

# Labor Force Structure Change and Thai Labor Market, 1990-2008

\*  
Chairat Aemkulwat  
Chulalongkorn University

## Abstract:

The paper analyzes labor force transformation over 1990-2008 in terms of changes in population, education, labor force structure, wages and working hours. Labor force has grown more rapidly than population; as a result, Thailand has benefited from demographic dividend until 2050. Thailand has become a more educated society as share of workers with education secondary or higher went up from 17 percent in 1990 to 25 percent in 2008. Workers changed status from unpaid family workers to private employees, changed industry from agriculture into manufacturing and service sectors, and changed occupation from blue-collar to white-collar occupation. Average wage rate in Thailand increased at the slower rate than GDP; the white-collar workers benefited more than non-agricultural blue-collar workers over 1990-2008. Agricultural and fishery workers, mostly in the own account worker status, in the agriculture industry experienced the largest drop in working hours, while professionals in the manufacturing industry have shown an increase in working hours.

**Keywords:** population, labor force structure, education, wages and working hours

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\* Assistant Professor, Faculty of Economics, Chulalongkorn University; Email: chairat.a@chula.ac.th  
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## 1. Introduction

After two decades over 1990-2008, labor force in Thailand has increased at a faster pace than the population. The population increased 17 percent from 57.4 million in 1990 to 66.5 million in 2008, while the working population raised 20 percent from 31.6 million to 38.3 million in despite of the change in the way that defines persons in labor force from persons 13 years and older to persons 15 years and older.

Over two decades, there has been labor force structure change in Thailand in various aspects. Among employment status, there is a shift from unpaid family workers to private employee status as there are more jobs in the private firms. Among occupations, there is a movement from the blue-collar workers to white-collar workers. Between sectors, there is a migration from the agricultural sector to the non-agricultural sector. In the non-agricultural sector, employment has increased twofold from 10.8 million in 1990 to 19.6 million persons in 2008; the service employment was larger in share than manufacturing employment. In contrast, there is a slight decline in agricultural employment from 18.3 million to 15.9 million persons.

To understand labor market transformation in Thailand over two decades, there are major labor market variables that changes over the period – namely, age profile, education attainment, working hours, and wages. Wages and working hours can be classified by employment status, industry and occupation.<sup>1</sup> The purpose of this study is to study how labor market and its structure have transformed in the past two decades, particularly over 1990-2008. Data are obtained from Labor Force Survey in the third quarter of 1990, 2000 and 2008.<sup>2</sup> Labor market status and education are studied to understand demographic dividend and relationship between industrialization and education. Wage growths and changes in working hours are

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\* Assistant Professor, Faculty of Economics, Chulalongkorn University.

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<sup>1</sup> Employment status includes (1) private employees, (2) government employees, (3) public enterprise (4) employees, (5) own-account workers, (6) unpaid family workers. Formal sector comprises (1)-(3); the informal sector is consisted of (4)-(6). Industry can be divided into 9 industries: (1) agriculture, (2) mining and quarrying, (3) construction, (4) electricity and water supply, (5) manufacturing, (6) wholesale and retail trade, (7) transportation and communication, (8) service, and 9) others. The agriculture sector is (1), manufacturing sector comprises (2)-(5) and the service sector includes (6)-(8). Using International Labor Organization (ILO) standard, occupation can be divided into at least 7 groups: (1) legislators, senior officials and managers, (2) professionals and technicians and associate professionals, (3) Clerks, (4) Service workers and shop and market sales workers, (5) skilled agricultural and fishery workers, (6) skilled and unskilled workers including craft and related trades workers, plant and machine operators and assemblers and elementary occupations, and (7) others. The white-collar occupation includes (1)-(4) and the blue-collar comprises (5) and (6).

<sup>2</sup> Labor Force Survey has been undertaken by the Economic and Social Bureau, National Statistical Office.

studied in terms of employment status, industry and occupation so as to analyze who wins and who loses over time after Thailand began the era of globalization in 1988.<sup>3</sup>

This paper is divided into eight parts. After introduction, part 2 provides labor force at a glance. Part 3 discusses interrelationship among population, labor and demographic dividends; part 4, labor and education Part 5 analyzes labor force structure transformation after two decades. Part 6 and 7 explain differences in wage rates and working hours classified by employment status, industry and occupation. Part 8 concludes.

## 2. Labor Force Status at a Glance

During two decades, labor force has increased at a faster pace than population. Since 1990, population has increased about 8 million persons to 66.5 million in 2008 at the rate of 0.9 percent. At the same time, labor force has increased by 1.1 percent or 6.6 million from 31.7 million in 1990 to 38.3 million persons in 2008.<sup>4</sup>

**Table 1 Population by Labor Force Status in 1990, 2000, and 2008**

Labor Force Status	Percentage			Annual growth rate		
	1990	2000	2008	1990-2000	2000-2008	1990-2008
<b>Total Population (,000)</b>	<b>56,405</b>	<b>62,481</b>	<b>66,512</b>	<b>1.0%</b>	<b>0.8%</b>	<b>0.9%</b>
<b>Total Labor Force</b>	<b>56.3</b>	<b>54.4</b>	<b>57.7</b>	<b>0.7%</b>	<b>1.5%</b>	<b>1.1%</b>
1. Current labour force	55.9	54.1	57.6	0.7%	1.6%	1.1%
1.1 Employed	54.7	52.8	56.9	0.7%	1.7%	1.1%
1.1.1 At work	53.4	51.5	56.5	0.7%	2.0%	1.2%
1.1.2 With job but not at work	1.3	1.3	0.4	0.8%	-14.3%	-6.2%
1.2 Unemployed	1.3	1.3	0.7	1.4%	-7.1%	-2.5%
1.2.1 Looking for work	0.3	0.5	0.1	4.4%	-13.4%	-3.9%
1.2.2 Not looking/available for work	0.9	0.8	0.5	0.1%	-4.6%	-2.1%
2. Seasonally inactive labour force	0.3	0.3	0.1	-2.0%	-12.0%	-6.6%
<b>Persons not in labor force</b>	<b>14.8</b>	<b>23.6</b>	<b>20.9</b>	<b>5.9%</b>	<b>-0.7%</b>	<b>2.9%</b>
1. Household work	3.7	5.6	6.5	5.3%	2.7%	4.1%
2. Studies	5.8	10.0	6.5	6.7%	-4.5%	1.6%
3. Too young /old/incapable of work	4.0	6.2	6.5	5.4%	1.5%	3.7%
4. Others	1.3	1.9	1.4	5.0%	-3.2%	1.3%
<b>Persons too young to work*</b>	<b>28.9</b>	<b>22.0</b>	<b>21.5</b>	<b>-1.7%</b>	<b>0.5%</b>	<b>-0.7%</b>
<b>Unemployment Rate</b>				<b>2.2</b>	<b>2.4</b>	<b>1.2</b>

\*Before 2001, persons too young to work are defined as 13 years old or younger; after 2001, those are 15 years old or younger.

Source: Labor Force Survey 1990, 2000, and 2008

Comparing two decades – 1990-2000 and 2000-2008 – the population has grown at a slower rate than labor. Over 1990-2000, population increased at a faster rate than labor, but over 2000-2008, labor increased at the faster rate than population.

<sup>3</sup> 1988 was the year when globalization has begun in Thailand. One indicator has been high net flow of foreign investment. (Bhula-or, 2007)

<sup>4</sup> Thailand is projected to have the lowest annual labor force growth over 2000-10 in selected Southeast Asians (Bauer, 1990). The growth in labor force for Thailand is 1 percent, while growth rates for Indonesia, Malaysia, and Philippines are 1.68, 2.58, and 2.64, respectively. The labor force growth rate for Japan is -0.35 percent.

During 1990-2000, the population growth rate was 1.0 percent; during 2000-08, the rate dropped to 0.8 percent. In contrast, the labor force growth rate was 0.7 percent slower than population over 1990-2000 and increased to 1.5 percent during 2000-08.

