. Legal immigrant workers work mostly in the fields of academia and professional specialties, management and administration, and commerce. Unlike legal workers who are skilled or semi-skilled workers, illegal immigrant workers, estimated at about 1 million persons in 2003, are mostly unskilled. Most illegal workers come from three neighboring countries, namely, Myanmar, Lao People's Democratic Republic (Laos) and Cambodia. Registered illegal workers who have been granted work permits work mainly as agricultural and livestock workers, domestic helpers, fisheries and related workers and construction workers. For non-registered illegal workers who are nationals of Myanmar, Laos and Cambodia, the Department of Employment (DOE) has allowed them exceptionally to work in only two occupations, i.e., as domestic helpers² and laborers.³

Recent trends of the major receiving industrialized economies in Asia, such as Taiwan, Singapore, Japan, South Korea, Malaysia and Brunei, show that the majority of Thai workers abroad have a low educational background; over 90 percent of them have an education below the college level. Moreover, no Thai with a master's or higher graduate degree has been reported to be working overseas. The government's emigration policy continues to maintain the existing market, while encouraging placement agencies and workers to find new markets abroad. Since 1999, the Ministry of Labour has set a target for sending workers overseas as well as for receiving remittances (Yongyuth 2003). However,

Table 1 Employment in the Health Care and IT Sectors, 2002-2004 (Unit: persons)

Sector/occupation	Employment		
	2002	2003	2004
Health professionals and associate professionals	128,468	140,665	149,130
- Doctors (2221)	15,474	17,051	27,293
- Dentists (2222)	5,780	6,824	7,480
- Veterinarians (2223)	2,547	4,023	770
- Pharmacists (2224)	5,554	6,660	12,234
- Nursing and midwifery professionals (2230)	99,113	106,107	101,353
IT professionals and associate professionals	32,404	24,707	41,447
- Computer system designers and analysts (2131)	7,217	5,186	8,371
- Programmers (2132)	16,051	8,085	19,301
- Computer professionals not elsewhere classified (2139)	2,116	1,003	5,227
- Telecommunications and electronic engineers (2144)	7,020	10,433	8,548

Source: Labor Force Survey (Round 3), National Statistical Office, 2005.

Table 2 Migration Statistics, 2001-2003 (Unit: persons)

	2001	2002	2003
Immigration flow of foreigners	827,649	879,532	1,100,628
Number of foreign workers	92,811	85,588	100,628
By location			
- Bangkok	55,367	43,994	49,497
- Others	37,444	41,594	51,131
By type of work permit			
- Life-long permit	14,895	14,423	14,423
- Temporary	41,305	42,028	51,095
- Investment promotion	18,673	16,569	19,328
- Section 12	17,938	12,568	15,782
Number of illegal foreign workers	968,249	n.a.	1,000,000
- Non-registered	405,722	n.a.	711,220
- Registered	562,527	428,468	288,180
- Burmese (from Myanmar)	448,988	348,779	247,791
- Laos	58,411	42,089	21,314
- Cambodians	55,128	37,600	19,675
Emigration flow of nationals	160,252	157,624	147,769
Number of Thai emigrants working overseas			
By destination country			
- Middle East	18,201	21,744	17,290
- Africa	523	1,119	1,117
- Asia	136,787	129,600	122,852
- America, Europe and Australia	4,741	5,161	6,510
By educational level			
- Primary school	146,719	141,557	124,848
- Secondary school	8,099	8,789	11,144
- Vocational	5,651	5,627	6,717
- Bachelor's degree	4,561	4,814	5,041
- Master's and doctoral degrees	-	-	-
- Others	17	20	19
Remittances from national residing abroad (millions of baht)	55,606	59,251	66,297

Note: n.a. = not available

Sources: TOEA 2005 and ARCM 2005.

the outcome is unsatisfactory, as the number of emigrants has gradually dropped year by year. The main declines are from receiving economies such as Israel, Malaysia, Singapore and Taiwan. This is largely due to the intense competition from emerging low-cost countries and high unemployment rates (in Taiwan) and the unstable political situation in the prospective receiving country: Israel.

