The Motherhood Wage Penalty in The Public and Private Sectors

in Thailand, 2017

Qiuge Chen

Faculty of Economics, Chulalongkorn University, Thailand
Email: chen08071011@126.com

Abstract

Prior research has shown that the Motherhood Wage Penalty on mothers has led to mothers earning a lower monthly income than women without children in Thailand. This paper uses the Social Economic Survey (SES) of 2017 to study how the motherhood penalty affects women from different sectors. Using data of 9522 women from age 15 to 65 in the SES 2017, I find that the average motherhood wage penalty stood at 7.6 percent. The average penalty was 1.6 percent higher in the public sector versus the penalty in the private sector. Human Capital Theory explains the wage gap between mothers and non-mothers and the differing impacts of the motherhood penalty in both the public and private sectors.

Keywords: Motherhood · Wage penalty · Mincer function · Thailand.

1.   Introduction

In Southeast Asia, women have faced discrimination for as long as men have played a dominant role in Thailand (Romanow, 2012). Nevertheless, the conceptualization of the mistreatment is not inflexible, as it evolves as society continues to develop. The rise of female labor force participation has been an evident consequence of the changing responsibility of women (Schultz, 1990). Given that the wage differential among women and men has been historically and widely proved, mothers still, on average, earn less than women without children (Waldfogel, 1997).

As a result of both modernization and feminist movements in Thailand since the B.E. decade of the 2410s (A.D. 1860s), the status of Thai women has significantly improved (Buranajaroenkij, 2017). However, the change in the economic status of women has led to conflicts related to social expectations of women. Society continues to expect that women maintain a work-family balance while carrying the lion's share of taking care of family members, in addition to childbearing (Vichit-Vadakan, 1994). Given that the domestic duties are primarily, even exclusively, for women, the capability of women to balance family and work in a reasonable manner is in question. Thus, whether becoming a working mother is voluntary or done so reluctantly, the growth of working mothers is inevitable.

Working mothers are individuals who can combine career and the responsibility of childbearing. However, the impact from the changes of socio-economic status of women also distresses women's work-family choices. Those conflicts manifest themselves in many ways. Firstly, fertility might reduce or disrupt human capital accumulation, thus, hindering the professional growth of women (Mincer, 1989). Additionally, fertility, in this case, will expose women to a motherhood penalty. This penalty showcases the discrepancies in pay and other welfare compared to childless women, consequently furthering gender discrimination in the labor market and negatively impacting women's fertility preferences (Budig & England, 2001).

As mentioned above, many empirical studies from countries like the United States, Canada, France, and other developed countries have shown that there would be a wage penalty with each additional child, which causes a 5 percent to 10 percent drop in women's income. This wage penalty caused by fertility on women is considered a 'motherhood penalty' (Budig & England, 2001). For the last two decades, the motherhood penalty has been a global issue that many developed countries

have conducted intensive research on, but only a few studies focused on Thailand. Liao and Paweenawat (2019) had found the increasing wage gap between mothers and non-mothers existing in Thailand; however, it is still unclear the size of the impact of the motherhood penalty and the role that the public and private sectors play in the motherhood penalty.

In this paper, I estimated the motherhood wage penalty on women from the public sector and the private sector in Thailand by using the Social Economic Survey 2017, comparing the monthly wage of mothers and women without children from both sectors. The results show that mothers earn 7.6 percent less than women without children in Thailand. The wage difference caused by motherhood is higher in the public sector than in the private sector. However, the human capital theory explains the wage gap among mothers and non- mothers. Thus, the motherhood wage penalty will be mitigated by the accumulation of human capital.

2. Research Methodology

2.1 Data and variables

The data used in this paper will be from the Household Social-Economic Survey (SES) for the year 2017 collected by the National Statistic Office (NSO) of Thailand. The complete SES survey is conducted by NSO every year and contains both household and individual information of 52,000 households all over the country.

