

What are The Earning Differentials Between Full-Time Workers
in Public and Private Sector Who are Bachelor Degree Holder in
Thailand? Evidence from Thai Labor Force Survey Data in The
Third Quarter Of 2022



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An Independent Study Submitted in Partial Fulfillment of the
Requirements
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Field of Study of Applied Economics
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การเป็นพนักงานของภาครัฐ หรือพนักงานของภาคเอกชน ในกลุ่มพนักงานประจำผู้สำเร็จ
การศึกษาสูงสุดในระดับปริญญาตรี จะมีความแตกต่างในแง่ของการมีอัตราเงินเดือนที่สูงกว่าหรือ
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มาสที่ 3 ปี พ.ศ. 2565



สารนิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาศิลปศาสตรมหาบัณฑิต
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 (What are The Earning Differentials Between Full-Time Workers in Public and Private Sector Who are Bachelor Degree Holder in Thailand? Evidence from Thai Labor Force Survey Data in The Third Quarter Of 2022) อ.ที่ปรึกษาหลัก : เจสสิกา แมรี่ เวชบรรยงรัตน์

การศึกษานี้มีจุดประสงค์เพื่อต้องการศึกษาช่องว่างรายได้ที่ต่างกัน (มากกว่าหรือน้อยกว่า) พิจารณาจากปัจจัยบางประการ) ระหว่างพนักงานภาครัฐและพนักงานภาคเอกชน ของผู้ที่มีระดับการศึกษาสูงสุดในระดับปริญญาตรีในประเทศไทย โดยเฉพาะอย่างยิ่ง ความสัมพันธ์ระหว่างคุณลักษณะส่วนบุคคลกับช่องว่างทางรายได้ เช่น เพศ อายุ ภูมิภาคที่อาศัย อาชีพ และการศึกษา เป็นต้น ระดับค่าตอบแทนของพนักงานภาครัฐค่อนข้างสูงในกลุ่มพนักงานที่อาศัยอยู่ในภูมิภาคชนบท แต่จะเปลี่ยนเป็นระดับค่าตอบแทนที่ต่ำกว่าทันทีเมื่อเทียบกับภาคเอกชน หากพนักงานภาครัฐอาศัยอยู่ในภาคกลาง รวมถึงกรุงเทพมหานคร ระดับค่าตอบแทนที่สูงกว่าพิจารณาตามกลุ่มอาชีพในกลุ่มพนักงานภาครัฐ พบได้เฉพาะในกลุ่มเจ้าหน้าที่เทคนิค และกลุ่มพนักงานบริการ แต่ระดับค่าตอบแทนที่ต่ำกว่าสำหรับข้าราชการระดับสูง และผู้เชี่ยวชาญ เมื่อเทียบกับพนักงานภาคเอกชน กล่าวอีกนัยหนึ่งคือ ยิ่งระดับตำแหน่งงานของพวกเขาสูงเท่าใด โอกาสที่ระดับค่าตอบแทนที่สูงกว่าพิจารณาจากกลุ่มอาชีพจะเปลี่ยนจากกลุ่มพนักงานภาครัฐไปสู่กลุ่มพนักงานภาคเอกชนก็จะสูงขึ้นเท่านั้น ช่องว่างค่าจ้างระหว่างเพศของภาครัฐนั้นน้อยกว่ามากเมื่อเทียบกับภาคเอกชน เมื่อพิจารณาสวัสดิการอื่นๆ ที่ได้รับในรูปแบบของตัวเงิน เช่น โบนัส ค่าล่วงเวลา และค่าตอบแทนอื่นๆ นั้นค่อนข้างสูงกว่าในภาคเอกชน เมื่อเทียบกับภาครัฐ และเมื่อนำสวัสดิการอื่นๆ ที่ได้รับในรูปแบบของตัวเงินมาคิดวิเคราะห์ด้วย พบว่าระดับค่าตอบแทนที่ต่ำกว่าสำหรับพนักงานภาครัฐจะน้อยลงไปอีก อย่างไรก็ตาม มีแนวโน้มว่าระดับค่าตอบแทนที่ต่ำกว่าสำหรับพนักงานภาครัฐ อาจจะไม่ได้นำมาพิจารณาเปรียบเทียบเพียงอย่างเดียว เนื่องจากภาครัฐมีสวัสดิการทางสังคมที่ดีกว่าเมื่อเทียบกับภาคเอกชน และผลการประมาณการนี้ไม่ได้คำนึงถึงสวัสดิการดังกล่าวที่ไม่สามารถวัดเป็นตัวเงินได้ เช่น ความมั่นคงในการทำงาน สวัสดิการด้านสุขภาพ ประกันสุขภาพ และเงินบำนาญชราภาพ

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ลายมือชื่อนิติ
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This study wants to investigate the wage gap (wage premium or wage discount) between public and private sector among bachelor degree holder employees in Thailand, especially, the relationship between individual characteristics and these gap, namely gender, age, region, occupation, education, etc. The size of the public sector wage premium is relatively high in countryside but will change into wage discount in central region. Premium by occupation in public sector can only be found in technician and service worker group, but discount for senior official and professional. In other words, the higher the job position they are in workplace, the higher chance the premium will shift from public sector to private sector. The public sector's gender wage gap is by far smaller compare to private sector counterpart. Supplementary benefits received in cash such as bonuses, overtime and other cash, are relatively higher in private sector than those in public sector, when taking into account, the size of wage discount for public sector will get bigger. However, it is likely that the discount for public sector could be lower than this estimation alone given that the public sector offers more benefits in term of welfare than the private sector, and these results do not factor in those non-pecuniary features of employment, for example job security, health-care benefits, disability insurance and old-age pension.

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TABLE OF CONTENTS

	Page
.....	iii
ABSTRACT (THAI)	iii
.....	iv
ABSTRACT (ENGLISH).....	iv
ACKNOWLEDGEMENTS.....	v
TABLE OF CONTENTS.....	vi
LIST OF TABLES	viii
LIST OF FIGURES	ix
1. Introduction.....	1
2. Literature review	2
3. Data.....	5
Motivations	6
Descriptive Statistics	8
4. Empirical Methods and Models.....	13
Empirical Methods.....	13
Empirical Models.....	14
5. Results.....	17
Premiums or discount by region	17
Premiums or discount by occupation.....	21
6. Conclusion	29
Dicussion	31
Appendix.....	32
Econometric problems	32
REFERENCES	34
VITA	36



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LIST OF TABLES

	Page
Table 1: Number and Percentage of Employees by Wage/Salary.....	6
Table 2: Number of Private Employees and Government Employees by Receiving Supplementary Benefits, Area and Sex.....	7
Table 3: Comparison between public and private sector on explanatory variables.	8
Table 4: Model 1 OLS Estimates of Equation with Robust Standard Error, Interpreted as a Percentage of Monthly Wage and Monthly Income.....	19
Table 5: Model 2 OLS Estimates of Equation with Robust Standard Error, Interpreted as a Percentage of Monthly Wage and Monthly Income	24
Table 6: Model 3 OLS Estimates of Equation of higher than bachelor degree education level, Interpreted as a Percentage of Monthly Wage and Monthly Income.	28
Table 7: Pairwise Correlation Matrix Using Stata	32
Table 8: Breusch-Pagan / Cook-Weisberg Test for Heteroskedasticity	33

LIST OF FIGURES

	Page
Figure 1: Percentage of Employed Persons by Work Status.....	7
Figure 2: Descriptive Statistics of Explanatory Variables	9
Figure 3: Ratio of Occupations in Major Group.....	10
Figure 4: Ratio of Area	11
Figure 5: Ratio of Age.....	12



1. Introduction

The discussion about what are you going to do after graduation (like what kind of job, which job sector) is quite a popular topic in Thailand to talk about for a long time. In the past, parents play the big role in their children job, they try to encourage their children to apply and get a position in public sector, especially one that leave in the rural area, that what we known as one of the social norms in Thailand. Things start to change recently as the private sector gain more percentage in Thai labor market, especially those who are bachelor degree holder which in Thailand they might have experiences significant educational mismatch among them, according to Paweenawat, S.W. And Vechbanyongratana, J. (2015). That why it is interesting to see the wage premium between public and private sector in Thailand, because wage is one of the main factors for job selection that young workers seek. The results of this study could be the guideline for young workers or fresh graduate university students, that have to choose in which sector to begin their careers, with different qualifications and or expectations of them.