2. MIGRATION TRENDS, DEMAND AND SUPPLY: HEALTH CARE AND INFORMATION TECHNOLOGY SECTORS

2.1 Migration Trends

2.1.1 In-migration

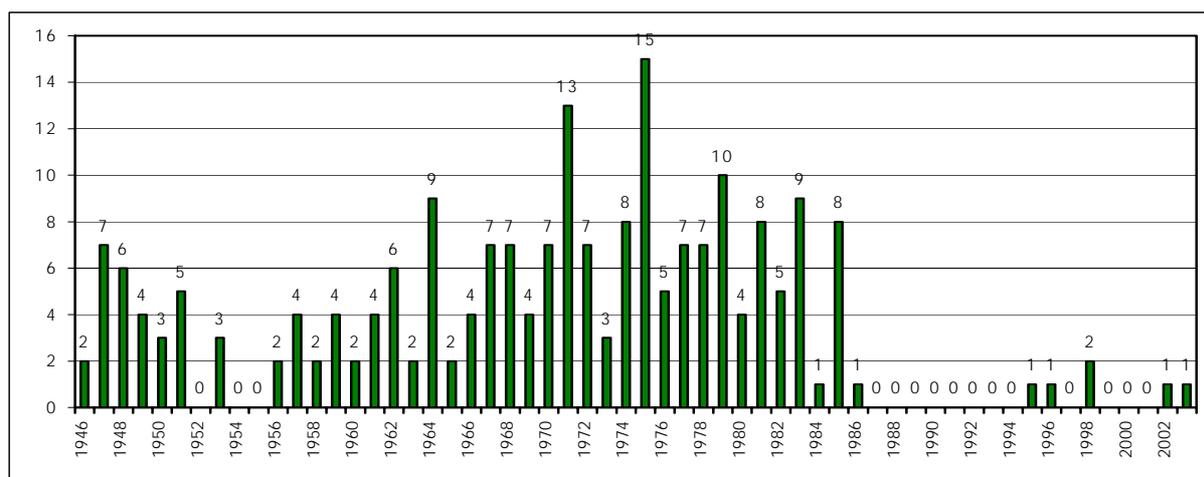
The movement of foreign doctors and nurses into Thailand accounts for a very small number of migrants. In 2002, there were 31 foreign doctors and 15 foreign nurses working in Thailand (Table 3). This is because

the Medical Council of Thailand, the national licensing body for doctors, requires graduation from accredited medical colleges and permanent residency for foreigners to take the licensing examination. From 1946 to 1986, there were 229 Thai-licensed foreign practitioners. From 1987 to 2003, only six foreigners succeeded in acquiring the medical practice license because the examination has been given in the Thai language since 1987 (Figure 1). From interviews, it was found that a few private hospitals hire foreign doctors in positions such as consultants and executives, as such posts do not require a license. Some hospitals hire foreign translators because the number of foreign patients has been sharply rising during the past few years. The main reasons for employing foreign medical professionals are the following: (1) they better understand the language and culture of foreign patients and (2) they provide a connection with health-care organizations abroad. As for nurses, employers prefer to hire Thai nurses because they are service-minded and can communicate better with Thai patients. In the IT sector, there were 540 foreign IT professionals working in Thailand in 2002. This number

Table 3 Number of Foreign Workers in Health Care and IT Sectors in Thailand, 2002 (Unit: persons)

Sector/occupation	Number of foreign workers
Health professionals and associate professionals	46
- Doctors (2221)	31
- Nursing and midwifery professionals (2230)	15
IT professionals and associate professionals	540
- Computer system designers and analysts (2131)	477
- Programmers (2132)	59
- Computer professionals not elsewhere classified (2139)	4

Source: Aliens Occupational Control Division, Department of Employment, <http://www.doe.go.th/workpermit/statistics.html> (April 2005).

Figure 1 Number of Foreign Medical Practitioners Licensed in Thailand, 1946-2003 (Unit: persons)

Source: Suwit et al. 2004.

is increasing, especially in companies enjoying promotional privileges provided by the Board of Investment (BOI), owing to a lack of qualified Thai IT professionals in the country. As a result, an emerging trend in outsourcing foreign IT specialists (e.g., Indian experts) to fill this gap is becoming more apparent, in particular for private companies. The key reasons for employing foreign IT professionals are to gain qualified, experienced workers and their “connections” in order to approach businesses in foreign countries. Regarding the method of recruitment, it was found that foreign workers in both sectors applied directly to the private companies in response to job advertisements.

2.1.2 Out-migration

For the time being, the precise number of Thai health-care and IT professionals working abroad has not been systematically recorded. Interviews with officers from DOE reveal that in practice only blue-collar workers report to the Department when they go to work abroad. Usually, they are sent either by DOE or recruitment agencies. In contrast, white-collar workers often arrange for overseas employment by themselves or their employers make the arrangements for them. They usually contact the embassy concerned and apply for a work visa by themselves. Data currently available merely in-

dicates the overall number of Thai professionals and technical workers overseas without specifying their jobs. Likewise, the “other” category shows the number of Thai administrative, executive and managerial workers abroad (Table 4). Therefore, emigration data on Thai medical and IT professionals presented in this study rely mostly on interviews.