The SES used household registration to conduct its survey; thus, it did not fully include each individual's information in the household. This aspect of the survey poses a significant challenge in distinguishing mothers and non-mothers. Additionally, this study only investigates working women aged between 15-65 who are either household heads or the household head's spouse.

This paper only investigates those females who are either the household head, the spouse of the household head, aged between 15 and 65, and are reported to be currently working. Thus, the number of children accounted for in the following tables will be those with a reported relationship to the household head, either as unmarried or married children. This method requires microdata which is available in the household Social-Economic Survey (SES) of Thailand. The SES collects the details of employees' incomes. Specifically, working mothers and working non-

mothers are cross-classified by two demographic and social characteristics groups: 2-marital status, with or without children, and two sectors. The SES lists an individual's wage and working months within the past 12 months, last month's compensation, and the overall wage and compensation of the past 12 months. In order to avoid the wage penalty caused by the working status in the past 12 months, this study uses the combination of the 'wage of last month,' 'compensation,' and 'the bonus of last month' as the income level.

2.2 Estimate the motherhood penalty

To sum up the existing empirical research on the motherhood penalty, this paper will estimate the motherhood penalty using the Mincer Wage Function:

$$ln\omega_t = ln\omega_0 + \rho s + \beta_1 x + \beta_2 x^2$$

The wage equation in the form $ln\omega t$ is a quadratic function where t is what the human was rewarded at ωt. In Mincer's theory, $\omega 0$ is the earning of people with no schooling or working experience. 's' is the year of schooling and 'x' is the working experience which is equal to the age at the time 't' minus years of schooling then minus the age they starting schooling, which results in 'x=t-s-b.' There will also be other variables confirmed by former researchers in the public and private sectors. As well as dummy variables, for example, region and the working experience square. Given that these studies used the Human Capital Theory, the earning function for this study following Mincer's model is

$$ln\omega t = ln\omega 0 + \rho s + \beta 1(age) + \beta 2(age)^2 + \beta 3(sector)$$

As previously indicated, this study inputs SES household data to estimate the relationship between individual earnings and human capital variables such as schooling and working experience. The household earnings are estimated from the wage of last month, compensation, and the bonus of last month. A worker's experience equals the age at time 't' minus years of schooling then minus the age they start schooling. The primary assumption is that the average monthly wage

of mothers equals the average monthly wage of non-mothers of the same educational level and equal years of working experience, both in the public or private sectors.

According to Mincer's model, this indicates a relationship between the individual's wage and their human capital characteristics.

lnωt=β0+β1Number of Children under 15+β2Edu+β3Exp+β4Exp²+β5Sector+β6Marital status+β7Mom

lnωt is the natural logarithm of working women's real monthly wage, estimated from wage and type of job. The relationship between wage and human capital variables is positive yet not linear. Mincer, (1974) by introducing this quadratic equation, addressed the statistically significant positive relationship between wage, schooling, and working experience. Birth is the number of children under 15 years old one woman has given birth to before or after entering the labour market. Edu is the year of schooling the woman obtained before or after she entered the labour market. Exp is the years of working experience. With extensive working experience, it is generally considered that the accumulation of human capital also increases, making women earn higher wages. Sector is the sector the woman works within. It includes two dummies, including the private sector and the public sector. Area refers to the type of area women live in, including one dummy variable: municipal and non-municipal area. Marital status is if one has been or is currently married, including one dummy variable, which is 'not married or married.' Mom is the dummy variable which equals 1 if she has children.

3. Results

This chapter reports the results of this study. After regression of the primary model based on Mincer's equation, it could be assumed that the motherhood wage penalty on mothers truly exists in Thailand. Table 3.1 shows the motherhood penalty on mothers is about 7.6 percent which means that the wage level of mothers declines about 7.6 percent compared to the non-mothers and is statistically significant on 0.1 percent level, which is consistent with the former study.