Out of 100 persons, labor force has increased from 56.3 persons in 1990 to 57.7 persons in 2008 and unemployment rate was 2.2 percent and dropped to 1.2 percent.<sup>5</sup> Persons not in labor force such as housewives, students and old people has increased from 14.8 persons out 100 persons in 1990 to 20.9 persons in 2008. Persons too young to work have dropped dramatically from 28.9 persons in 1990 to 22.0 persons in 2000 and to 21.5 persons in 2008. The sharp drop of persons too young to work of 1.7 percent occurred over 1990-2000 due to lower fertility and mortality rates, despite the same definition applied for persons too young to work or persons who are 13 years or younger. Over 2000-2008, the definition changed to persons who are 15 years old or younger. Persons too young to work reduced further to 21.5 persons out of 100 persons at the positive growth rate of 0.5 percent.

### 3. Population and Labor

Over the past two decades, total population each year has increased continuously at an increasing rate of 1.0 percent over 1990-2000 and of 0.8 percent over 2000-2008. Nevertheless, there have been changes in population structure, especially of the young and the old. The children population aged less than 15 has been declined from a third of the population to a one-fourth of the population. The elderly population aged 60 and over has been increased from 6.1 percent in 1990 to 11.2 percent of the population in 2008.

Although the elderly population has increased to more than 11 percent in 2008, working population aged between 15 years old to 60 years old has increased continuously from 58 percent in 1990 to 67 percent in 2008, resulting in a reduction of age dependency ratio from 0.65 to 0.48.<sup>6</sup> Amidst increasing working population over the two decades, there have been changes in the age structure of the population. In 1990, the biggest age group was population aged between 10-14 comprising 12.4 percent of the population. In 2000, the largest age group was population between 20-24 age groups comprising 9.3 percent of the population. In 2008, the top group was population aged between 10-14 comprising 8.8 percent of the population. Although age groups of children population were largest in 1990 and 2000, these groups were less dominant in 2008. Over 1990-2008, the growth rates of young population aged 0-24 were negative, but the growth rates of age groups of the old population aged 65-75 were more than 4 percent; population aged 76 and over were higher than 5 percent. Population in Thailand has been getting old over this period. The median age was projected to increase from 29.4 in 1990 to 36.3 in 2010 (Bauer, 1992)

Figure 1 shows the percentage of population in labor force. Over 1990-2008, population aged 15-24 in labor force declined dramatically and population aged 65 and over increased slightly. More than 80 percent of population aged 25-55 participated in the labor market. The population aged 34-39 was the age group with highest labor force participation; in 1990, the share was 89.0 percent in 1990 and

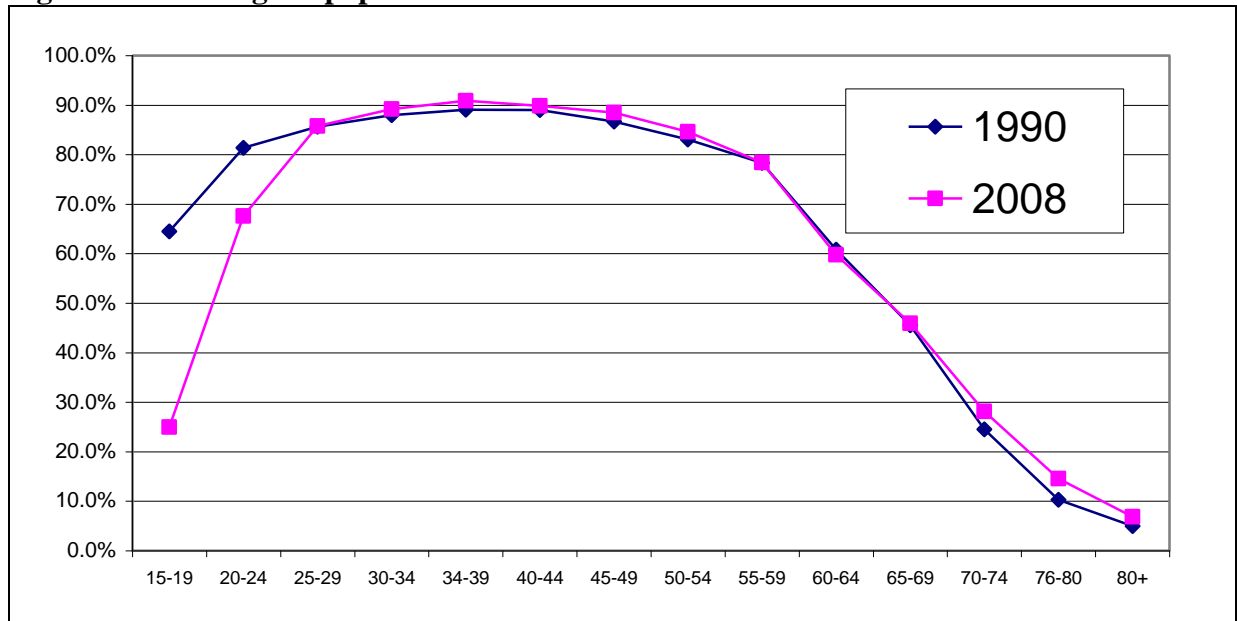
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<sup>5</sup> Unemployment rate is defined as unemployed persons divided by the total labor force. The percentage of unemployed in Table 1 is defined by dividing unemployed in (1.1) by the total population.

<sup>6</sup> Age dependency ratio is the ratio between individuals aged less than 15 and those aged 60 and over to individuals aged 16-59.

increased slightly to 90.9 percent in 2008. Population aged 15-19 declined in employment from 64.5 percent in 1990 to 25.0 percent in 2008 and population aged 20-24 decreased in participation from 81.4 percent to 67.6 percent because more population aged 15-24 were in school. Labor force participation for population 65-69 was 45.9 percent in both years, but that for population for 70 and over was up. Population aged 70-74 increased from 24.5 percent to 28.2 percent, aged 76-80 increased from 24.5 to 28.2 percent, and aged 80 and over increased from 5.0 to 6.8 percent.<sup>7</sup>

**Figure 1 Percentage of population in the Labor Force in 1990 and 2008.**



Source: Labor Force Survey 1990 and 2008

At the current population structure, Thailand has benefited from demographic dividends. Thailand is at an immediate stage of the demographic transition from an agrarian society with high fertility and mortality rates to an industrial society with low fertility and mortality rates (Lee and Mason, 2008). At this stage, fertility begins to decline and share of the working population labor increases. Thailand has an opportunity to benefit from this “first” demographic dividends since people produce more than consume between the ages 26 and 59 year old<sup>8</sup>, contributing to economic growth. In Table 2, the share of working population in Thailand has increased from 61 in 1990 to 67 percent in 2008. This upward trend of the working population is expected to continue until 2020 to 69.9 percent, and trend will change to a downward trend to 60.4 percent in 2043 (Wongboonsin, et al., 2003). Thus, Thailand is expected to benefit from the first demographic dividends until 2020.<sup>9</sup>

After Thailand adopted formal population policy in 1970 specified in the third economic and social developmental plan,<sup>10</sup> total fertility rate has been dropped from

<sup>7</sup> The number of non-working elderly aged 65 and older per 100 persons in the labor force in Thailand is projected to increase from 6 to 10 persons (Bauer, 1990).

<sup>8</sup> A Thai person has 33 years to build the dividend.

<sup>9</sup> Wongboonsin (2003) argued that demographic dividends will continue until at least 2009 when share of working population peaks at 67 percent and then will decline to 62 percent in 2025.

<sup>10</sup> The third plan was from 1967 to 1971. In 1970, the population was 34.4 million people.

6.6 persons during 1950 to 1.9-2.1 persons during 1990-2045, and life expectancy has increased from 47 years in 1950 to 73.1 and 77.4 in 2009 and 2045, respectively.<sup>11</sup> (Wongboonsin, et al., 2003). This reflected in Table 2 since the number of children had been decreasing at the rate of 1.5 percent and population aged 60 and over had been increasing at the rate of 4.4 percent over 1990-2008. During the end of immediate phase of demographic transition in 2005 until the late phase in 2050, Thailand would experience the “second” demographic dividends.<sup>12</sup> The second dividend arises from increased capital accumulation of population aged 40-60 and is expected to be larger than the first. Nevertheless, the size of the second dividend depends on how government supports the welfare system towards the old and the young in Thailand.