It can be concluded that there are not many Thai doctors and nurses going abroad to work and thus such immigration does not affect domestic supply. Most such professionals prefer to work in Thailand because they can be near their family, relatives and friends. Furthermore, remuneration for doctors and nurses in Thailand is quite high, particularly in private hospitals. A new medical graduate working in a rural district may receive a total salary ranging from US\$ 825 (in a typical district) to US\$ 1,379 per month (in a remote district) as shown in Table 5. However, a new graduate in a private hospital in an urban area can earn an income of at least US\$ 1,500 per month (Suwit and Paichit 2003). Thai doctors who work abroad mainly do so to enjoy a better standard of living, a better education for their children, higher income, and opportunities for specialization training. It should be noted that they are likely to work in developed countries such as the United States rather than in Asian countries. Currently, about 1,000 Thai doctors are working in the United States. Recently, there has

also been a trend for Thai nurses to work abroad in countries such as the United States and Canada, with agencies facilitating them in terms of getting overseas licenses. However, language is the main barrier they face.

For the IT sector, it was found that the high-level IT market in Thailand is small, characterized by a limited number of job vacancies and opportunities for career advancement. Moreover, salaries and fringe benefits in Thailand are much lower than they would be

overseas. Table 6 provides salaries and other monetary remuneration for new IT graduates in Thailand's private sector. For this reason, Thai IT professionals prefer to work abroad. In the case of Thai graduates of overseas universities and colleges, they tend to work overseas immediately after graduation without coming back to Thailand because of the considerably higher salaries they can earn overseas. Interviews showed that the salary of new IT graduates in the United States is about five to eight times higher than in Thailand.

Table 4 Number of Thai Workers Overseas by Position, 2001-2004 (Unit: persons)

Position	2001	2002	2003	2004
Professional, technical and related workers	4,072	3,905	4,449	5,005
Administrative, executive and managerial workers	-	1,149	869	988
Clerical and related workers	2,321	756	977	1,155
Sales workers	238	357	324	317
Service workers	14,039	13,264	13,624	14,893
Agricultural, animal husbandry, and forest workers, fisherman and hunters	803	13,246	6,692	12,963
Production and related workers	34,240	13,031	11,759	10,890
Technical workers and transport equipment operators	32,961	66,554	69,980	66,434
Laborers not elsewhere classified	76,373	48,545	39,095	35,951
Total	165,047	160,807	147,769	148,596

Source: TOEA 2005.

Table 5 Remuneration of Ministry of Public Health Doctors, 2002 (Unit: US dollars)

Remuneration	Rate per month	Remarks
Salary (new graduate)	203	Standard salary for PC* 4 level 3
Non-private practice allowance	250	Anyone without a private practice
On-call payment (general)	250-300	US\$ 20 per shift (more than 8 hours)
Payment for special procedures during non-official hours	72-126	Rate depends on number and kind of procedures; provincial hospital doctors usually receive much more, sometime up to US\$ 1,500
Special allowance for rare** specialties	100	e.g., Pathologist
Professional allowance**	90-250	For medical profession PC level 7 and higher
Special allowance for rural district hospital doctors	50-500	US\$ 50-55 for regular districts (532 districts); US\$ 250 for remote districts (127 districts); US\$ 500 for the remotest and most difficult districts (69 districts)

Notes: * PC = Position Classification ** Not for new graduates, Exchange rate: US\$ 1 = 40 baht

Source: Suwit and Paichit 2003.

Table 6 Remuneration of New IT Graduates in Private Sector, 2001 and 2002 (Unit: baht)

Position	Educational Background	2000		2002	
		Salary	Other Income*	Salary	Other Income*
Programmer	Lower vocational	6,930	500	5,000	-
	Upper vocational	7,356	622	7,343	833
	Bachelor's degree	12,578	1,695	11,864	2,078
	Master's degree	21,419	2,451	16,969	1,671
System Analyst	Bachelor's degree	13,798	3,381	11,689	1,501
	Master's degree	18,189	5,355	20,000	-

Note: * monthly pay in the form of money other than salary; for example, professional allowances, position allowances, residential allowances, traveling allowances, commission, etc.

Source: NSO 2002.

2.2 Supply of and Demand for Health-care and IT Professionals

The supply of professional manpower is represented in the flow form of the number of new graduates as well as the stock form of the total number of professionals available in the workforce. Supply and demand projections of medical and IT graduates in the annual incremental flow form of the number of professionals are also provided.