Concerning human capital variables, with each additional year of schooling, the wage level of women will increase by 5.5 percent. When it comes to the working experience, with each additional year of working experience, the wage level of women will increase by 3.6 percent. However, as proved by the age-earning function, the square of working experience has a negative impact on wage level, which means that when the working experience reaches a specific number, the wage level of women will decline.

Regarding marital status, marriage will cause an 8.7 percent decline in women's wage level.

When it comes to the specific work sector, they too have a statistically significant effect on women's wage levels. Women from the public sector earn 30.4 percent more than those who work in the private sector and is statistically significant on 0.1 percent level.

Specification1: $ln\omega_t = \beta_0 - \beta_1 \text{ Number of Children under } 15 + \beta_2 Edu + \beta_3 Exp - \beta_4 Exp^2 + \beta_5 Sector - \beta_6 Marital\ status - \beta_7 Area$

Table 3.1 The results of Model 1

	Monthly wage
Number of children under 15	-0.076***
	(0.007)
Years of schooling	0.055***
	(0.001)
Working Experience	0.036***
	(0.002)
Square of working experience	-0.001***
	(0.00)
Marital status	-0.087***
	(0.021)
Sector	0.307***
	(0.018)
Area	-0.205***

	(0.014)
Constant	8.731***
	(0.039)
R²	0.460

3.1 Public Sector

In the public sector (the combination of public sector and state-owned enterprise), with one more child under 15 years old, the wage level will decline 7 percent and is statistically significant on 0.1 percent level. Generally, mothers who have children under 15 years old usually carry the duty of childbearing and perhaps home schooling while working compared to those women whose children are in college or already working. The higher the mother's level of education, for example, an above-average number of years of education, seems to exclude mothers from the motherhood wage penalty, consistent with Mincer's theory.

Specification2: $ln\omega_t = \beta_0 - \beta_2$ Number of Children under 15 $+ \beta_3 Edu + \beta_4 Exp$

Table 3.2 The results of Model2

	Monthly wage
Number of children under 15	-0.070***
	(0.016)
Years of schooling	0.091***
	(0.003)
Working Experience	0.036***
	(0.004)
Square of working experience	0.000***
	(0.00)
Constant	8.141***
	(0.085)
R2	0.432

3.2 Private Sector

In the private sector, mothers have lower monthly wages than non-mothers, and their wage declines about 5.8 percent with each additional child, which is a smaller percentage than that in the public sector. These percentages may result from the fact that the wage structure in the private sector is more competitive due to both marital status and the area mothers live in, thus clarifying a part of the wage gap among mothers and non-mothers in the private sector.

Specification3: $ln\omega_t = \beta_0 - \beta_1$ Number of Children under $15 + \beta_2 Edu + \beta_3 Exp - \beta_4 Exp^2 - \beta_5 Marriage - \beta_6 Area$

Table 3.3 The results of Model3

	Monthly wage
Number of children under 15	-0.058***
	(0.008)
Years of schooling	0.042***
	(0.002)
Working Experience	0.021***
	(0.002)
Square of working experience	-0.001**
	(0.000)
Marital status	-0.116
	(0.023)
Area	-0.188***
	(0.015)
Constant	9.091***
	(0.046)
R^2	0.313

3.3 Multiple Regression

After the OLS regression on the motherhood penalty, the effect from the independent variables has been proved; thus, this area of the report will look deeper into the mechanism of the motherhood penalty contrasted with different penalties.

First, the number of children under 15 will be set as the independent variable of 'Raw Wage Penalty,' and step by step, estimating other variables will be used to measure the change of the regression coefficients of the number of children under 15. Table 3.4 reports the change of regression coefficient of the number of children after controlling demographic characteristics, marital status, and human capital variables in both the public sector and private sector. It is clear that the motherhood wage penalty declines along with the wage equation in each model, proving the human capital theory (except the third model of the private sector). Furthermore, after estimating the related variables, the wage gap among mothers and non-mothers explained by the number of children under 15 remains statistically significant, which means that the motherhood wage penalty exists in Thailand in both sectors.