The main purpose of this paper is to find out the wage premium between full-time workers in public and private sector, who are bachelor degree holder in Thailand using Labor Force Survey (LFS) from National Statistical Office (NSO) in the third quarter of 2022 data. The fact that public sector employees wage has to rely on government policy, and for the bachelor degree level one, the rate not change for a long time. While for the private sector counterpart, it can depend on size of firm or type of firm, and can adjusted for inflation over time. So, we expect private sector employees to earn more in the labor market compare to the public sector one.

However, because there is high volatility in private sector employees wage depending on economics situation, so on average the premium might not be much different. To estimate the wage premium, our focus is on the employee, who are a full-time worker (have at least 35 hours of work per week) between the ages of 20 and 59, had a bachelor's degree as their highest education attainment, and working for public or private sector. We also test whether employees in some occupations (Managers/ Professionals/ Technicians/ Clerical support workers/Service workers) having an advantage if they are working for public sector.

This study is structured as follow. Section 2 briefly literature review. Section 3 data, motivation and descriptive statistics. Section 4 empirical methods and models. Section 5 results and interpretation, and Section 6 conclusion and discussion.

2. Literature review

There are a lot of studies try to find out, whether there is a wage gap between public sector and their private sector counterparts in their countries. Early studies estimated an individual wage (i.e., the natural log of wage) from simple wage functions using observable individual characteristics, such as education and experience as explanatory variables and categorize the different in wage between sectors into various factors, this is called Mincerian wage model (1974). Nevertheless, it is hard to accurately explain the different without taking into account unobserved ability of the individual. Recently most of the empirical studies try to overcome these biases, for example, Chandoevrit, W. (2011) used the ordinary least squares (OLS) and the matching methods to find what professions are better off if they are working for the government. The OLS model is based on Mincer (1974), which dummy variables and interactive terms are added. While the matching method is based on

Abadie and Imbens (2002) and Abadie et al. (2004), to estimate the average treatment on treated (ATT). The ATT model can use the average income of government employees with similar characteristics to private sector employees, and estimate the income of the private sector employees.

While one of the objectives of this paper is to try to figure out the gender premium in both public sector and private sector, Bender, (1998) survey review has suggested that, the premium have been falling since the 1990s in the developed countries. For developing countries, the premium for public sector is often negative and could be a large number different. However, jobs working in public sector have the compensation differential and had been considered to be the most secure type of employment one could get, because of healthcare benefits, pensions, better working conditions, etc. This premium is found to be quite vary over the years.

To summarize, several studies have compared the public and private wage premium, and present some evidences on the differences between both sectors. However, in Thai context an empirical analysis on this topic still not much seen, especially for the focus specific group. To present new evidence in Thailand using recent data, this study uses data from the 2022 LFS, to estimate standard wage functions and compare the wage differential of those in the public and private sectors. In this case the study will add to the literature by focusing on a specific group at only one level of education, as from the literature and recent data, might have the problems of unemployment and educational mismatch the most, which is bachelor degree level. To make sure that the sample we choose are comparably equivalent workers, this study takes into account what Morikawa, M. (2016) did by setting criteria for the

dataset. For example, using regular full-time employees, aged between 21 and 59, public sector workers are employed by the central or local government, but not limit the firm size of the sample in private sector like the literature did, because of the recently rise of the start-up companies, so every size of firms should be counted.



3. Data

This study using the secondary data sources from Thai Labor Force Survey (LFS) in the third quarter of 2022, which is requested from National Statistical Office. The variables I plan to use and their measurement are as follows:

Variable type	Variable name	Variable in LFS	Measurement
Dependent variable	Labor wages Labor incomes	- Total monthly labor wage - Total monthly labor income (including regular, overtime, bonus, and in-kind payments)	Number (Bath)
Independent variable of interest	Public	Work status (Government employee and Private company employee)	Dummy Government employee = 1 Private company employee = 0
Control	Work experience	Age and age ²	Number
Control	Sex	Sex (female/male)	Dummy Female = 1 Male = 0
Control	Marital status	Marital status (married/not married)	Dummy Married = 1 Not married = 0
Control	Region	Reg (Bangkok/Central/North/Northeast/South)	Set of dummies Which BKK is omitted base group
Control	Urban location	Area (municipal/non-municipal)	Dummy Urban = 1 Rural = 0
Control	Occupations	Occupation in major groups (Managers/ Professionals/ Technicians/ Clerical support workers/ Service workers)	Categorical
Interaction variable	Public female workers	Public*Female	Dummy Public and Female = 1 Other = 0
Interaction variable	Public occupation	Public*Occupation	Categorical

Source: Authors' variable selection based on literature review and interest

Motivations

1. Government sector tend to do better in overall education level in term of monthly wage.

Table 1: Number and Percentage of Employees by Wage/Salary

Monthly wage (Bath/month)	Total		Government sector ^{6/}		Private sector	
	Number (‘000)	Percentage	Number (‘000)	Percentage	Number (‘000)	Percentage
Total	18,715.0	100.0	3,749.0	100.0	14,969.9	100.0
Less than 10,000	6,492.2	34.7	773.0	20.6	5,719.2	38.2
10,000 - 14,999	5,012.3	26.8	583.0	15.5	4,429.3	29.6
15,000 - 29,999	5,199.2	27.8	1,469.2	39.2	3,729.9	24.9
More than 30,000	1,854.9	9.9	887.4	23.7	967.6	6.5
Unknown	156.4	0.8	35.5	1.0	120.0	0.8

^{6/} including state enterprise employees

Source: National Statistical Office, LFS 2022 Q3 Full Report

2. But, private sector tend to do better in term of supplementary benefits.



Table 2: Number of Private Employees and Government Employees by Receiving Supplementary Benefits, Area and Sex

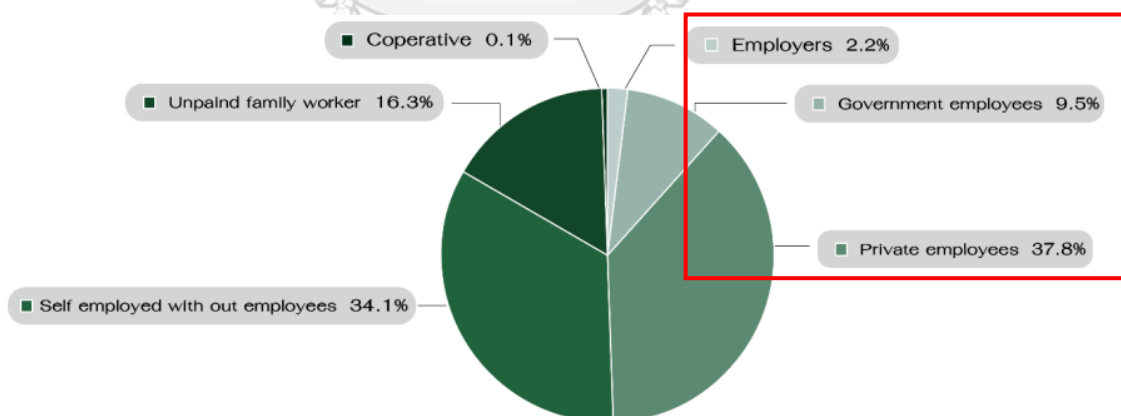
Sector, area and sex	Total employees	In-cash		
		Bonus	Overtime	Other Cash ^{B/}
Number ('000)				
Total	4,914.7	22.6	2,114.1	2,441.3
Male	2,534.3	8.2	1,114.0	1,265.5
Female	2,380.4	14.4	1,000.1	1,175.8
Private sector	3,814.7	15.6	1,877.9	1,666.5
Municipal areas	2,128.6	9.0	948.2	869.3
Non-municipal areas	1,686.0	6.7	929.7	797.2
Government sector	1,100.0	7.0	236.2	774.8
Municipal areas	664.6	2.2	161.7	433.0
Non-municipal areas	435.5	4.8	74.5	341.9

^{B/} Other cash includes payment for food, cloth, dress, quarter, tips, transportation, position allowance etc.