2.2.1 Health Care

Supply

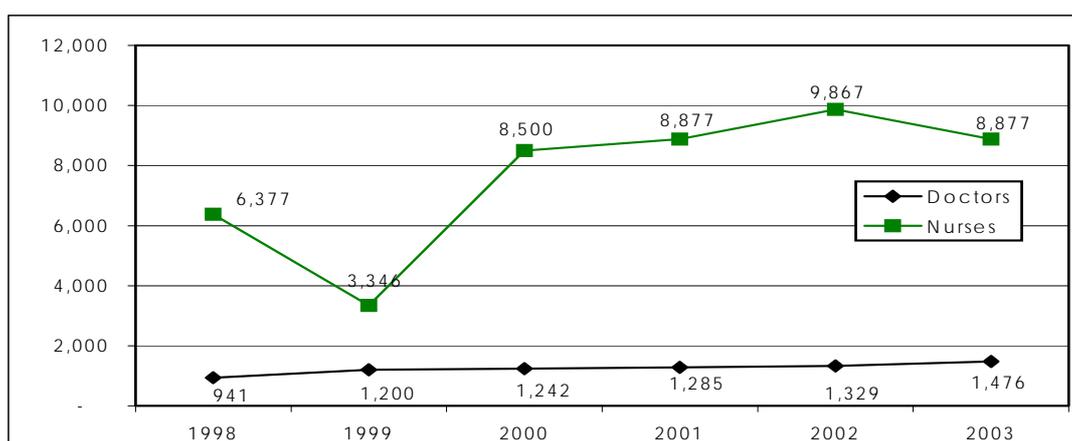
On average, during the past six years there were approximately 1,200 newly licensed doctors. For nurses, new licensees varied from 3,000 to 10,000 persons over the same period (Figure 2). In 2003, there were 28,925 registered doctors and 88,404 registered nurses in Thai-

land (Tables 7 and 8). It is evident that the growth rates are quite constant for both doctors and nurses. Tida et al. (1998) forecast the supply of newly licensed doctors until 2020, indicating that in the next 15 years the number of newly licensed doctors would be about 1,500-1,800 persons per year (Table 9). According to the Seventh Public Health Development Plan, the Ministry of Public Health (MOPH) plans to produce an additional 155,489 registered nurses by the end of 2015 (Table 10).

Demand

Health Systems Research Institute (HSRI) (1997) conducted a study on the domestic demand forecast for medical personnel based on the historical demand for health care from patients. Results show that an additional 50,210 doctors and 142,366 nurses will be needed in 2010. By 2015, there will be a demand for 57,218 doctors, while that for nurses will remain about the same as in 2010 (Table 11).

Figure 2 Number of Newly Registered Doctors and Nurses in Thailand, 1998-2003 (Unit: persons)



Source: Viroj and Anchana 2005.

Table 7 Number of Total Registered Doctors in Thailand, 1994-2003 (Unit: persons)

Year	Total Registered Doctors	Year	Total Registered Doctors
1994	19,489	1999	23,896
1995	20,289	2000	25,038
1996	21,103	2001	26,224
1997	21,845	2002	27,494
1998	22,730	2003	28,925

Source: Viroj and Anchana 2005.

Table 8 Number of Nurses in Thailand, 1996-2003 (Unit: persons)

Year	Registered Nurses	Technical Nurses	Total
1996	54,207	28,608	82,815
1997	56,366	29,865	86,231
1998	63,708	33,864	97,572
1999	68,008	31,543	99,551
2000	70,978	29,465	100,443
2001	78,182	29,859	108,041
2002	85,392	28,015	113,407
2003 p	88,404	23,908	112,312

Note: p = Preliminary

Sources: 1996-2002: MOPH 2005.

2003: MOPH, Bureau of Policy and Strategy. http://203.157.19.191/input_bps.htm (April 2005).

Table 9 Supply Projection of Doctors in Thailand, 2005-2020 (Unit: persons)

Year	Newly Licensed Doctors	Year	Newly Licensed Doctors
2005	1,588	2013	1,795
2006	1,627	2014	1,795
2007	1,700	2015	1,795
2008	1,723	2016	1,795
2009	1,699	2017	1,795
2010	1,728	2018	1,795
2011	1,765	2019	1,795
2012	1,765	2020	1,795

Note: Newly licensed doctors consist of (1) graduates from 13 local public medical schools, (2) new licensees from local private medical schools and (3) new licensees from foreign medical schools.

Source: Adapted from Tida et al. 1998.

Table 10 Incremental Supply of Registered Nurses in Thailand, 1997-2015 (Unit: persons)

Period	Registered Nurses
1997-2001	29,329
2002-2006	44,935
2007-2011	45,125
2012-2015	36,100
Total	155,489

Source: HSRI 1997.