Table 3.4 Motherhood wage penalty

	Public Sector	Private Sector
Raw wage penalty	-0.149***	-0.082***
Estimated wage penalty		
(1) Controls: Age, area	-0.126***	-0.49***
Age		
Area		
(2) Controls: Marital Status	-0.099***	-0.031***
Age Area		
Marital Status		
(3) Controls: years of schooling,	-0.073***	-0.058***
working experience		
Age		
Area		
Marital Status		
Years of Schooling		
Square of Working Experience		

When only considering if one has a child or not, the motherhood wage penalty on mothers in both public and private sectors peaks with each additional child under 15 years old; the wage level of mothers from the public sector will decline 14.9 percent and 8.2 percent for women in the private sector with each additional child under the age of 15.

After controlling the demographic characteristics, including the age of the women and the area they live, the explanatory power of the number of children under 15 declines.

When the marital status is entered into the model, the results show the amount of wage gap among mothers and non-mothers varies in the sectors.

Putting the human capital variables into the model partly explains the wage penalty on mothers; however, it varies depending on the sector. The unexplained wage penalty of women from the public sector declines about 2.7 percent in the private sector. Based on model 2, after controlling human capital variables, the unexplained wage penalty on mothers increased about 1.8 percent. Compared to the raw wage penalty on mothers in the private sector, the wage penalty has declined by about 2.4 percent.

These estimations show that the human capital theory explains most of the wage penalty on mothers, given that the wage penalty on mothers from both the public sector and private sector declined after controlling more human capital variables in the models. The wage penalty caused by fertility in the public sector could be mainly explained by Human

Capital Theory, where after controlling the human capital variables, the wage penalty has halved its raw wage penalty. For those women who work in the private sector, the increasing wage penalty from model 2 to model 3 means that they must accumulate more human capital compared to those in the public sector to avoid the wage penalty caused by their interruption of employment. Moreover, being married when entering the labour market can mitigate the wage penalty caused by fertility on women from the private sector.

4.   Discussion and Conclusion

Based on the data from 2017, there is a motherhood wage penalty in Thailand which equals 7.6 percent. The coefficient from analysing the economic data of those mothers with children under the age of 15 clearly shows the presence of a significant motherhood wage gap; Human Capital Theory best represents a model to help explain why this may exist due to child-rearing. Additionally, one notices that the wage penalty on mothers working in the public sector is much greater than those within the private sector. Three reasons could help explain this:

First, the wage progression in the public sector is relatively strict and significantly dependent on seniority. Prior research demonstrates that in Thailand, the strict wage structure in public sector mitigated the gender wage gap among men and women in public sector which, on the contrary, also could be the reason why the wage penalty for mothers in public sector is fiercer. These factors pressure women not to leave their workplace after fertility.

Women who are unwilling or unable to compete for the higher positions would often transfer to a lower or more relaxed position to balance work and life. Even if they transfer back to their position after maternity leave, their wage level will not rise much due to the lack of accumulated skills and working experience obtained during the leave. Hence, lacking accumulation further leads to the motherhood penalty on mothers in the public sector.

Similarly in China, researchers found that women from public sectors are under greater motherhood wage penalty than those of private sectors which is mainly caused by the trade- off flexibility of career choice for a steady job.

Second, women are under more family-friendly conditions in the public sector than those in the private sector. For example, parents who work in the public sector are entitled to 15 days of paternity leave by the law, while there is no paternity leave for those working in the private sector. Research has found that women from the private sector tend to leave the labour market after fertility while women from the public sector choose to remain due to the ties made by the generous parental leave. It has been extensively proved that nothing hurts a woman's career more than the career gap caused by fertility. Nevertheless, as empirical evidence in Europe suggests that this generous time off for women will lead to their lack of human capital accumulation upon returning to the workplace, thus further increasing the wage gap among mothers and non-mothers in the public sector. On the contrary, women from the private sector with less competitive wages or lower positions tend to leave the labour force market after fertility, and only those in higher positions will be competitive enough to make sure their wage level will not decline once they get back. The wage gap among both mothers and non-mothers seems to be smaller than that in the public sector. Suggested by the research conducted in France, supporting the development of family-friendly measures in the private sector will eventually reduce the motherhood penalty in both sectors.