**Table 2 Distribution of Population by Age Group**

Age Group	Number			Percentage			Annual growth rate		
	1990	2000	2008	1990	2000	2008	1990-2000	2000-2008	1990-2008
0-4	5,076,530	4,734,886	3,889,548	9.0	7.6	5.8	-0.7%	-2.4%	-1.5%
5-9	6,735,928	5,526,558	4,501,518	11.9	8.8	6.8	-2.0%	-2.5%	-2.2%
10-14	6,983,767	5,703,051	5,883,168	12.4	9.1	8.8	-2.0%	0.4%	-0.9%
15-19	6,156,212	5,675,132	5,269,041	10.9	9.1	7.9	-0.8%	-0.9%	-0.9%
20-24	6,010,788	5,791,841	5,253,792	10.7	9.3	7.9	-0.4%	-1.2%	-0.7%
25-29	5,185,690	5,658,535	5,335,339	9.2	9.1	8.0	0.9%	-0.7%	0.2%
30-34	4,462,735	5,310,529	5,421,748	7.9	8.5	8.2	1.8%	0.3%	1.1%
34-39	3,646,728	4,878,925	5,567,469	6.5	7.8	8.4	3.0%	1.7%	2.4%
40-44	2,794,700	4,453,371	5,496,545	5.0	7.1	8.3	4.8%	2.7%	3.8%
45-49	2,244,824	3,735,199	5,014,951	4.0	6.0	7.5	5.2%	3.8%	4.6%
50-54	2,035,446	3,045,903	4,172,908	3.6	4.9	6.3	4.1%	4.0%	4.1%
55-59	1,644,862	2,224,818	3,289,185	2.9	3.6	4.9	3.1%	5.0%	3.9%
60-64	1,244,191	1,931,832	2,260,229	2.2	3.1	3.4	4.5%	2.0%	3.4%
65-69	805,509	1,475,757	1,704,720	1.4	2.4	2.6	6.2%	1.8%	4.3%
70-74	623,261	1,126,651	1,479,029	1.1	1.8	2.2	6.1%	3.5%	4.9%
76-80	451,832	701,385	1,184,251	0.8	1.1	1.8	4.5%	6.8%	5.5%
80+	302,033	507,078	788,225	0.5	0.8	1.2	5.3%	5.7%	5.5%
Total	56,405,036	62,481,450	66,511,667	100	100	100	1.0%	0.8%	0.9%

Source: Labor Force Survey 1990, 2000, and 2008

#### 4. Labor Force and Education

Two decades over 1990-2008 have shown that Thailand has become a more educated society. Labor share with education upper secondary or higher went up from 17 percent in 1990 to 25 percent in 2008, while labor with education elementary or lower went down from 68 percent to 57 percent. Comparing growth rates of different education levels, workers with less than elementary level had a negative

<sup>11</sup> McDonald and Kippen (2001) concluded that comparing with other 16 developed countries, Thailand and Korea have moderate fertility, low immigration and high labor force participation and labor force will grow from 35 million in 2000 to 41 million in 2015. Therefore, Thailand and Korea have much younger age structure than other countries.

<sup>12</sup> Wongboonsin (2007) found that Singapore, Thailand and Vietnam are the group of ASEAN countries with the shortest remaining period of dividend, no later than 2015.

growth rate, while other groups had positive growth rates; particularly, workers with upper secondary had the highest growth rate of 3.8 percent.

For workers having education lower secondary or lower, the share of workers with less than elementary level was largest; it comprised 43 percent in 1990 and reduced to 31 percent in 2008 at the negative growth rate of 0.6 percent over 1990-2008. Workers with no education, the lowest group, were down from 3.5 percent to 2.9. Workers with elementary education, the second largest group, were up from 21.4 percent to 23 percent at the rate of 1.8 percent. Workers having lower secondary education increased at 2.3 percent with share rising from 13.0 to 15 percent.

**Table 3 Education Attainment of Total Labor Force**

Levels	Number			Percentage			Growth Rate		
	1990	2000	2008	1990	2000	2008	1990-2000	2000-2008	1990-2008
None	1,054	1,129	1,106	3.5	3.4	2.9	0.7%	-0.3%	0.3%
Less than Elementary	13,017	14,261	11,783	42.8	43.2	31.1	0.9%	-3.1%	-0.6%
Elementary	6,514	7,188	8,689	21.4	21.8	23.0	1.0%	3.2%	1.8%
Lower Secondary	3,971	4,184	5,708	13.0	12.7	15.1	0.5%	5.3%	2.3%
Upper Secondary	2,612	2,833	4,775	8.6	8.6	12.6	0.8%	9.1%	3.8%
- General/Academic	1,660	1,844	3,565	5.5	5.6	9.4	1.1%	11.6%	4.9%
- Vocational	952	990	1,210	3.1	3.0	3.2	0.4%	3.4%	1.5%
Higher Level	3,264	2,769	4,845	8.6	8.4	12.8	-1.6%	9.8%	2.5%
- General/Academic	1,745	1,847	3,104	5.7	5.6	8.2	0.6%	9.0%	3.7%
- Vocational	885	922	1,741	2.9	2.8	4.6	0.4%	11.2%	4.3%
- Teacher Training	634	625	774	2.1	1.9	2.0	-0.1%	3.6%	1.3%
<b>Total Labor Force</b>	<b>31,750</b>	<b>33,973</b>	<b>38,345</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>0.7%</b>	<b>1.5%</b>	<b>1.1%</b>

Source: Labor Force Survey 1990, 2000, and 2008

For workers with education upper secondary or higher, the share of workers with upper secondary education went up 3.8 percent from share of 8.6 percent to 12.6 percent and that with tertiary level increased 2.5 percent from 8.6 percent to 12.8 percent. There were two main reasons why there has been an increase in workers with secondary education or higher. First, Thailand needs more educated workers as she has become more industrialized where workers shifted from agricultural sector to manufacturing and service sectors and from the informal sector to formal sector<sup>13</sup> For instance, 88.4 percent of those with university education sector and 63.2 percent of those with vocation education worked in the formal sector, but only 6.6 percent of those with elementary education worked in the formal sector (Sussangkarn, 1990) Second, the compulsory education was increased from seven year to 9 years in 2002. Moreover all individuals had rights to receive free basic education for at least 12 years from elementary to high school, specified in the National Education Act of 1999, and extended to 15 years in 2009 from kindergarten to high school under Prime Minister Abhisit Vejjajiva administration.

In Thailand, the number of workers with vocation school increased from 1.8 million in 1990 to 3.0 million in 2008 at the rate of 3.0 percent. The workers with tertiary vocational school have grown at much faster rate than workers with secondary

<sup>13</sup> The formal sector includes private employee, government employee and public enterprise employee. The informal sector comprises employer, own account worker and unpaid family worker.

vocational school. In 2008, the share of workers with vocational education was only 7.8 percent of the work force,<sup>14</sup> while the manufacturing share of GDP was as high as 48 percent. The current educational structure of labor force may not suit employers in the manufacturing sector that demand more workers with technical skills from vocational school than those with bachelor's degrees. (Wongboonsin, 2004) Moreover, the desirable labor force is the skill-based workforce; that is, workers have good basic knowledge and ability to self-learning, specialize in certain field, are able to read and write clearly.

The share of workers with higher than secondary level has increased from 8.6 percent to 12.8 percent, growing at the rate of 2.5 percent. Graduates tended to be in the fields other than science and technology as Thai education system has been accused as giving less importance to the field of science and technology.<sup>15</sup> As a result, Thailand produced engineers and scientists with education higher than the secondary level less than half of the need of the labor market. (Asian Development Bank, 1998) When compared with other Asian developing countries, Thai students were in the field science and technology less than Bangladesh and India.<sup>16</sup>

## 5. Labor Force Structure Transformation

In this part, the paper studies the labor force structure transformation classified by employment status, industry and occupation.