Table 11 Demand Projection for Registered Doctors and Nurses in Thailand, 1995-2015 (Unit: persons)

Year	Estimated Demand		
	Doctors		Registered Nurses*
	Range	Optimum	
1995	31,042-32,197	31,042	
2000	35,364-39,163	36,130	96,979
2005	39,742-46,937	45,398	114,834
2010	44,118-56,971	50,210	142,366
2015	48,477-69,489	57,218	142,366

Note: * Includes demand from MOPH, university departments and the private sector.

Source: HSRI 1997.

2.2.2 Information Technology (IT)

Supply

Current statistics show that, on average, schools and universities in Thailand produced about 3,000 IT personnel annually during the period 1996-1998.

From 1999 onwards, about 6,000 IT personnel were being produced per year, almost double the previous number (Table 12). Without regard to labor quality, TDRI estimates that during the period 2005-2008 the country will be able to produce IT personnel in the range of 7,800-9,200 persons per year (Figure 3).

Table 12 Number of IT Graduates in Thailand, 1996-2001 (Unit: persons)

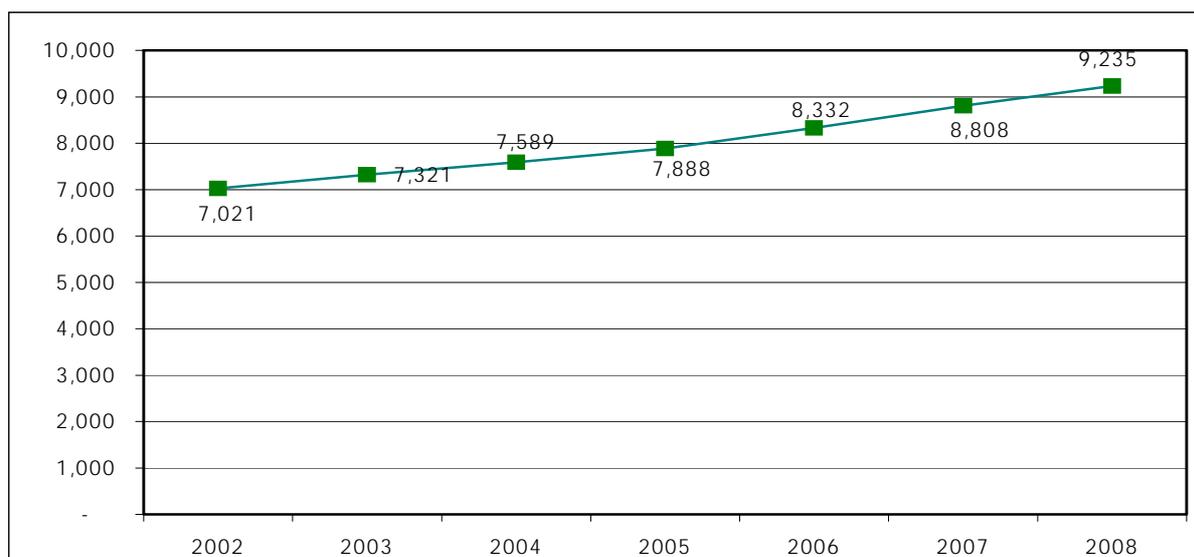
Year	IT Graduates	Year	IT Graduates
1996	2,570	1999	5,168
1997	3,477	2000	6,873
1998	3,951	2001	6,799

Notes: 1996-1999: IT graduates consist of graduates with bachelor's degrees and master's degrees in the fields of computer science and computer engineering.

2000-2001: IT graduates consist of graduates of lower and upper vocational schools, those with bachelor's and master's degrees and above in the fields of computer science, computer engineering and computer technology.

Sources: 1996-1999: Somkiat and Kriengkrai 2001.

2000-2001: Compiled by TDRI (from data bases of Office of the Private Education Commission, Rajamangala University of Technology, Office of the Higher Education Commission, and Office of Vocational Education Commission).

Figure 3 Supply Projection of IT Graduates in Thailand, 2002-2008 (Unit: persons)

Note: IT graduates consist of graduates of lower and upper vocational schools, those with bachelor's and master's degrees and above in the fields of computer science, computer engineering and computer technology.

Source: Estimated by TDRI.