Source: National Statistical Office, LFS 2022 Q3 Full Report

3. The private sector gain more percentage in Thai labor market recently.

Figure 1: Percentage of Employed Persons by Work Status



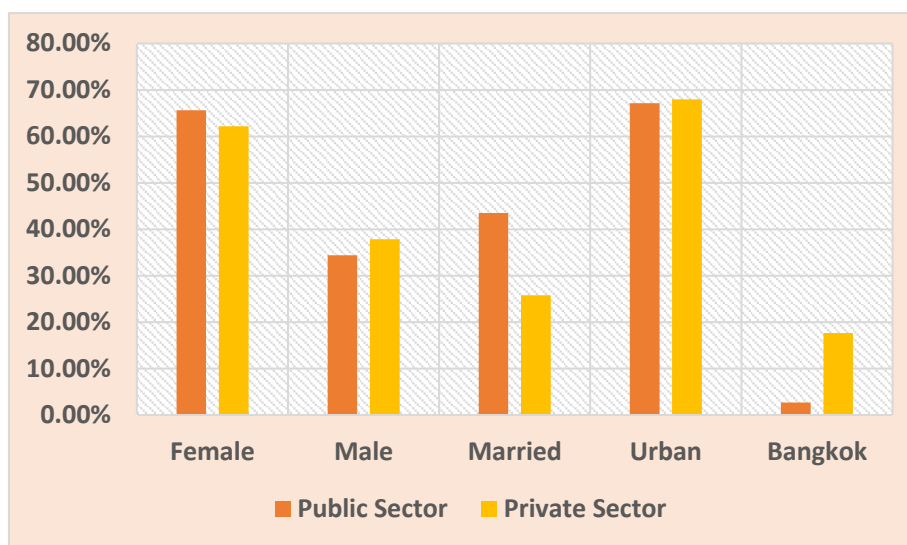
Source: National Statistical Office, LFS 2022 Q3 Full Report

Descriptive Statistics

Table 3: Comparison between public and private sector on explanatory variables.

Descriptive Statistics of explanatory variables		Public Sector	Private Sector
Log wage	Mean	9.969	9.811
	(Standard deviation)	(0.522)	(0.497)
Log income	Mean	10.042	9.863
	(Standard deviation)	(0.567)	(0.508)
Gender	Male	34.38%	37.83%
	Female	65.62%	62.17%
Age	21-25	6.26%	11.37%
	26-30	16.56%	23.29%
	31-35	14.78%	18.40%
	36-40	15.18%	17.47%
	41-45	14.96%	14.14%
	46-50	12.46%	8.13%
	51-55	10.87%	4.72%
	56-59	8.94%	2.48%
Marital status	Married	43.50%	25.82%
Area	Urban	67.14%	67.96%
	Rural	32.86%	32.04%
Region	Bangkok	2.66%	17.66%
	Central	24.83%	41.14%
	North	22.72%	11.08%
	Northeast	29.97%	10.56%
	South	19.81%	19.55%
Occupation	Manager	4.77%	9.20%
	Professionals	54.48%	21.41%
	Technicians	12.90%	26.15%
	Clerks	18.15%	17.40%
	Service Workers	7.89%	14.40%
	Others	1.80%	11.44%

Figure 2: Descriptive Statistics of Explanatory Variables

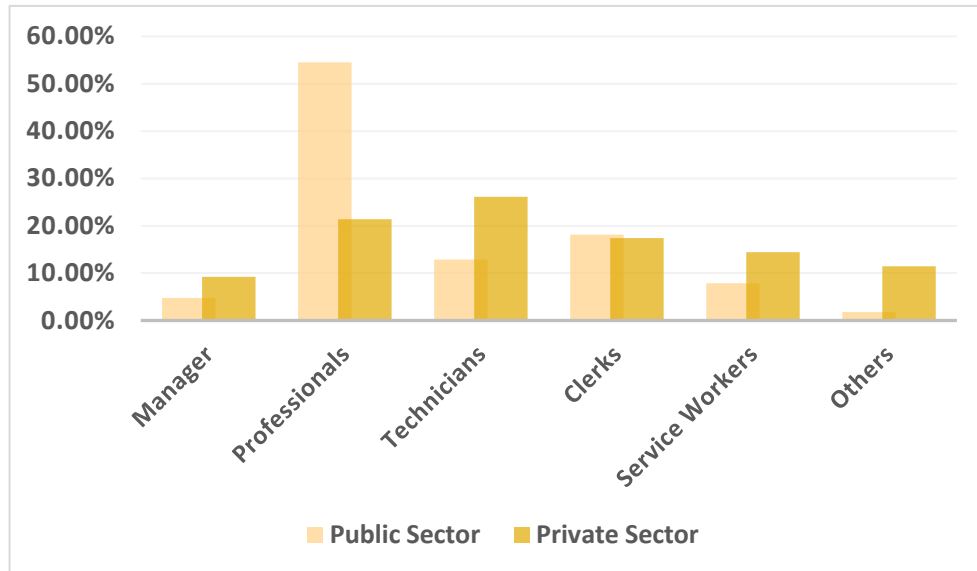


Source: Author's calculation from LFS 2022 Q3

The table 3 and figure 2 above presents the main variables and their summary statistics, as there is not much difference between the ratio of public and private sector in term of gender, but when we look at marital status, the ratio of married workers is higher for public sector. The ratio of area where they live in term of urban or rural area are almost no difference, but the ratio of workers who live in Bangkok is a lot greater for private sector.

1. Comparison between public and private sector on occupations in major group.

Figure 3: Ratio of Occupations in Major Group

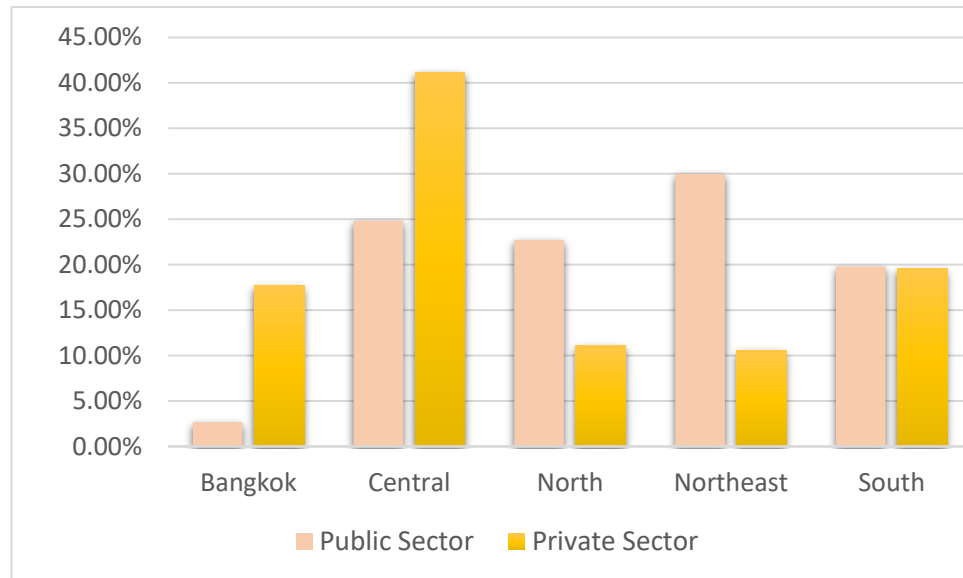


Source: Author's calculation from LFS 2022 Q3

The figure 3 above shows that majority of public sector occupations in major group is professionals (54.48%), followed by clerks (18.15%), technicians (12.90%), service workers (7.89%) and manager (4.77%). While for private sector ratio, the difference between each group are quite close, which is highest in technician group (26.15%), followed by professionals (21.41%), clerks (17.40%), service workers (14.40%) and manager (11.44%).