Third, human capital variables are easier for one to obtain or accumulate in the private sector; thus, women can avoid the motherhood wage penalty by improving human capital accumulation—for example, furthering their education at work, on-the-job training, more job opportunities, and convenience in changing jobs. Based on these and other factors, women from the private sector have more initiative to maintain or increase their wages.

With the aim of closing the wage penalty on mothers, the government should accelerate the development of education, especially for women. Based on the results from this study, additional educational opportunities for women reduce the wage penalty on mothers. Also, the government should provide more maternity benefits for the family and extend the maternity leave of men or provide an option for men to share the given maternity leave. Presently, women are entitled to 90 days of maternity leave while men are only entitled to 15 days. Thus, with longer days of leave, women tend to take on more responsibility for childcaring. Moreover, create a sound on-the-job training mechanism for women to increase their skills and human capital after fertility. Once women leave the labour force market, their educational level and working experience will be nearly impossible to improve. Providing more opportunities and ways for women to improve their skills or knowledge will be essential and further increase women's labour force participation.

There are also some limitations to this study. This study is based on the data from 2017 instead of penal data, so there is no comparison over time. The data was conducted by SES, which is based on the household social-economic information. It is virtually impossible to include all the mothers and their children in the data as a result of the data collection technique. Even though SES gives out the income and compensation or bonus information from last month, using the income and compensation or bonus in isolation is not sufficient.

However, as this study compares the public and private sectors, we must note that the SES does not provide the information if one switches her job from the public sector to the private sector, which would cause inaccuracies in this study. This study sticks to using the income, compensation, and bonus of last month in isolation. To further explain the motherhood wage penalty in Thailand, it would be interesting to look into different sectors in detail over time to estimate the change of the motherhood wage penalty alongside the changes in the development of all the sectors. Also, it would be interesting to estimate the fatherhood penalty in different sectors over time because it is also a unique phenomenon in Thailand.

5. References

Becker, G. S. (1985). Human Capital, Effort, and the Sexual Division of Labor. Journal of Labor Economics, 3(1, Part 2), S33–S58. https://doi.org/10.1086/298075

Budig, M. J., & England, P. (2001). The Wage Penalty for Motherhood. American Sociological Review, 66(2), 204. https://doi.org/10.2307/2657415

Fang, Z., & Sakellariou, C. (2011). A Case of Sticky Floors: Gender Wage Differentials in Thailand. Asian Economic Journal, 25(1), 35–54. https://doi.org/10.1111/j.1467-8381.2011.02047.x

Liao, L., & Paweenawat, S. W. (2019). Parenthood Penalty and Gender Wage Gap: Recent Evidence from Thailand.

Mincer, J. (1958a). Investment in Human Capital and Personal Income Distribution. Journal of Political Economy, 66(4), 281–302. https://doi.org/10.1086/258055

Mincer, J., & Jovanovic, B. (1979). Labor Mobility and Wages. Labor Mobility and Wages. Published. https://doi.org/10.3386/w0357

Romanow, L. (2012). The Women of Thailand. Global Majority E-Journal, 3(1), 44–60.

Schultz, T. P. (1990). Women's Changing Participation in the Labor Force: A World Perspective. Economic Development and Cultural Change, 38(3), 457–488. https://doi.org/10.1086/451811

Vichit-Vadakan, J. (1994). Women and the Family in Thailand in the Midst of Social Change. Law & Society Review, 28(3), 515. https://doi.org/10.2307/3054071

Waldfogel, J. (1997). The Effect of Children on Women's Wages. American Sociological Review, 62(2), 209. https://doi.org/10.2307/2657300