*Employment Status* Over 1990-2008, there was the labor movement from the unpaid family worker status to the private employee status. In 1990, the share of private employee was 22.9 percent and increased to 34.6 percent in 2008 at the growth rate of 3.6 percent, while the share of unpaid family worker was reduced from 39.6 percent to 22.1 percent, the only work status having a negative growth rate of 2.0 percent. Employer increased the most at 5.4 percent with share of 2.6 percent in 2008, while government employee raised 3.8 percent with share of 7.9 percent. Own Account worker – primarily agriculturists – increased 1.5 percent with share of 31.7 percent. Public enterprise employee with share of 1 person has the lowest positive growth rate of 1.1 percent. The migration among employment statuses over 1990-2008 is in line with the migration between the formal sector and the informal sector as Thailand industrializes. Over 1990-2008, the formal sector consisting of the public sector and large private firms had become more dominant sector increasing from 29 percent to 44 percent while the informal sector such as unpaid family member and own account workers reduced from 71 percent to 56 percent.

*Industry* Workers migrated from agriculture sector to the manufacturing and service sectors. Agricultural share of employment reduced from 63 percent in 1990 to

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<sup>14</sup> Government has put less importance to vocational education as it has high percentage of private sector provision. Private sector provision was 37 percent of secondary vocational and 33 percent of tertiary vocational institutions (Office of the National Education Commission, 2000, p 70.).

<sup>15</sup> Because of the mismatch, there was underemployment. Tirasawat et al. (2003) found that out of currently employed workers, education-related underemployed workers were as high as 8.39 percent in 1996 and increased to 12.81 percent in 2000. The underemployed were younger and better educated and earned a much higher average monthly income than those in other types of the labor force.

<sup>16</sup> In China and Korea, students in science and applied fields are about 40-45 of all college students. Thai and Nepal are countries with lowest proportions of students in these areas. Moreover, Thailand, one of the lowest spenders in R&D, has the number of R&D scientists and technicians per capita as low as lower income Asian developing countries in the South Asia and even lower than Vietnam. (Asian Development Bank, 1998)



42 percent in 2008 at the rate of negative 0.9 percent over the period. Manufacturing share increased from 14 percent to 20 percent at the rate of 3.6 percent. Service had the larger employment share increased from 23 percent in 1990 to 33 percent in 2008 with the growth rate of 3.9 percent. Within the manufacturing sector, the most important industry was manufacturing employing 14 employees out of 100 in 2008 and grew at 3.4 percent over 1990-2000. Construction was another industry growing at 4.4 percent with share of 5 percent in 2008. In another two industries, mining and quarrying and electricity and water supply, each had share less than 1 percent. In the service sector, the most important sector was wholesale and retail trade with share of 16 percent increasing at the rate of 4.6 percent over 1990-2008. Services such as education and real estate, renting and business activities increased at 3.5 percent and had share of 14 percent. Transportation and communication had share of 3 percent in 2008 growing at the rate of 2.5 percent annually.

**Table 4 Percentage of Distribution of Employment by Work Status**

Work Status	Percentage			Annual growth rate		
	1990	2000	2008	1990-2000	2000-2008	1990-2008
Private employee	22.9	32.1	34.6	4.4%	2.6%	<b>3.6%</b>
Government employee	5.1	7.1	7.9	4.4%	3.0%	<b>3.8%</b>
Employer	1.3	3.3	2.6	11.3%	-1.4%	<b>5.4%</b>
Own Account worker	30.1	29.8	31.7	0.8%	2.4%	<b>1.5%</b>
Unpaid family worker	39.6	26.5	22.1	-3.0%	-0.6%	<b>-2.0%</b>
Public Enterprise Employee	1.0	1.1	1.01	1.6%	0.5%	<b>1.1%</b>
<b>Total Labor Force (,000)</b>	<b>31,750</b>	<b>33,973</b>	<b>38,345</b>	<b>0.7%</b>	<b>1.5%</b>	<b>1.1%</b>

Source: Labor Force Survey 1990, 2000, and 2008

**Table 5 Percentage Distribution of Employment by Industry**

Industry	Percentage			Annual growth rate		
	1990	2000	2008	1990-2000	2000-2008	1990-1998
<b>Agriculture</b>	<b>62.9</b>	<b>47.8</b>	<b>42.4</b>	<b>-1.8%</b>	<b>0.7%</b>	<b>-0.9%</b>
1.Agriculture	62.9	47.75	42.44	-1.8%	0.7%	-0.9%
<b>Manufacturing</b>	<b>14.4</b>	<b>19.4</b>	<b>19.5</b>	<b>4.0%</b>	<b>2.8%</b>	<b>3.6%</b>
2.Mining and Quarrying	0.2	0.12	0.14	-3.3%	5.7%	-0.0%
3.Construction	3.4	3.93	5.27	2.4%	7.9%	4.4%
4.Electricity and water supply	0.4	0.54	0.27	4.8%	-8.2%	-0.3%
5.Manufacturing	10.4	14.82	13.84	4.5%	1.5%	3.4%
<b>Service</b>	<b>22.7</b>	<b>32.8</b>	<b>32.6</b>	<b>4.7%</b>	<b>2.6%</b>	<b>3.9%</b>
6.Wholesale and retail trade	10.0	14.84	15.99	5.0%	4.0%	4.6%
7.Transportation and communication	2.5	2.93	2.87	2.6%	2.3%	2.5%
8.Service	10.2	15.04	13.73	4.9%	1.2%	3.5%
9.Others	0.1	0.03	5.44	-7.2%	141.6%	32.9%
<b>Total Labor Force (,000)</b>	<b>31,750</b>	<b>33,973</b>	<b>38,345</b>	<b>0.7%</b>	<b>1.5%</b>	<b>1.1%</b>

Source: Labor Force Survey 1990, 2000, and 2008

Over two decades, the share of export to GDP has increased from 26 percent in 1990 to 64 percent in 2008. Thailand has moved from classic primary export dependence where there was a restricted expansion of manufacturing employment of only 14 percent of the labor force in 1990 to export-lead industrialization where there was a greater use of labor in manufacturing of 19.5 percent in 2008. Fiala (1992)

argued that this pattern of development is more beneficial to economic development than classic primary export dependence and dependent development<sup>17</sup> Nevertheless, even though Thailand exports about more than half of its GDP, it is very interesting that Thailand has a larger service sector than manufacturing sector.<sup>18</sup> The changes in industrial structure in Thailand were somewhat similar to those in Japan. Over 1920-70, in Japan the decline of agriculture has lead directly to the expansion of services. The employment in the manufacture peaked around one-third of the total labor force (Singelmann, 1978). Over 1947-2008, Thailand has also experienced a drastic decline in agricultural employment from 84.8 percent in 1947 to 42.4 percent in 2008, a rapid rise in service employment from 12 percent to 33 percent, and an increase in manufacturing employment from 2.4 percent to 20 percent (Nitungkorn, 1985). In 2008, the service employment share is 8 percentage points higher than manufacturing employment share.