2. Comparison between public and private sector workers on area they live.

Figure 4: Ratio of Area

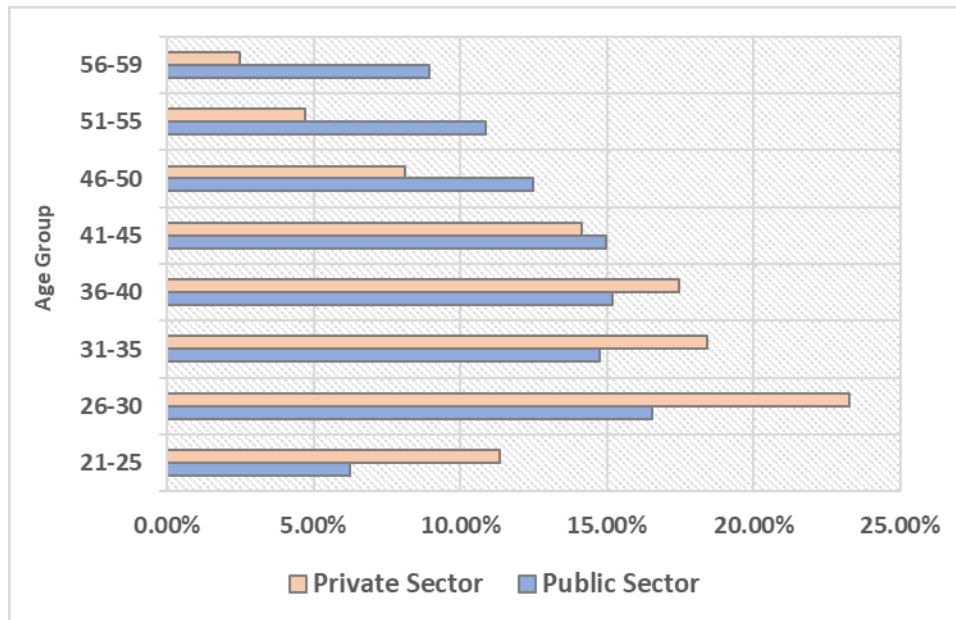


Source: Author's calculation from LFS 2022 Q3

The figure 4 above shows that most of private sector workers are living in central region (41.14%), followed by south (19.55%), Bangkok (18.58%), north (11.08%) and northeast (10.56%). While for public sector one, majority of them are living in the countryside, with the highest are in northeast (29.97%) followed by central (24.83%), north (22.72%), south (19.81%) and the lowest is in Bangkok (2.66%).

3. Comparison between public and private sector workers on age ratio.

Figure 5: Ratio of Age



Source: Author's calculation from LFS 2022 Q3

Given these trends from figure 5 above, it is unsurprising that public sector has a higher proportion of employees between 41 to 59 years of age, as they normally have to keep working until retirement at aged 60 because of the pension benefits. While for private sector counterpart, they have a higher proportion of employees between 21 to 40 years of age, and it keeps going down dramatically after aged 45, in this case we would say that because in private sector they could enjoy early retirement as long as they have enough savings they need to live, or they achieved financially planning for their early retirement. Another reason for that is the moving between sectors, as some of the senior private sector workers move to public sector one.

4. Empirical Methods and Models

Empirical Methods

Using of Mincerian wage regression (Mincer, J. (1974)) to control for observed employee characteristics that would affect wages they earn, with a dummy variable indicating whether the employee is employed in the public sector or private sector. The equation is:

$$\ln W_i = \beta_0 + \beta_1 \text{public}_i + \beta_2 \text{Age}_i + \beta_3 \text{Age}_i^2 + \beta_4 \text{female}_i + \beta_5 \text{female} \cdot \text{public}_i + \beta_6 \text{occupation}_i + \beta_7 \text{occupation} \cdot \text{public}_i + X \cdot \gamma_i + \varepsilon_i$$

Where $\ln(w)$ is the natural log of wages, public is a dummy variable that equals 1 if the person work in public sector, and equals 0 if they work in private sector, β_1 is the adjusted public and private earnings difference, Age and Age^2 is a proxy for work experience, female is a dummy variable that equals 1 if the person is female and equals 0 if the person is male, β_4 is the adjusted female and male earnings difference, $\text{female} \cdot \text{public}$ is an interactive terms between the public employee dummy variable and female dummy variable, β_5 is an interaction effect if an employee is a female in public sector, occupation is a categorical variable, β_6 is the adjusted earnings difference in occupations, $\text{occupation} \cdot \text{public}$ is an interactive terms between the public employee dummy variable and occupation categorical variable, β_7 is an interaction effect if an employee have an occupation in public sector, and other variables X is a vector of individual characteristics that can impact wages, such as area (urban/rural) , region (Bangkok/central/north/northeast/south) and marital status (married/not married).

We also restrict the sample with four criteria, first education: only workers who have highest education level as bachelor's degree are counted, second full-time

workers: only workers who have at least 35 hours of work per week are counted, third active workers: only workers who have age between 21 – 59 are counted, fourth occupations: only employed persons who worked as manager, professional, technician, clerical support worker and service worker are interpreted. After regression, the coefficient β_1 will give the estimate of the private and public employees wage premium.

Empirical Models

We have 3 models for this regression analysis with two difference bases in each model, the different is how we calculate monthly income for a person. The first base is using approximate monthly wages, but for the second base, apart from the data on basic wages we also included supplementary benefits received in cash, such as bonuses (in term of average per month), overtime (monthly) and other cash (monthly). Monthly income equation is:

$$\text{Monthly income} = \text{Monthly wage} + \frac{\text{bonuses}}{12} + \text{overtime} + \text{other cash}$$

Which the different in each model are as follow:

1. Model 1 try to look at the impact of region categorical variables on labour income, by using set of dummies that present each region, to control for regional effect, in this case we will have 6 equations in total, the equations can be described as follow:

$$1. \text{ Baseline} = \beta_0 + \beta_1 \text{public}_i + \beta_i \text{Individual Characteristics}_i + \beta_2 \text{Bkk}_i + \beta_3 \text{Central}_i + \beta_4 \text{North}_i + \beta_5 \text{Northeast}_i + \beta_6 \text{South}_i + \varepsilon_i$$

2. *Bkk base treatment* = $\beta_0 + \beta_1\text{public}_i + \beta_i\text{Individual Characteristics}_i + \varepsilon_i$
3. *Cental base treatment* = $\beta_0 + \beta_1\text{public}_i + \beta_i\text{Individual Characteristics}_i + \varepsilon_i$
4. *North base treatment* = $\beta_0 + \beta_1\text{public}_i + \beta_i\text{Individual Characteristics}_i + \varepsilon_i$
5. *Northeast base treatment* = $\beta_0 + \beta_1\text{public}_i + \beta_i\text{Individual Characteristics}_i + \varepsilon_i$
6. *South base treatment* = $\beta_0 + \beta_1\text{public}_i + \beta_i\text{Individual Characteristics}_i + \varepsilon_i$

While controlling for regional characteristics, the baseline equation will show overall result, but other equations will present only one region in observations at the time.