Demand

Owing to the fact that related government bodies, for instance, the Ministry of Information and Communications Technology and the Software Industry Promotion Agency, were established just a few years ago and are mostly in the early stage of building up their database, demand forecast data for the IT sector are not available. Previous literature reviews have made projections of science and technology (S&T) manpower in Thailand. Since they are not IT-specific, comparisons to the supply projections of IT graduates will yield inaccurate outcomes. For this reason, demand projection data will rely primarily on IT experts' opinions. According to interviews, it would seem safe to say that the demand for IT professionals will rapidly increase; the number of IT personnel employed in the domestic market increased about 60 percent in 2004. This growth will be further accelerated by expansion of the IT market as a result of the government's policy to promote the IT sector.

2.3 Analysis of Demand and Supply: Quantity and Quality

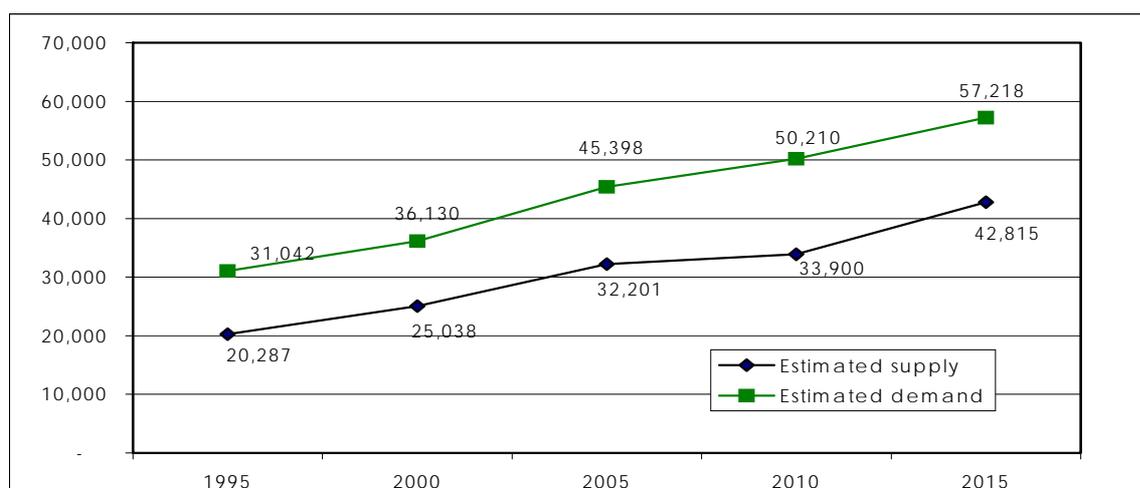
Health Care

It is obvious that Thailand will experience continuously shortages of doctors (Figure 4). In contrast, there will be a surplus of nurses from 2006 onwards. An excess of 67,330 nurses is projected in 2015 (Table 13). Problems with the imbalance between the demand for

and supply of medical professionals can be seen in (1) urban and rural areas and (2) government and private hospitals. The interviews revealed that medical personnel are mainly concentrated in urban areas (e.g., Bangkok, Chiang Mai and Khon Kaen), but are few in rural areas. Doctors assigned to rural district hospitals usually stay for only a short period of time. About half the district hospital doctors were found to be within the first three years of their compulsory contract. This proportion has remained the same for the last two decades (Suwit and Paichit 2003). Besides, there is an emerging trend of medical labor mobility from government hospitals to private hospitals owing to the higher pay they offer. With regard to quality, it was found that Thai medical personnel are well qualified; however, most nurses seem to have problems communicating with foreign patients in the English language.

IT

The interviews revealed that Thailand lacks IT professionals in terms of both quantity and quality, especially at the management level. Almost all IT personnel graduated in Thailand were thought to be unqualified, not meeting the standards or requirements of employers. This is due to the lack of qualified instructors in IT schools and universities in Thailand. For Thais who graduated abroad and are qualified, they tend to work overseas if they get the opportunity. The main reason is the salary differential between overseas (e.g., United States and Singapore) and domestic positions as well as opportunities for career development.

Figure 4 Estimated Demand and Supply of Doctors in Thailand, 1995-2015 (Unit: persons)

Sources: Estimated demand: HSRI 1997; Estimated supply: Tida et al. 1998.

Table 13: Estimated Demand for and Supply of Nurses in Thailand, 2000-2015 (Unit: persons)

Year	Estimated supply	Year	Estimated demand*
2001	83,536	2000	96,979
2006	128,471	2005	114,834
2011	173,596	2010	142,366
2015	209,696	2015	142,366

Note: * Calculated by health service development method.

Sources: Estimated demand: HSRI 1997; Estimated supply: HSRI 1997 and MOPH 2005.