**Table 6 Percentage Distribution of Production and Employment by Industry**

Industry	1990	2000	2008	1990		2000		2008	
				Emp.	GDP	Emp.	GDP	Emp.	GDP
<b>Agriculture</b>	<b>0.38</b>	<b>0.22</b>	<b>0.21</b>	<b>62.9</b>	23.9	<b>47.8</b>	10.3	<b>42.4</b>	8.8
1.Agriculture	0.38	0.22	0.21	62.9	23.9	47.8	10.3	42.4	8.8
<b>Manufacturing</b>	<b>2.32</b>	<b>2.28</b>	<b>2.46</b>	<b>14.4</b>	<b>33.3</b>	<b>19.4</b>	<b>44.4</b>	<b>19.5</b>	<b>48.0</b>
2.Mining and Quarrying	7.63	17.70	15.34	0.2	1.4	0.1	2.1	0.1	2.2
3.Construction	0.63	0.65	0.64	3.4	2.1	3.9	2.5	5.3	3.4
4.Electricity and water supply	14.23	6.02	7.96	0.4	5.3	0.5	3.2	0.3	2.2
5.Manufacturing	2.35	2.46	2.91	10.4	24.5	14.8	36.4	13.8	40.2
<b>Service</b>	<b>1.89</b>	<b>1.38</b>	<b>1.33</b>	<b>22.7</b>	<b>42.8</b>	<b>32.8</b>	<b>45.3</b>	<b>32.6</b>	<b>43.2</b>
6.Wholesale and retail trade	0.66	1.06	0.62	10.0	6.6	14.8	15.8	16.0	9.9
7.Transportation and communication	6.18	3.30	4.78	2.5	15.3	2.9	9.7	2.9	13.7
8.Service	1.78	1.10	1.20	10.2	18.1	15.0	16.5	13.7	16.4
9.Others	37.01	105.59	0.59	0.1	2.7	0.0	3.4	5.4	3.2
<b>Total</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: Labor Force Survey 1990, 2000, and 2008

Table 6 provides the ratio of share of employment to the share of industry or sector in GDP in Thailand. The ratio indicates the difference between the value added per head in various sectors and industries. The ratio of share of employment to the share of agriculture was worse over 1990-1998.<sup>19</sup> It went down from 0.38 to 0.21 per

<sup>17</sup> Dependent development is the pattern of economic development using import-substitution-oriented strategy characterized by capital-intensive industrialization collaborating among the state, the elite and multinational corporations. The manufacturing employment tends to be low. (Fiala, 1992)

<sup>18</sup> In the course of economic development, there will be the movement of labor from the agriculture to manufacturing and subsequently, the shift from manufacture to service. These changes in the industry structure were first studied by Fisher (1935) and Clark (1940). In studying seven industrialized countries including the United States, Canada, England, Germany, France, Italy and Japan, Singlemenn (1978) argued that the changes in the industry structure according to Fisher-Clark thesis only occurred in Europe. Oshima (1971) pointed out that a decline in agricultural employment can result in a direct increase in the service employment, and it is not always followed by an increase in manufacturing employment.

<sup>19</sup> Sussangkarn (1990) provided explanation why the ratio in the agricultural sector has been very low. It is partly due to the high proportion of agriculturists who are owner cultivators in Thailand.

head in agriculture because the employment declines from 62.9 percent in 1990 to 42.4 percent in 2008 and agriculture share in GDP went down more rapidly from 23.9 to 8.8 percent. The ratios in the service sector also went down from 1.89 to 1.33 since the service share in GDP was in the small range of 43-45 percent, but employment increased from 23 percent in 1990 to 33 percent in 2008. Within the service sector, all three industries – wholesale and retail trade, transportation and communication and service – were shown to have lower value added per head. In contrast, the ratio in the manufacturing sector increased from 2.32 in 1990 to 2.46 in 2008 because the share of GDP increased at the faster rate than the share of employment. Over 1990-2008, the share of GDP increased from 33.3 percent in 1990 to 48 percent in 2008 and the share of employment raised from 14.4 percent to 19.5 percent. Within manufacturing the value added per head in increased in all industries except electricity and water supply; that is, mining and quarrying increased from 2.32 to 2.46, construction increased from 0.63 to 0.64 and manufacturing increased from 2.35 to 2.91. The value added per head in electricity and water supply declined from 14.23 to 7.96.

**Table 7 Percentage of Distribution of Employment by Occupation**

	Percentage			Annual growth rate		
	1990	2000	2008	1990-2000	2000-2008	1990-2008
<b>White-collar workers</b>	<b>20.0</b>	<b>28.9</b>	<b>31.0</b>	<b>4.7%</b>	<b>3.9%</b>	<b>4.4%</b>
<b>White-collar high-skilled workers</b>	<b>4.3</b>	<b>6.9</b>	<b>10.8</b>	<b>5.8%</b>	<b>10.5%</b>	<b>7.6%</b>
1. Legislators, senior officials and managers	1.5	2.9	2.6	7.7%	1.3%	5.2%
2. Professionals	2.8	4.1	8.1	4.7%	15.2%	8.5%
<b>White-collar low-skilled workers</b>	<b>15.7</b>	<b>21.9</b>	<b>20.2</b>	<b>4.4%</b>	<b>1.3%</b>	<b>3.2%</b>
3. Clerks	3.0	3.6	3.8	2.7%	3.8%	3.1%
4. Service workers and sales workers	12.7	18.4	16.4	4.7%	0.8%	3.2%
<b>Blue-collar workers</b>	<b>79.3</b>	<b>68.6</b>	<b>68.9</b>	<b>-0.5%</b>	<b>2.8%</b>	<b>0.7%</b>
5. Agricultural and fishery workers	62.9	48.0	39.3	-1.8%	-0.7%	-1.4%
6. Skilled and unskilled workers	16.4	20.7	29.7	3.3%	9.1%	5.4%
7. Unknown (missing)	0.7	2.5	0.1	14.2%	-41.1%	-10.9%
<b>Total Labor Force (,000)</b>	<b>31,750</b>	<b>33,973</b>	<b>38,345</b>	<b>0.7%</b>	<b>1.5%</b>	<b>1.1%</b>

Source: Labor Force Survey 1990, 2000, and 2008

*Occupation* Occupation can be divided into white-collar and blue-collar workers. The share of white-collar workers increased from 20 percent in 1990 to 31 percent in 2008 at the growth rate of 4.4 percent while that of blue-collar was down from 79 percent to 69 percent grown at the rate of 0.7 percent. White-collar workers were divided into high-skilled workers and low-skilled workers. For high-skilled workers, legislators, senior officials and managers increased from 2 percent to 3 percent at the rate of 5.2 percent as professionals such as technicians and professors grew at rate of 8.5 percent with share increasing from 2.8 percent to 8.1 percent. For white-collar low skill, clerks increased from 3.0 to 3.8 percent as service workers and shop and market sales workers raised from 12.7 to 16.4 percent, both grown at approximately 3.2 percent. Blue-collar workers in Thailand grew at 0.7 percent annually over 1990-2008. There is an obvious shift from agricultural and fishery

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Moreover, about 30 percent of private land in Thailand has no formal legal document. Thus, it would be costly for them to abandon the land.

workers to skilled and unskilled workers primarily in manufacturing.<sup>20</sup> The share of agricultural and fishery workers went down from 63 to 39 percent at the annual growth rate of negative 1.4 percent while that of skilled and unskilled workers increased from 16 to 30 percent at a high growth rate of 5.4 percent.

## 6. Wage Growth

Over 1990-2008, the average wage grew at a very slow pace of 2.1 percent annually, much lower than the economic growth of 4.6 percent.<sup>21</sup> Minimum wage<sup>22</sup> was much worse increasing only 1.4 percent annually. In constant 2008 price, the average wage rate increased from 6,156 baht in 1990 to 9,020 baht in 2008, and minimum wage per month increased from 3,298 to 4,268 baht.<sup>23</sup> Comparing two decades, the economic growth over 2000-2008 was higher than that in 1990-2000, but the growth in average wage rate of 2.7 percent and the growth in minimum wage of 1.4 percent in the latter period were much slower than those of 2.8 percent and -0.2 percent in the former period.<sup>24</sup> Average wage rate is studied in the aspects of employment status, industry and occupation.