2. Model 2 try to look at the impact of occupation in major groups categorical variables on labour income, by using set of dummies to control for occupation in major groups effect, in this case we will have 6 equations in total, the equations can be described as follow:

1. *Baseline* = $\beta_0 + \beta_1\text{public}_i + \beta_i\text{Individual Characteristics}_i + \beta_2\text{Managers}_i + \beta_3\text{Professionals}_i + \beta_4\text{Technicians}_i + \beta_5\text{Clerks}_i + \beta_6\text{Service workes}_i + \beta_7\text{Managers}_i \cdot \text{public}_i + \beta_8\text{Professionals}_i \cdot \text{public}_i + \beta_5\text{Technicians}_i \cdot \text{public}_i + \beta_6\text{Clerks}_i \cdot \text{public}_i + \beta_7\text{Service workes}_i \cdot \text{public}_i + \varepsilon_i$

$$2. \text{Managers group treatment} = \beta_0 + \beta_1 \text{public}_i +$$

$$\beta_i \text{Individual Characteristics}_i + \varepsilon_i$$

$$3. \text{Professionals group treatment} = \beta_0 + \beta_1 \text{public}_i +$$

$$\beta_i \text{Individual Characteristics}_i + \varepsilon_i$$

$$4. \text{Technicians group treatment} = \beta_0 + \beta_1 \text{public}_i +$$

$$\beta_i \text{Individual Characteristics}_i + \varepsilon_i$$

$$5. \text{Clerks group treatment} = \beta_0 + \beta_1 \text{public}_i +$$

$$\beta_i \text{Individual Characteristics}_i$$

$$+ \varepsilon_i$$

$$6. \text{Service workers group treatment} = \beta_0 + \beta_1 \text{public}_i +$$

$$\beta_i \text{Individual Characteristics}_i + \varepsilon_i$$

while controlling for occupation in major group characteristics, the baseline equation will show overall result, including interaction terms between occupation in major groups and public variable, to greatly explain the relationship between these variables, while the other equations will present only one occupation in observations at the time.

3. Model 3 will be the same as model 2 except that we change observations with related to educational attainment criteria, from bachelor's degree holder only to higher than bachelor's degree one, in this case they had master degree or Ph.D. as a highest level of education. These change in observations reduces the number of observations from 9,643 to 1,243, indicated that among university degree of education in labor force, majority of them are bachelor's degree holder.

5. Results

Premiums or discount by region

As explained in empirical model section, instead of looking at just monthly wages (wage base), now the model included supplementary benefits received in cash such as bonuses (in term of average per month), overtime (monthly) and other cash (monthly), we called this one income base. The estimation results of model 1 are presented in Table 4 both in wage base and income base, all of the coefficient signs for gender, married, age, and urban show what we might expected. The coefficients for the variable of interested public sector dummy variable are difference in each column, as it presents the difference in each region after controlling for observable individual characteristics.

The size of the public sector wage premium or discount is different by region where employees live, namely column (2.) Bangkok -14.4% in term of wage and -14.8% in term of income, column (3.) Central -12.6% in term of wage and -14.5% in term of income, column (4.) North 8.3% in term of wage and 7.1% in term of income (not statistically significant), column (5.) Northeast 19.3% in term of wage and 18% in term of income and column (6.) South 21.6% in term of wage and 26.5% in term of income. This is showing that on average if they are public sector employee, they will have wage discount (negative sign) or wage premium (positive sign), for example if they are employee in Bangkok or Central, they will have a 14.5% - 14.8% wage discount on average for Bangkok, and will have a 12.6% - 14.5% wage discount on average for central, this is statistically significant at the 1% level. On the other hand, if they live in north, northeast or south they are likely to have wage premium, 7.1% -

8.3%, 18% - 19.3% and 21.6% - 26.5%, respectively, and this is statistically significant at the 1% level except for north region.

These results confirm the importance of regional effect on wages, in this case Bangkok is better off for private sector, because in Thailand most of the high-paying jobs across all career levels are concentrated in Bangkok. While for public sector, they are better off if they work in the south, northeast or north, respectively, as not much job distribution in the countryside from the private sector.



Table 4: Model 1 OLS Estimates of Equation with Robust Standard Error; Interpreted as a Percentage of Monthly Wage and Monthly Income

Explanatory Variables	1. Baseline		2. Bangkok		3. Central	
	Wage base	Income base	Wage base	Income base	Wage base	Income base
Public	0.026 (0.016)	0.023 (0.017)	-0.144*** (0.048)	-0.148*** (0.048)	-0.126*** (0.026)	-0.145*** (0.027)
Age	0.012*** (0.004)	0.012*** (0.004)	0.034*** (0.012)	0.037*** (0.013)	0.016*** (0.006)	0.013** (0.006)
Age_sq	0.000*** 0.000	0.000*** 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000
Female	-0.129*** (0.014)	-0.149*** (0.014)	-0.134*** (0.032)	-0.151*** (0.032)	-0.165*** (0.021)	-0.182*** (0.021)
Female x Public	0.139*** (0.019)	0.158*** (0.020)	0.059 (0.062)	0.063 (0.063)	0.167*** (0.031)	0.188*** (0.033)
Married	0.101*** (0.011)	0.108*** (0.011)	0.023 (0.037)	0.027 (0.037)	0.136*** (0.018)	0.141*** (0.019)
Urban	0.064*** (0.010)	0.078*** (0.011)	- -	- -	0.039*** (0.015)	0.046*** (0.016)
Central	-0.209*** (0.016)	-0.181*** (0.017)				
North	-0.390*** (0.019)	-0.361*** (0.020)				
Northeast	-0.335*** (0.018)	-0.279*** (0.019)				
South	-0.350*** (0.017)	-0.301*** (0.018)				
Constant	9.420*** (0.072)	9.434*** (0.077)	9.236*** (0.225)	9.207*** (0.231)	9.258*** (0.113)	9.370*** (0.120)
Number	9,643	9,643	886	886	3,079	3,079
R-square	0.330	0.304	0.205	0.206	0.302	0.289
adj. R-square	0.329	0.303	0.200	0.200	0.301	0.288
Rmse	0.424	0.459	0.393	0.404	0.402	0.423

Standard errors in parentheses , * p<0.10, ** p<0.05, *** p<0.01

Explanatory Variables	4. North		5. Northeast		6. South	
	Wage base	Income base	Wage base	Income base	Wage base	Income base
Public	0.083**	0.071	0.193***	0.180***	0.216***	0.265***
	(0.042)	(0.044)	(0.046)	(0.050)	(0.034)	(0.037)
Age	0.006	0.002	0.028***	0.032***	-0.012	-0.007
	(0.009)	(0.010)	(0.009)	(0.010)	(0.008)	(0.008)
Age_sq	0.000**	0.000**	0.000	0.000	0.000***	0.000***
	0.000	0.000	0.000	0.000	0.000	0.000
Female	-0.108**	-0.122***	-0.014	-0.048	-0.095***	-0.116***
	(0.044)	(0.046)	(0.049)	(0.052)	(0.031)	(0.032)
Female x Public	0.145***	0.175***	0.029	0.076	0.098**	0.074*
	(0.051)	(0.054)	(0.054)	(0.058)	(0.040)	(0.043)
Married	0.091***	0.103***	0.085***	0.085***	0.071***	0.083***
	(0.026)	(0.028)	(0.023)	(0.026)	(0.022)	(0.024)
Urban	0.040*	0.057**	0.119***	0.151***	0.076***	0.084***
	(0.023)	(0.025)	(0.024)	(0.026)	(0.020)	(0.021)
Central						
North						
Northeast						
South						
Constant	9.062***	9.170***	8.560***	8.546***	9.388***	9.358***
	(0.174)	(0.189)	(0.172)	(0.188)	(0.152)	(0.162)
Number	1,703	1,703	2,076	2,076	1,899	1,899
R-square	0.339	0.306	0.350	0.319	0.399	0.380
adj. R-square	0.336	0.303	0.348	0.317	0.396	0.377
Rmse	0.446	0.489	0.440	0.493	0.403	0.436