3. GOVERNMENT POLICIES AND REGULATIONS

3.1 Registration and Licensing

Foreign workers who wish to work in Thailand must first contact a Royal Thai Embassy or Consulate in their country to obtain a non-immigrant visa. Employers in Thailand may apply for a work permit for prospective

foreign employees from DOE (Box 1). After the work permit has been granted, foreign workers may enter Thailand to receive the work permit and then start working. Foreigners who are already in Thailand and wish to work can apply for a work permit under the BOI law or other similar commercial laws. They must file an application for a work permit within 30 days of the date they are allowed to work under the relevant law.

Box 1 Department of Employment (DOE): Roles and Functions

DOE is responsible for the employment of foreign workers in Thailand, following the Alien Occupation Act of 1978 (B.E. 2521). It is also in charge of granting work permits to foreign workers. Normally, foreign workers eligible for applying for a work permit must have a non-immigrant visa and are to fill such positions as executives, specialists, experts and consultants (knowledge workers) only. Work permits are valid for a year and therefore needs annual renewal. Currently, the application for and issuance of work permits are conveniently done at a one-stop service center; the process takes only two to three hours. In terms of the number of foreign workers allowed to work in a company, the quota is determined by the registered capital, i.e., two million baht per foreign worker, with the maximum being 10 million baht (five foreign workers). Exceptionally, foreign workers may obtain privileges according to other investment promotion laws, namely, Investment Promotion Act of 1977 (B.E. 2520), Petroleum Act of 1971 (B.E. 2514) and Industrial Estate Authority of Thailand Act of 1979 (B.E. 2522). Foreign workers, who are employed by promoted companies, will find it easier to obtain a work permit, which may be for a period longer than one year, depending on case-by-case negotiations with DOE. Moreover, the number of foreign workers allowed in a company can be more than the usual practice mentioned above.

In addition, foreign doctors need to pass the national licensing examination of the Medical Council of Thailand and obtain a license to practice before they can apply for a work permit. Similarly, foreign nurses are required to take an examination administered by the Thailand Nursing Council and get a license to practice. On the contrary, there is no examination requirement for foreign IT professionals; they have only to comply with the rules of DOE.

Source: Interviews.

For Thai nationals who wish to work abroad, TOEA (2005) specifies that currently there are five legal channels for doing so as follows:

- Through private overseas recruitment agencies
- Through DOE
- Through self-made arrangements for overseas employment
- Through local employers who send their employees to work overseas
- Through local employers who send their staff overseas for training

3.2 Roles of Professional Associations

Health-care Sector

A number of professional medical associations influence the delivery of medical services in Thailand. These include the following:

- The Medical Council of Thailand: the national standard advisory medical body, which maintains registers (accreditation and certification) of physician practitioners.
- Thailand Nursing Council: the national standard advisory medical body, which maintains registers (accreditation and certification) of nurse practitioners.
- MOPH: a government body for overall manpower planning and health promotion.
- HSRI: an independent, non-profit organization, which conducts research and development and integrates it in the policy-making process to improve national health systems.

IT Sector

The main responsibilities of the following professional IT associations are:

- Software Park Thailand (SPT): a government agency under the National Science and Technology Development Agency (NSTDA), its aim is to stimulate the development of the Thai software industry.
- Software Industry Promotion Agency (SIPA): a non-profit organization under the Ministry of Information and Communications Technology, it is responsible for planning and drafting policy for development of the software industry (Box 2).

Box 2 Software Industry Promotion Agency (SIPA): Roles and Functions

SIPA was established in correspondence with the government policy that attempts to promote five strategic industrial clusters in Thailand. SIPA, a small agency employing about 30 staff and 10 committees, is under Ministry of Information and Communications Technology. Its major goal is to help boost the software sector in Thailand. In particular, SIPA tries to promote locally and globally three main areas: enterprise software, animation and digital content (multimedia), and embedded software. SIPA has signed an MOU with BOI and works closely with it in terms of deciding jointly whether or not to promote a company under BOI law. Two main criteria are (1) the technology (software) a company brings in should be needed or in short supply in Thailand and (2) the degree of technology transfer should reach an acceptable level, for example, measured by the ratio between the Thai and foreign staff in the company. A company can apply for software promotion through either SIPA or BOI by submitting a completed application form and attachment of a specific project's details. Approved projects will be granted eight-year corporate income tax exemptions.

In terms of labor mobility facilitation, SIPA encourages foreign investment and the import of IT professionals by granting a one-year certificate that certifies the qualifications of the holder. Criteria for giving a certificate are based on educational background and working experience plus an individual interview. This certificate can additionally be submitted to DOE when applying for a work permit. However, it is not a guarantee of securing it.