**Table 8 Monthly Wage Rate by Employment Status at Constant 2008 Price**

Work Status	Monthly Wages			Annual growth rate		
	1990	2000	2008	1990-2000	2000-2008	1990-2008
Private employee	4,811	6,506	7,449	3.1%	1.7%	2.5%
Government employee	10,400	12,079	14,065	1.5%	1.9%	1.7%
Public Enterprise Employee	14,986	20,644	22,449	3.3%	1.1%	2.3%
<b>Average wage rate</b>	<b>6,156</b>	<b>8,063</b>	<b>9,020</b>	<b>2.7%</b>	<b>1.4%</b>	<b>2.1%</b>
<b>GDP at 2008 price (million)</b>	<b>4,073</b>	<b>6,276</b>	<b>9,105</b>	<b>4.4%</b>	<b>4.8%</b>	<b>4.6%</b>
<b>Consumer Price Index</b>	<b>50.7</b>	<b>82.2</b>	<b>100</b>	<b>5.0%</b>	<b>2.5%</b>	<b>3.8%</b>
<b>Minimum Wage (day)</b>	<b>3,298</b>	<b>4,336</b>	<b>4,268</b>	<b>2.8%</b>	<b>-0.2%</b>	<b>1.4%</b>

Source: Labor Force Survey 1990, 2000, and 2008

*Employment Status* Private employee enjoyed a highest rise in the average wage rate over 1990-2008. In 2008, the average rate of private employees was 7,449

<sup>20</sup> Skilled and unskilled workers include craft and related trades workers, plant and machine operators and assemblers and elementary occupation.

<sup>21</sup> It is not unusual that real GDP grows much more rapidly than real wage. For example over 1980-1990, the growths in real GDP in the US and Japan were 3.3 and 3.9 percent, but the growths in total real compensation using CPI were 0.4 and 2.2 percent, respectively. Over 1991-1995, economic growths were 2.5 and 1.5, but real wage growths were 0.2 and 0.2; over 1996-2000, economic growths were 4.1 and 1.0, but real wage growth were 2.2 and -1.9; over 2001-2006, economic growths were 2.4 and 1.5, but real wage growths are 0.7 and -0.4 percent (Salvatore, 2008)

<sup>22</sup> The minimum wage system was first applied in Thailand with the promulgation of revolutionary party decree number 103, date March 16, 1972.

<sup>23</sup> The monthly rate is defined as minimum wage per day times 22 days. For example, in 2008, the minimum wage was 194 baht per day in the urban area including Bangkok, Nakhon Pathom, Nonthaburi, and Samut Prakan.

<sup>24</sup> Phisayaboot, et al. (1999) studied the minimum wage rate in 1999 and found that for unskilled labor, more than half had elementary education, 19 percent employed in retail and wholesale and construction. About 61 percent of unskilled workers reported that income received from work was sufficient for living, 24 percent reported that living with income received was difficult and 8 percent reported that living with income received from work was very difficult.

baht, an increased of 2.5 percent over the period and that of public enterprise employee was 22,449, a rise of 2.5 percent while that of government employee was 14,065 baht, a rise of 1.7 percent.<sup>25</sup> It is notable that private employee earned only half of the government employee's wage rate and one-third of the public enterprise employee' wage rate.

**Table 9 Monthly Wage Rates by Industry at Constant 2008 Price**

Industry	Monthly Wages			Annual Growth Rate		
	1990	2000	2008	1990-2000	2000-2008	1990-2008
<b>Agriculture</b>	<b>2,339</b>	<b>3,523</b>	<b>4,315</b>	<b>4.2%</b>	<b>2.6%</b>	<b>3.5%</b>
1.Agriculture	2,339	3,523	4,315	4.2%	2.6%	3.5%
<b>Manufacturing</b>	<b>5,737</b>	<b>7,392</b>	<b>8,838</b>	<b>2.6%</b>	<b>2.3%</b>	<b>2.4%</b>
2.Mining and Quarrying	5,589	7,285	14,025	2.7%	8.5%	5.2%
3.Construction	4,516	5,228	6,062	1.5%	1.9%	1.6%
4.Electricity and water supply	14,694	16,734	21,159	1.3%	3.0%	2.0%
5.Manufacturing	5,233	6,940	7,670	2.9%	1.3%	2.1%
<b>Service</b>	<b>8,586</b>	<b>11,747</b>	<b>11,217</b>	<b>3.2%</b>	<b>-0.6%</b>	<b>1.5%</b>
6.Wholesale and retail trade	8,340	10,251	8,155	2.1%	-2.8%	-0.1%
7.Transportation and communication	9,139	14,189	14,186	4.5%	-0.0%	2.5%
8.Service	8,590	10,288	11,990	1.8%	1.9%	1.9%
9.Others	7,340	12,279	14,240	5.3%	1.9%	3.8%
<b>Average wage rate</b>	<b>6,156</b>	<b>8,063</b>	<b>9,020</b>	<b>2.7%</b>	<b>1.4%</b>	<b>2.1%</b>
<b>GDP at 2008 price (million)</b>	<b>4,073</b>	<b>6,276</b>	<b>9,105</b>	<b>4.4%</b>	<b>4.8%</b>	<b>4.6%</b>

Source: Labor Force Survey 1990, 2000, and 2008

*Industry* Workers in agriculture and manufacturing sectors were better off over 1990-2008 while those in the service were worse off since the growth in agriculture wages of 3.5 percent and the growth in manufacturing wages of 2.4 percent were much higher than the growth in average wage rate of 2.1 percent. Notably, the growth in average service wage was only 1.2 percent, much lower than the growth in average wage.<sup>26</sup> Nevertheless, the manufacturing wage rate of 8,838 baht in 2008 was twice as much as the agricultural wage rate of 4,315 baht and the service wage rate of 11,217 baht was about 2.6 times the agricultural wage rate. The wage differentials have shown that agricultural labor is found to be impacted by the changes in the returns to agricultural labor relative to nonagricultural labor returns as share of farm employment reduced by one-third over the studied period.<sup>27</sup> In

<sup>25</sup> In contrast, Chasombut, et al. (1998) found that the average monthly salaries in the private sector were higher in all levels of workers compared those of workers in public enterprise and government. Salaries were found using salary scales of CAT Telecom, government officials pay scale and average salaries of 40 private firms in various industries. Workers are classified into levels including operating, supporting, professional, operating head, middle management, and top management. It is notable that salaries of top management in the private sector were much different from those in the public enterprise or civil service. In particular, salaries in the private sector were 95 percent higher than those in the civil service and 63 percent higher than those in public enterprise.

<sup>26</sup> Fiala (1992) argued that low-paid, low-skilled service employment is less beneficial to economic growth than manufacturing employment.

<sup>27</sup> Like Thailand, the agricultural employment in the United States went down from over nine million workers in 1940 to just over three million workers in 1985 (Barkley, 1990). One important explanation is the lower labor returns from farm activities. However, Taira (1962) argued that using Japanese

manufacturing, electricity and water supply industry had the highest monthly wage of 21,159 baht growing at the rate of 2.1 percent over 1990-2008. The wage rate in the manufacturing industry, the largest industry in the sector, was 7,670 baht, a rise of 2.1 percent annually. Construction has the lowest wage rate of 6,062, growing at the rate of 1.6 percent. Mining and quarrying enjoyed the highest pay raise of 5.2 percent over 1990-2008 and its monthly wage rate was 14,025 baht. In the service sector, wholesale and retail trade had a negative pay raise of 0.1 percent, and its wage rate was 8,155 baht. The wage rate in services such as education and financial intermediation was 11,990 baht, a rise at 1.9 percent. Finally, wages in transportation and communication were about 14,186 baht, an increase of 2.5 percent.