Standard errors in parentheses , * p<0.10, ** p<0.05, *** p<0.01

Source: Author's calculation from LFS 2022 Q3

Premiums or discount by occupation

Now moving on to the model 2 that are presented in table 5, the results that shows in model 1 suggested us to control for region categorical variables as well. After controlling for gender, marital status, age, area, region and run each occupation in observations separately, in order to investigate in detail what group of occupation are better off if they work in public sector, now we have 6 equations as explained in empirical model section, and each one represents each occupation in major group that are classified as follows:

- Columns (1.) = Whole observations with each occupation dummies variable
- Columns (2.) = Legislators, senior government officials, executives and managers
- Columns (3.) = Professionals
- Columns (4.) = Technicians
- Columns (5.) = Clerks
- Columns (6.) = Services workers

Interactive terms between the public sector employee dummy variable and occupation in major group variable have been added to the equations 1 (Columns (1.)). Table 5 shows the results of all the coefficient signs, a negative sign for female variable means that if a worker is female, on average she will have lower wage than a male worker if his or her qualification is the same. A positive sign for age means that if a worker is older (or higher work experience), on average he or she will have a higher wage than a younger one if his or her qualification is the same. A positive sign

for married variable means that if a worker is married, on average he or she will have a higher wage than an unmarried worker if his or her qualification is the same. A positive sign for urban variable means that if a worker lives in urban area, on average he or she will have a higher wage than a worker who live in rural area if his or her qualification is the same. A negative sign for central, north, northeast and south variable means that if a worker lives in the countryside, on average he or she will have a lower wage than a worker who live in Bangkok (reference case) if his or her qualification is the same.

For occupation in major group aspects, the estimation results of model 2 are presented in Table 5 both in wage base and income base, all of the coefficient signs for gender, married, age, and urban are the same as model 1. The coefficients for the variable of interested public sector dummy variable are difference in each column, as it presents the difference in each occupation in major group, after controlling for observable individual characteristics (column (2.) - column (6.)).

When considering the coefficient for public dummy in baseline equation column (1.) from both wage base and income base, it's quite clear that private sector employees are better off overall, as the public sector employees have wage discount on average 12.8% - 19.9% lower compare to private sector employees with the same qualification. But after separate observations by occupation in major group and run regression separately, the coefficients are different, namely column (2.) Manager, -55.1% in term of wage and -55.9% in term of income, column (3.) Professional, -8.3% in term of wage and -7.3% in term of income, column (4.) Technician, 5.5% in term of wage and 5.9% in term of income, column (5.) Clerk, -0.3% in term of wage

and -2.6% in term of income (not statistically significant) and column (6.) Service worker, 35.7% in term of wage and 36% in term of income. This is implying that, if they are public sector employee in some occupation group, on average they will have wage discount (negative sign) or wage premium (positive sign) depending on which group they are in, for more explanation, if they work as legislators or senior government officials in public sector, they will have a 55.1% - 55.9% wage discount on average compare to executives or managers in private sector with the same qualification, this is statistically significant at the 1% level. The same go to professional and clerk group in public sector, as they will have a 7.3% - 8.3% and 0.3% - 2.6%, respectively, wage discount on average if they have the same qualification, this is statistically significant at the 1% level except for clerk group. Public sector employees have wage premium compare to private sector employees if they are technician (on average 5.5% - 5.9% higher) and service worker (on average 35.7% - 36% higher) with the same qualification, this is statistically significant at the 1% level for service worker group and 10% level for technician group.

Additionally, when we look into the male and female wage gap within sector, unsurprisingly, it's by far smaller in the public sector compare to private sector counterpart, on average, the gender wage gap in public sector is around 5.5% - 5.7% lower for female, while the gap in private sector is around 13.4% - 15% lower for female. The reason behind these differences probably because of wage structure differential, given that public sector wage is determined by government regulations but not negotiation and discretion, this leading to lower level of discrimination against women in public sector. When we restrict the observation of both sector to those in each group of occupation separately, public sector female workers are better off

compare to private sector if they are in manager and professional group, all of this could explain why the proportion of women in public sector is quite a lot.

Table 5: Model 2 OLS Estimates of Equation with Robust Standard Error, Interpreted as a Percentage of Monthly Wage and Monthly Income



Explanatory Variables	1. Baseline		2. Manager		3. Professional	
	Wage base	Income base	Wage base	Income base	Wage base	Income base
Public	-0.128*** (0.043)	-0.199*** (0.044)	-0.551*** (0.070)	-0.559*** (0.074)	-0.083*** (0.028)	-0.073** (0.030)
Age	0.009** (0.003)	0.009** (0.004)	0.011 (0.018)	0.006 (0.019)	0.030*** (0.005)	0.029*** (0.006)
Age_sq	0.000*** 0.000	0.000*** 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000
Female	-0.134*** (0.013)	-0.150*** (0.014)	-0.133*** (0.043)	-0.131*** (0.044)	-0.191*** (0.030)	-0.194*** (0.031)
Female x Public	0.079*** (0.018)	0.093*** (0.019)	0.206** (0.105)	0.203* (0.110)	0.236*** (0.033)	0.260*** (0.036)
Married	0.084*** (0.010)	0.091*** (0.010)	0.149*** (0.051)	0.169*** (0.054)	0.051*** (0.014)	0.062*** (0.016)
Urban	0.057*** (0.009)	0.071*** (0.010)	0.147*** (0.050)	0.154*** (0.052)	0.049*** (0.014)	0.071*** (0.015)
Central	-0.182*** (0.015)	-0.157*** (0.016)	-0.044 (0.055)	-0.006 (0.058)	-0.258*** (0.029)	-0.235*** (0.031)
North	-0.331*** (0.017)	-0.307*** (0.018)	-0.246*** (0.087)	-0.200** (0.090)	-0.351*** (0.032)	-0.310*** (0.034)
Northeast	-0.298*** (0.016)	-0.250*** (0.018)	-0.371*** (0.080)	-0.337*** (0.085)	-0.318*** (0.031)	-0.244*** (0.033)
South	-0.292*** (0.016)	-0.250*** (0.017)	-0.128* (0.077)	-0.059 (0.081)	-0.340*** (0.032)	-0.294*** (0.033)
Manager	0.589*** (0.028)	0.561*** (0.030)				
Manager x Public	-0.388*** (0.066)	-0.331*** (0.069)				
Professional	0.432*** (0.024)	0.404*** (0.026)				
Professional x Public	0.167*** (0.046)	0.267*** (0.047)				
Technician	0.341*** (0.022)	0.312*** (0.024)				
Technician x Public	0.127*** (0.046)	0.201*** (0.047)				
Clerk	0.211*** (0.023)	0.174*** (0.025)				
Clerk x Public	0.024 (0.046)	0.060 (0.047)				
Service worker	-0.010 (0.025)	-0.003 (0.027)				
Service worker x Public	0.291*** (0.050)	0.351*** (0.052)				
Constant	9.211*** (0.069)	9.240*** (0.074)	9.569*** (0.358)	9.677*** (0.382)	9.267*** (0.108)	9.279*** (0.119)
Number	9,643	9,643	619	619	3,887	3,887
R-square	0.446	0.418	0.290	0.271	0.380	0.344
adj. R-square	0.445	0.417	0.277	0.258	0.378	0.342
Rmse	0.386	0.419	0.536	0.564	0.381	0.427