Source: Interviews

4. BARRIERS TO THE INTERNATIONAL MOBILITY OF SKILLED MANPOWER

4.1 In-migration

Suwit et al. (2004) found that barriers to the movement of health professionals include requirements for a work permit, visa and limits on length of stay, residency, investment conditions and licensing for practice. This conforms with the results of the interviews in many respects, particularly with regard to obtaining a license. The main obstacle to employing foreign doctors is the difficulty in obtaining a license to practice. In addition to the above factors, it was found that there is almost no domestic demand at all for foreign medical professionals. In other words, the high salaries demanded by

foreign doctors and nurses, compared with that of their Thai counterparts, discourage both private and government hospitals from employing them. Some private hospitals in Thailand claim that their quality of medical services is at about the same world-class standard as would be found in Singapore and the United States.

Unlike the health-care sector, it was found that there are increasing demands for foreign IT professionals, in particular, from international private businesses. Furthermore, laws and regulations for the employment of foreign IT professionals do not require them to take exams. Even though DOE sets a quota on the number of foreign workers that can be employed in a company, it is not a major problem in practice since a company can apply to relevant government agencies, i.e., BOI, the Department of Mineral Resources, or the Industrial Estate Authority of Thailand, to obtain promotional privileges. Nevertheless, it seems that foreign IT professionals are likely to go to other countries such as Singapore where salaries are more competitive than in Thailand.

4.2 Out-migration

With regard to emigration, language naturally is the key barrier faced by Thai professionals since working overseas requires the ability to communicate proficiently in a foreign language, particularly English. This is true, specifically in the case of most nurses and IT personnel, who may be qualified in terms of their professional capabilities but lack the necessary communication skills. Another barrier for Thai IT personnel is the intense competition in the Asian and global markets. Substantial numbers of foreign IT professionals who are technically qualified as well as fluent in English, e.g., Indians, Singaporeans and Filipinos, are available.

5. DISCUSSION AND RECOMMENDATIONS

It is clear from the results of this study that Thailand has experienced shortages of professionals in the health-care and IT sectors. As AFAS is aimed at enhancing cooperation in services among members, the freer movement of professionals as well as consumers is generally expected, generating both positive and negative impacts.

In the case of the health-care sector, there are several possible implications for health-care systems; according to Suwit et al. (2004), these are related mainly to social equity. First, the benefits of cross-border supply, i.e., telemedicine (mode 1), are offset by the infrastructural requirements and the manpower tradeoff versus basic services for the poor. Second, consumption abroad (mode 2) can bring in revenue from foreign patients but it can result in a dual market structure and

more severe maldistribution of health resources. In other words, an influx of foreign patients into private hospitals can attract doctors and nurses from rural and government hospitals to private hospitals, thus widening the salary gap. Third, although a foreign commercial presence (mode 3) can increase the supply of health services within the country and investment in advanced health technology in the private sector, it can lead to a tiered health-care system and increasing inequality of services between urban and rural hospitals. Fourth, while emigration of health-care personnel (mode 4) may create opportunities for developing countries to attract remittances, the “brain drain” effect seriously constraints the development of the national health-care system.

On the other hand, migration of health-care personnel can create a shift in supply; however, the problem of imbalance concerning medical personnel may also continue to exist if they focus on working in private urban hospitals. Such a situation is obvious, particularly when accompanied by government policy that promotes Thailand as the “Medical Hub of Asia.” It is recommended that both monetary and non-monetary incentives could be applied to reduce the gap and motivate medical personnel to stay in rural government hospitals.

In the IT sector, where the barriers posed by regulations for the immigration of foreign personnel are fewer and where social equity is less of a concern, the benefits may outweigh the disadvantages, specifically with regard to know-how and technology transfer (modes 3 and 4). Cross-border supply (mode 1) can also offer alternatives for domestic consumers as well as businesses. Inevitably, it tends to bring about fierce competition in the country. In this respect, sound regulations should be enforced and modified if necessary to control and protect the domestic market, for instance, limitations on the period of stay allowed. It is suggested that education and training should be provided to Thai IT personnel so that they can absorb know-how and innovative technology transfer can take place in order to reduce the degree of dependence on sources abroad. This would lead to the sustainable development of the domestic IT sector in the long run.

ENDNOTES

- ¹ Summarized from the documents of Bureau of Trade in Services Negotiations in Department of Trade Negotiations website (<http://www.dtn.moc.go.th>).
- ² Domestic helpers are defined as those who clean, wash, cook, serve and do other housework in a private household.
- ³ Laborers are defined as those whose work: (1) mainly involves using their hands and physical strength; (2) is unskilled; and (3) does not involve subordinates.

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