**Table 10 Monthly Wage Rates by Occupation at Constant 2008 Price**

Occupation	Monthly Wages			Annual Growth Rate		
	1990	2000	2008	1990-2000	2000-2008	1990-2008
<b>White-collar Workers</b>	<b>8,002</b>	<b>9,316</b>	<b>14,011</b>	<b>1.5%</b>	<b>5.2%</b>	<b>3.2%</b>
<b>White-collar high-skilled workers</b>	<b>14,375</b>	<b>17,460</b>	<b>20,640</b>	<b>2.0%</b>	<b>2.1%</b>	<b>2.0%</b>
1. Legislators, senior officials and managers	18,612	21,027	23,934	1.2%	1.6%	1.4%
2. Professionals	12,169	14,970	18,031	2.1%	2.4%	2.2%
<b>White-collar low-skilled workers</b>	<b>6,231</b>	<b>6,738</b>	<b>8,239</b>	<b>0.8%</b>	<b>2.5%</b>	<b>1.6%</b>
3. Clerks	8,994	8,900	10,957	-0.1%	2.6%	1.1%
4. Service workers and sales workers	5,574	6,315	7,528	1.3%	2.2%	1.7%
<b>Blue-collar workers</b>	<b>2,847</b>	<b>3,942</b>	<b>5,276</b>	<b>3.3%</b>	<b>3.7%</b>	<b>3.5%</b>
5. Agricultural and fishery workers	2,336	3,238	4,927	3.3%	5.4%	4.2%
6. Skilled and unskilled workers	4,840	5,589	5,719	1.4%	0.3%	0.9%
<b>Average wage rate</b>	<b>6,156</b>	<b>8,063</b>	<b>9,020</b>	<b>2.7%</b>	<b>1.4%</b>	<b>2.1%</b>
<b>GDP at 2008 price (million)</b>	<b>8,002</b>	<b>9,316</b>	<b>18,397</b>	<b>1.5%</b>	<b>8.9%</b>	<b>4.7%</b>

Source: Labor Force Survey 1990, 2000, and 2008

*Occupation* For non-farm occupation, white-collar workers enjoyed higher wage rates and higher growth in wages over 1990-2008. The wage rate for white-collar workers was 14,011 baht in 2008 growing at the annual rate 3.2 percent, but the rate for non-farm blue-collar workers including skilled and unskilled workers was about 5,276 baht increasing at the annual rate of mere 0.9 percent. For blue-collar farm workers such as agricultural and fishery workers, the wage rate was 4,316 baht, the largest increase in growth rate of 3.5 percent; this led to a big rise in the growth in wage of the blue-collar workers. For white-collar workers, the high-skilled workers had a higher wage rate of 20,640 baht at the growth of 2.0 percent; the low-skilled workers had a wage rate of 8,239 baht growing at 1.6 percent. Within the white-collar, high-skilled workers, the wage rate for legislator, senior officials and managers was 23,934 baht increasing at 1.4 percent and that for professionals such as engineers and technicians was 18,031, a rise of 2.2 percent. Within the white-collar, low-skilled workers, the wage rate for clerks was 10,957, a rise of 1.1 percent while that for service workers and shop and market sales workers was 7,528 baht, a rise of 1.7 percent. In sum, the white-collar, high-skilled workers earned twice as much as the low-skilled workers and had a larger growth rate.

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experiences, the the wage differential tends to increase as aggregate demand decreases or net migration from agriculture into non-agriculture dwindles.

Technology and workers skills are higher correlated.<sup>28</sup> As mentioned above, the average employment growth of white-collar high-skilled workers was 7.6 percent over 1990-2008 much higher than blue-collar lower-skilled workers of 0.7 percent. This supports the claim that after globalization in Thailand in 1988, skilled biased technology change has occurred in Thailand. The group that benefits the most is white-collar high-skilled workers who benefit from the higher demand for them (Bhula-or, 2007). In particular, professionals such as technicians and engineers enjoyed a rise in wage rate of 2.2 percent over 1990-2008 and of 2.5 percent over 2000-2008 while the wage rate of blue-collar workers such as skilled and unskilled workers has an increase in wage of 0.9 percent over 1990-2008 and of mere 0.3 percent over 2000-2008.

## 7. The Change in Working Hours

In 2008, Workers on average worked 45.9 hours per week, a drop of five hours over 1990-2008; however, private employees worked, on average, 48.3 hours, a drop of 4 hours.<sup>29</sup> Thus, workers in the formal sector worked more than the normal weekly hour of 48 hours<sup>30</sup> as required by the Labor Production Act 1998 that required that an employee to work a maximum of eight hours per day and a maximum of 48 hours per week and overtime can not exceed 36 hours per week. Working hours are analyzed in terms of work status, industry and occupation

**Table 11 Working Hours by Work Status**

Work Status	Weekly Hours			Hours Change		
	1990	2000	2008	1990-2000	2000-2008	1990-2008
Public enterprise employee	52.1	50.1	48.3	-1.4	1.9	0.5
Government employee	38.9	38.6	39.3	-0.4	0.7	0.3
Private employee	54.1	54.2	48.8	-1.9	-1.9	-3.8
Employer	53.4	52.7	46.3	0.1	-5.4	-5.3
Own Account worker	50.3	50.7	44.0	-0.7	-6.4	-7.1
Unpaid family worker	41.4	40.0	41.9	0.4	-6.7	-6.3
<b>Total Labor Force</b>	<b>51.0</b>	<b>50.2</b>	<b>45.9</b>	<b>-0.8</b>	<b>-4.3</b>	<b>-5.0</b>

Source: Labor Force Survey 1990, 2000, and 2008

*Employment Status* In terms of work status, workers not in the public sector worked longer hours than those in the public sector. In 2008, while government employee, on average, worked 39.3 hours, private employees worked the longest hour

<sup>28</sup> Berman, Bound and Griliches (1994) found that an increase in wage share of white-collar workers is positively related to two aspects of technology including computer expenditure and research and development.

<sup>29</sup> In the course of economic development, there has been a reduction in working hours among OECD countries over 1870-2000. The Old World countries such as the United Kingdom, France and Italy had had a decline in weekly hours greater than the New World countries such as Australia, the United States and Canada since 1870. For example, in France, weekly hours for male decreased from 66.1 in 1870 to 36.9 hours in 2000; in the United Kingdom, hours dropped from 56.9 to 42.0; in the United states, hours reduced from 62 to 43.2 (Huberman and Minns, 2007).

<sup>30</sup> In the United States, the standard working hour is 40 hours per week. In 1993, Men aged 16 years and older worked, on average, 42 hours per week while women worked 36 hours per week (Rones, Ilg and Gardner, 1997). The average usual hour per week in 1993 for permanent workers was 38.5 hours, that that for temporary worker was 34.6 hours (Segal and Sullivan, 1997)

of 48.8 hours. Next were public enterprise employee working 48.3 hours, employer working 46.3 hours, own account worker working 44 hours and unpaid family worker working 41.9 hours. Moreover, own account worker has the largest drop in working hour of 7.1 hours over 1990-2008. In consecutively order, there were unpaid family worker decreasing working hours by 6.3 hours, employer declining by 5.3 hours, and private employee decreasing by 3.8 hours. Only public enterprise employee and government employee experienced slightly increase in working hours over 1990-2008. It is notable that private employee and public enterprise employee work more than the standard weekly hour of 48 hours.

*Industry* In terms of industry, workers in manufacturing sector worked the longest hour of 49.6 hours, those in the service sector worked 49.0 hours and those in the agricultural sector worked the least weekly hours of 41.5 hours. Workers in agriculture experienced the sharpest drop in working hours of 9.4 hours from 50.9 hours in 1990 to 41.5 hours in 2008. Those in the manufacturing sector worked 1.7 hours less and those in the service sector worked 1.9 hours less. In the manufacturing sector, workers in manufacturing, the largest group, worked 50.3 hours, a slight drop in working hours of 0.4 percent over 1990-2008, while workers in mining and quarrying and construction worked 50.8 and 48.0 hours per week in 2008, a drop of 5-6 hours and those in electricity and water supply work worked 39.7 hours about 2.4 hours lower. In the service sector, the workers in services such as education and hotel and restaurant worked 47.5 hours and do not show a decline in working hours over 1990-2008; they increased hours by 1 hour. The workers in wholesale and retail trade worked 52.1 hours, a reduction of 2.4 hours and those in transportation and communication worked 52.1 hours, a decrease of 3.3 hours. In conclusion, workers in manufacturing and service worked more than the standard hour of 48 hours; those in all industries except electricity and water supply, service and others worked more than 48 hours.