Standard errors in parentheses, * p<0.10, ** p<0.05, *** p<0.01

Explanatory Variables	4. Technician		5. Clerk		6. Worker service	
	Wage base	Income base	Wage base	Income base	Wage base	Income base
Public	0.055*	0.059*	-0.003	-0.026	0.357***	0.360***
	(0.029)	(0.032)	(0.035)	(0.037)	(0.040)	(0.044)
Age	0.016**	0.020***	0.008	0.009	-0.018*	-0.004
	(0.007)	(0.007)	(0.008)	(0.008)	(0.010)	(0.011)
Age_sq	0.000	0.000	0.000	0.000	0.000***	0.000
	0.000	0.000	0.000	0.000	0.000	0.000
Female	-0.143***	-0.180***	-0.033	-0.063**	-0.090***	-0.148***
	(0.024)	(0.025)	(0.028)	(0.029)	(0.032)	(0.035)
Female x Public	-0.010	0.008	-0.043	-0.035	-0.373***	-0.395***
	(0.036)	(0.039)	(0.039)	(0.041)	(0.054)	(0.057)
Married	0.090***	0.087***	0.031	0.037*	0.175***	0.175***
	(0.021)	(0.022)	(0.020)	(0.021)	(0.036)	(0.038)
Urban	0.030	0.032	0.024	0.028	0.065**	0.081***
	(0.020)	(0.021)	(0.017)	(0.018)	(0.027)	(0.029)
Central	-0.176***	-0.156***	-0.151***	-0.149***	-0.248***	-0.220***
	(0.027)	(0.029)	(0.029)	(0.030)	(0.046)	(0.051)
North	-0.353***	-0.341***	-0.307***	-0.310***	-0.413***	-0.394***
	(0.034)	(0.036)	(0.034)	(0.035)	(0.046)	(0.052)
Northeast	-0.296***	-0.261***	-0.270***	-0.261***	-0.326***	-0.272***
	(0.031)	(0.033)	(0.033)	(0.034)	(0.044)	(0.051)
South	-0.348***	-0.315***	-0.257***	-0.229***	-0.288***	-0.221***
	(0.030)	(0.032)	(0.032)	(0.033)	(0.043)	(0.048)
Manager						
Manager x Public						
Professional						
Professional x Public						
Technician						
Technician x Public						
Clerk						
Clerk x Public						
Service worker						
Service worker x Public						
Constant	9.475***	9.455***	9.373***	9.411***	9.792***	9.631***
	(0.137)	(0.138)	(0.147)	(0.151)	(0.194)	(0.209)
Number	1,806	1,806	1,719	1,719	1,034	1,034
R-square	0.365	0.348	0.299	0.288	0.465	0.438
adj. R-square	0.361	0.344	0.294	0.284	0.459	0.432
Rmse	0.356	0.376	0.327	0.339	0.370	0.402

Standard errors in parentheses , * p<0.10, ** p<0.05, *** p<0.01

Source: Author's calculation from LFS 2022 Q3

Furthermore, we want to investigate the effect of education attainment on wages, as our main observation in the first and second models are bachelor degree holders, but what if we look at the level above them, such as master degree holders and Ph.D. holders. We grouping master degree holders and Ph.D. holders together, while holding the other control variables constant, even though in this group we only have 1,213 observations.

The table 6 shows the results of individual characteristics that can impact wages, our variables of interest are job sectors (Public and Private) and occupation in major group (Manager/Professional/Technician). The other control variables are work experience, region of work, gender, area of household and marital status. When considering the coefficient for public dummy in baseline equation column (1.) from both wage base and income base, the sign is the same as model 2 result, but the size is bigger, as expected from the relationship of wage and education attainment. As a result, the public sector employees have wage discount on average 20.6% - 20.9% compare to private sector employees with the same qualification.

Taking into account the effect of occupation in major group, we separate observations and run regression separately, the coefficients are different, namely column (2.) Manager, -4.3% in term of wage and -1.1% in term of income, column (3.) Professional, -11.2% in term of wage and -7.7% in term of income, column (4.) Technician, 12.4% in term of wage and 14.2% in term of income. Again, the sign of the coefficients are the same as model 2, except that none of them are statistically significant.

Table 6: Model 3 OLS Estimates of Equation of higher than bachelor degree education level, Interpreted as a Percentage of Monthly Wage and Monthly Income

Explanatory Variables	1. Baseline		2. Manager		3. Professional		4. Technician	
	Wage base	Income base	Wage base	Income base	Wage base	Income base	Wage base	Income base
Public	-0.206**	-0.209**	-0.042	-0.011	-0.112	-0.077	0.124	0.142
	(0.090)	(0.099)	(0.093)	(0.089)	(0.095)	(0.102)	(0.121)	(0.112)
Age	0.044***	0.044***	0.049	0.027	0.050***	0.052***	-0.004	-0.007
	(0.011)	(0.013)	(0.045)	(0.049)	(0.015)	(0.018)	(0.035)	(0.038)
Age_sq	-0.000*	-0.000*	0.000	0.000	-0.000*	0.000	0.000	0.000
	0.000	0.000	0.000	(0.001)	0.000	0.000	0.000	0.000
Female	-0.046	-0.068	-0.026	-0.080	-0.034	-0.042	-0.002	-0.003
	(0.043)	(0.047)	(0.102)	(0.100)	(0.103)	(0.110)	(0.120)	(0.111)
Female x Public	-0.018	-0.007	-0.065	-0.034	-0.010	-0.002	-0.195	-0.274**
	(0.048)	(0.053)	(0.111)	(0.114)	(0.105)	(0.113)	(0.145)	(0.133)
Married	0.045**	0.055**	0.077	0.053	0.055**	0.065**	0.028	0.054
	(0.020)	(0.023)	(0.058)	(0.062)	(0.023)	(0.026)	(0.065)	(0.064)
Urban	0.035	0.037	0.059	0.049	0.041	0.055*	0.026	-0.039
	(0.021)	(0.024)	(0.061)	(0.062)	(0.025)	(0.029)	(0.080)	(0.071)
Central	-0.177***	-0.150***	-0.105	-0.115	-0.232***	-0.205***	-0.087	-0.018
	(0.035)	(0.039)	(0.082)	(0.088)	(0.052)	(0.056)	(0.110)	(0.107)
North	-0.191***	-0.152***	-0.154*	-0.118	-0.224***	-0.180***	-0.215	-0.204
	(0.038)	(0.042)	(0.092)	(0.103)	(0.055)	(0.060)	(0.133)	(0.139)
Northeast	-0.203***	-0.127***	-0.166	-0.075	-0.230***	-0.149**	-0.044	0.024
	(0.039)	(0.043)	(0.106)	(0.102)	(0.055)	(0.060)	(0.114)	(0.115)
South	-0.247***	-0.219***	-0.174**	-0.162*	-0.327***	-0.296***	-0.003	0.021
	(0.039)	(0.043)	(0.086)	(0.095)	(0.058)	(0.062)	(0.125)	(0.126)
Manager	0.195**	0.223**						
	(0.081)	(0.089)						
Manager x Public	0.162*	0.201*						
	(0.093)	(0.103)						
Professional	0.155*	0.182**						
	(0.080)	(0.088)						
Professional x Public	0.098	0.137						
	(0.089)	(0.098)						
Technician	-0.080	-0.035						
	(0.086)	(0.094)						
Technician x Public	0.225**	0.187*						
	(0.102)	(0.112)						
Constant	9.076***	9.061***	9.059***	9.636***	9.145***	9.083***	10.063***	10.166***
	(0.256)	(0.283)	(1.072)	(1.165)	(0.330)	(0.390)	(0.738)	(0.780)
Number	1,213	1,213	240	240	769	769	115	115
R-square	0.354	0.343	0.244	0.225	0.310	0.281	0.210	0.274
adj. R-square	0.345	0.333	0.207	0.188	0.300	0.271	0.125	0.197
Rmse	0.320	0.354	0.366	0.391	0.296	0.343	0.338	0.322

Standard errors in parentheses, * p<0.10, ** p<0.05, *** p<0.01

Source: Author's calculation from LFS 2022 Q3

6. Conclusion

A wage premium is a higher wage rate earned by employees in a specific job or profession relative to the wages of other similar workers, while wage discount is the opposite, in case of this study, we add to literature review by focusing on public and private employees who hold the same highest education as bachelor's degree with related to region, gender and occupation in major group of the workers, not surprisingly their earnings are on average lower in public sector for both gender compare to private sector, so in Thailand we have wage discount in public sector.

To explain more, the results summation can be explained as follow: First, for regional wage differentials, private sector has wage premium if they work in Bangkok and central region, while public sector will have the premium if they work in north, northeast and south region, moreover the premium will be higher if they work in urban area. Second, for occupation in major group wage differentials, the higher the job position they are in workplace, the higher chance the premium will shift from public sector to private sector, for example, public sector employee who are technician and service worker will have wage premium, but private sector employee who are manager and professional will have wage premium as it's high rank position, similar to the previous studies. Third, for gender wage gap, the gap is by far smaller in the public sector compare to private sector counterpart, this is likely because of the problem of gender discrimination is less in public sector, due to wage regulations. he is not much difference between men and women (roughly 5.4% - 5.8%) but it's is relatively high in private sector which women earn roughly 13% - 15.6% lower compare to men, this is probably because of type of jobs difference of men and women and also the problem of gender discrimination is more in private sector.

Finally, when take into account supplementary benefits received in cash such as bonuses, overtime and other cash, it could make size of wage discount for public sector bigger, as the proportion of the employees in the private sector received supplementary benefits was higher than those in public sector.

However, when we consider the premium for public sector, it is likely to be higher than this estimation alone given that the public sector offers more benefits in term of welfare than the private sector, and these results do not factor in those non-pecuniary features of employment, for example job security, health-care benefits, disability insurance and old-age pension. That are also factors that make some workers in favor of the public sector.

The findings have some implications for newly graduate job seekers in Thailand, the salary of government officer might not as low as what we think, it can depend on many factors, such as area of workplace, type of job, supplementary benefits, etc. Even though, the results suggest that high rank position private employee might earn a lot higher, however, the income of those in the private sector is quite volatile, moving in a very wide band depending on economic situations, which is not going to affect public sector much, because of how stable they are. Therefore, the decisions will depend on whether the job seeker is a risk lover who would like to take risk in finding the higher paid job but with a lot of competition or risk averse who want a secure job.

Dicussion

From the point that public sector employees likely to be better off if they work in the countryside regions, but what exactly type of job they do? To examine this question, we look into occupation in sub-major group from labor force survey. When we restrict the observation of public sector to only those who work in the countryside regions, the top 3 jobs for them are as follow. 1. Teaching professionals (roughly 31%), such as primary school teachers, early childhood teachers, secondary school teachers, etc. 2. Health professionals (roughly 16%), such as nursing and midwifery professionals, medical doctors, etc. 3. General and keyboard clerks (roughly 13%), such as general office clerks.

These finding indicate that workers might self-select into public sector because of these jobs, as this type of jobs in private sector mostly available in central region. These regional effect and job available in the region could be an important area for further study in the future.

Appendix

Econometric problems

1. Multicollinearity Test

Table 7: Pairwise Correlation Matrix Using Stata

```
pwcorr public female age married reg urban, star(0.05) sig
```

	public	female	age	married	reg	urban
public	1.0000					
female	0.0357* 0.0005	1.0000				
age	0.2162* 0.0000	-0.0862* 0.0000	1.0000			
married	0.1829* 0.0000	-0.0983* 0.0000	0.4281* 0.0000	1.0000		
reg	0.2535* 0.0000	0.0185 0.0688	0.0420* 0.0000	0.1136* 0.0000	1.0000	
urban	-0.0087 0.3953	-0.0349* 0.0006	0.0461* 0.0000	-0.0054 0.5937	-0.0414* 0.0000	1.0000

```
. pwcorr public Manager Professionals Technicians Clerks ServiceWorkers, star(0.05)
> sig
```

	public	Manager	Profes~s	Techni~s	Clerks	Service~s
public	1.0000					
Manager	-0.0878* 0.0000	1.0000				
Profession~s	0.3346* 0.0000	-0.2192* 0.0000	1.0000			
Technicians	-0.1685* 0.0000	-0.1284* 0.0000	-0.3919* 0.0000	1.0000		
Clerks	0.0097 0.3390	-0.1248* 0.0000	-0.3810* 0.0000	-0.2231* 0.0000	1.0000	
ServiceWor~s	-0.1042* 0.0000	-0.0929* 0.0000	-0.2835* 0.0000	-0.1660* 0.0000	-0.1614* 0.0000	1.0000

These table 7 presents the pairwise correlation matrix for the independent variables, which vary from +0.4284 to -0.3919, indicating no collinearity concern as the correlation for all variables are lower than 0.8.

2. Heteroskedasticity test

Table 8: Breusch-Pagan / Cook-Weisberg Test for Heteroskedasticity

```

. estat hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of lnincome

chi2(1)      =    46.15
Prob > chi2  =    0.0000

```

These table 8 presents the test for heteroskedasticity in Stata, as the result suggest that we should reject null hypothesis of constant variance or it mean we have heteroskedasticity, in this case we use robust standard error to fix the problem.

3. Autocorrelation

As we use cross-sectional data for our regression model, therefore it is very hard to detect this problem in the model.

4. Endogeneity จุฬาลงกรณ์มหาวิทยาลัย

We can clarify this problem that sort out workers between both sectors by looking at some factors, for example pensions, provident fund, risk of unemployment and time travel to work. The lack of data on these factors in LFS make it very hard to find out instrumental variables (IV), so we will carefully interpret the empirical results.

REFERENCES

Abadie, A., et al. (2004). "Implementing matching estimators for average treatment effects in Stata." The stata journal **4**(3): 290-311.

Abadie, A. and G. Imbens (2002). Simple and bias-corrected matching estimators for average treatment effects, National Bureau of Economic Research Cambridge, Mass., USA.

Bender, K. A. (1998). "The central government-private sector wage differential." Journal of economic surveys **12**(2): 177-220.

Chandoevrit, W. "Is It Always True That Government Employees Earn Less Than Private Sector Employees?".

Gindling, T., et al. (2020). "Are public sector workers in developing countries overpaid? Evidence from a new global dataset." World Development **126**: 104737.

Mincer, J. (1974). "Schooling, Experience, and Earnings. Human Behavior & Social Institutions No. 2."

Morikawa, M. (2016). "A comparison of the wage structure between the public and private sectors in Japan." Journal of the Japanese and International Economies **39**: 73-90.

Paweenawat, S. W. and J. Vechbanyongratana (2015). "Wage Consequences of Rapid Tertiary Education Expansion in a Developing Economy: The Case of Thailand." The Developing Economies **53**(3): 218-231.



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