**Table 12 Working Hours by Industry**

Industry	Weekly Hours			Hours Change		
	1990	2000	2008	1990-2000	2000-2008	1990-2008
<b>Agriculture</b>	<b>50.9</b>	<b>49.8</b>	<b>41.5</b>	<b>-1.1</b>	<b>-8.3</b>	<b>-9.4</b>
1.Agriculture	50.9	49.8	41.5	-1.1	-8.3	-9.4
<b>Manufacturing</b>	<b>51.3</b>	<b>50.1</b>	<b>49.6</b>	<b>-1.1</b>	<b>-0.6</b>	<b>-1.7</b>
2.Mining and Quarrying	56.5	50.3	50.8	-6.3	0.6	-5.7
3.Construction	53.6	51.1	48.0	-2.6	-3.0	-5.6
4.Electricity and water supply	42.1	42.2	39.7	0.1	-2.5	-2.4
5.Manufacturing	50.8	50.2	50.3	-0.6	0.1	-0.4
<b>Service</b>	<b>50.9</b>	<b>50.8</b>	<b>49.0</b>	<b>-0.1</b>	<b>-1.9</b>	<b>-1.9</b>
6.Wholesale and retail trade	54.5	54.6	52.1	0.1	-2.5	-2.4
7.Transportation and communication	54.5	53.4	51.3	-1.2	-2.1	-3.3
8.Service	46.5	46.6	47.5	0.2	0.9	1.0
9.Others	52.0	45.0	42.2	-7.0	-2.8	-9.8
<b>Total Labor Force</b>	<b>51.0</b>	<b>50.2</b>	<b>45.9</b>	<b>-0.8</b>	<b>-4.3</b>	<b>-5.0</b>

Source: Labor Force Survey 1990, 2000, and 2008

*Occupation* White-collar workers, on average, worked more than blue-collar workers in 2008, although it was opposite in 1990. White-collar workers worked fewer hours from 50.8 hours in 1990 to 48.8 hours in 2008, a drop of 2 hours over 1990-2008; blue-collar also worked fewer hours from 51.07 to 44.62 hours, a big



drop of 6.5 hours. White-collar, high-skilled workers worked less than white-collar low-skilled workers and blue-collar workers, but white-collar, high-skilled workers increased working hours by 1.7 hours from 41.7 to 43.4 hours per week. Within this group, legislator, senior official and managers worked 45.6 hours, a drop of 2 hours; professionals such as technicians and professors were the only occupation that increased working hours by 4.9 hours from 37.8 hours to 42.7 hours. White-collar low-skilled workers in 2008 worked 51.7 hours, a decrease of 1.6 hours. Within this group, clerks worked 44.6 hours, a drop of 0.3 hours; service workers and shop and market sales workers worked 53.4 hours, a drop of 1.9 hours. Blue-collar workers worked 44.6 hours, a drop of 6.5 hours. The sharp drop was due to a decline in working hours of 9.4 hours for agricultural and fishery workers who worked about 41.5 hours in 2008. Skilled and unskilled workers worked 48.8 hours, a drop of 3.0 hours. In addition, white-collar low-skilled workers worked more than the standard weekly hour of 48 hours; moreover, service workers and skilled and unskilled manufacturing workers worked more than the standard hour.

**Table 13 Working Hours by Occupation**

Occupation	Weekly Hours			Hour Change		
	1990	2000	2008	1990-2000	2000-2008	1990-2008
<b>White-collar Workers</b>	<b>50.8</b>	<b>51.3</b>	<b>48.8</b>	<b>0.5</b>	<b>-2.5</b>	<b>-2.0</b>
<b>White-collar high-skilled workers</b>	<b>41.7</b>	<b>42.4</b>	<b>43.4</b>	<b>0.7</b>	<b>1.1</b>	<b>1.7</b>
1. Legislators, senior officials and managers	49.0	48.0	45.6	-1.1	-2.4	-3.4
2. Professionals	37.8	38.5	42.7	0.7	4.3	4.9
<b>White-collar low-skilled workers</b>	<b>53.3</b>	<b>54.1</b>	<b>51.7</b>	<b>0.8</b>	<b>-2.4</b>	<b>-1.6</b>
3. Clerks	44.9	46.7	44.6	1.8	-2.1	-0.3
4. Service workers and sales workers	55.3	55.6	53.4	0.3	-2.2	-1.9
<b>Blue-collar workers</b>	<b>51.1</b>	<b>50.0</b>	<b>44.6</b>	<b>-1.1</b>	<b>-5.4</b>	<b>-6.5</b>
5. Agricultural and fishery workers	50.9	49.8	41.5	-1.1	-8.3	-9.4
6. Skilled and unskilled workers	51.8	50.5	48.8	-1.3	-1.7	-3.0

Source: Labor Force Survey 1990, 2000, and 2008

## 8. Conclusions

Over two decades, there is evidence that Thailand have moved from an agrarian society to a more industrialized society. Labor market has been transformed in various dimensions such as population, education, labor force structure, wages and working hours.

Over 1990-2008, total labor force increased more rapidly than total population. Since Thailand experiences a rise in working population until 2020, Thailand has benefited from the first dividend where production exceeds consumption. The second dividend may have occurred until 2050 since capital accumulation of population aged 40-60 will increase. Nevertheless, Thailand may encounter new population problems such as size of working population, age dependency and quality of labor force.

Thailand becomes a more educated society. Workers with education secondary level or higher increased from 17 percent in 1990 to 25 percent in 2008. Nevertheless, workers with education elementary level or lower were still very high of 57.1 percent in 2008, a reduction of 10.6 percentage points from 1990. As Thailand industrializes and needs more skilled workers such as engineers and technicians, there is still a problem of labor supply. The government should put more

emphasis on vocational education since most firms in manufacturing have a greater demand for them than for workers with college degrees in general fields. It is surprising that public sector provision is only 63 percent of secondary vocational and 67 percent of tertiary vocational institution while government supports more than 80 percent of secondary and higher level education in academic education.

There has been a labor movement from the informal sector to the formal sector. Workers shift their employment status from unpaid family worker to private employees. Workers moves from the agricultural sector into manufacturing and service sectors; the size of non-agricultural sector increased from 37 percent to 58 percent over 1990-2008. It is interesting that in the course of economic development, Thailand had more employment in the service sector than in the manufacturing sector over 1990-2008. Workers migrated from blue-collar occupation to white-collar occupation. The share of white-collar high-skilled worker increased from 2.8 percent to 8.1 percent in 2008, partly supporting that skilled biased technology change has occurred in Thailand; moreover, the wage rate of this group has grown the highest rate at 2.3 percent

In 2008, the average wage was 9,020 baht, a rise of only 2.1 percent annually over 1990-2001, much lower than the economic growth of 4.6 over the same period. In terms of employment status, public enterprise employees earned 2.6 times higher than private employees and the government employees earned twice as much as private employees, but the growth in wages for private employees was highest. In terms of industry, the manufacturing sector earned twice as much as the agriculture sector and the service sector earned 2.6 higher than the agriculture sector, but the growth in wages in the agricultural sector was highest. In terms of occupation, white-collar workers earned about four times more than the blue-collar workers, but the growth in wages for the blue-collar workers was highest. However, the growth in wages for non-farm, blue-collar workers was lowest.

The usual weekly hours for most types of workers dwindled over 1990-2008. The average working hour in 2008 was 46 hours per week, a drop of five hours. Unpaid family workers and own account workers worked 6-7 hours less, while private employee worked 4 hours less. Workers in agriculture reduced working hours by 9.4 hours while those in manufacturing and service sectors reduced hours by mere 2 hours. The blue-collar workers, primarily agricultural and fishery workers, worked 6.5 less and blue-collar worker worked about 2 hours less; however, the white-collar high-skilled worked one hour more over 1990-2008.

The direction for future research is as follows. One of our primary interests in economics is to study how wages affect working hours. The future research will be to study the effect of social and economic factors, particularly wages, on the change in working hours classified by occupation and industry over two decades. The elasticities of working hours with respect to wages classified by occupation and industry will be obtained. As a byproduct, the effect of various social variables such education and gender on working hours can be analyzed for marginal effects.

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