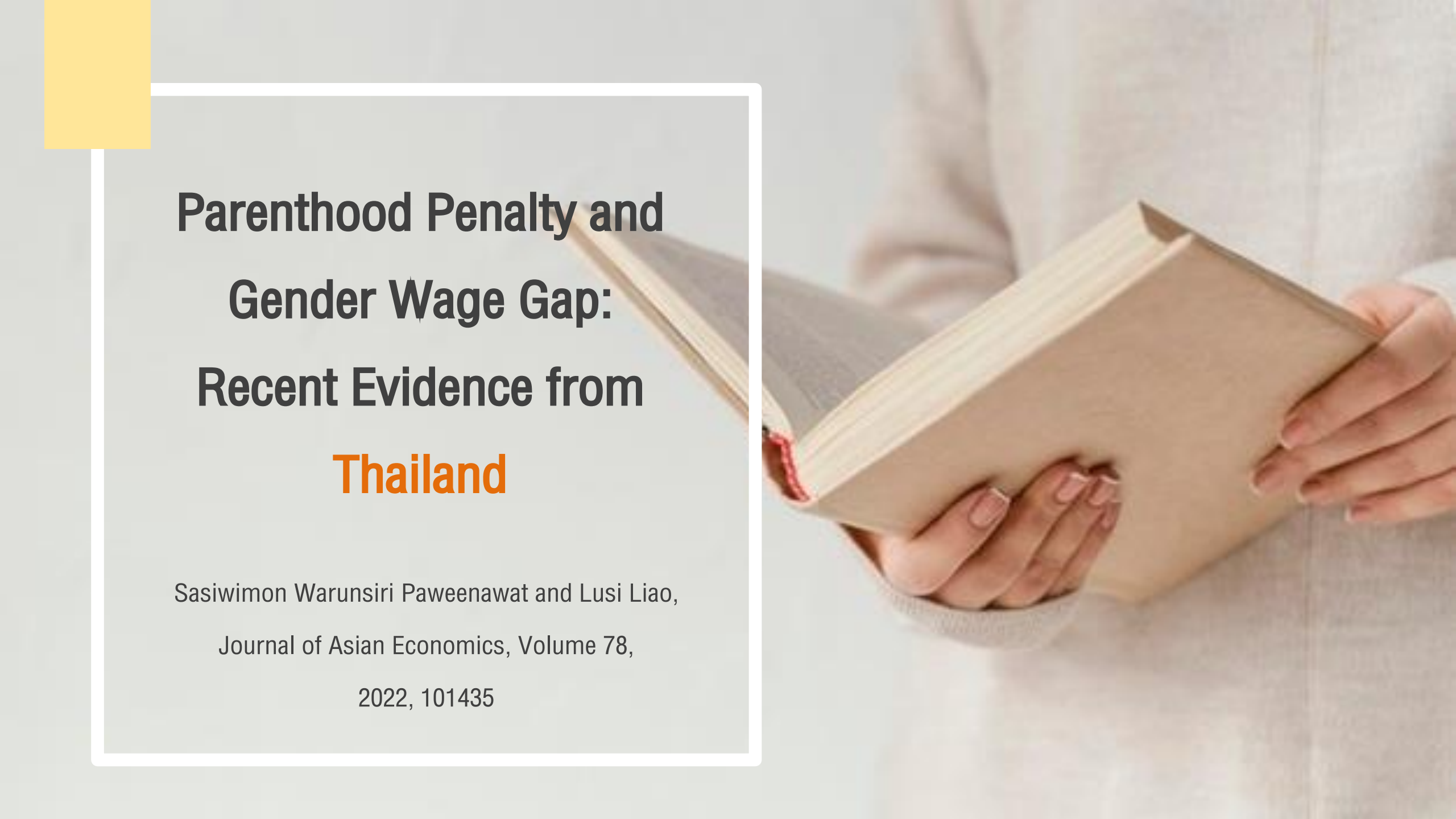




Parenthood Penalty and Gender Wage Gap: Recent Evidence from **Thailand**

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1. Introduction



A substantial long-term decline in gender wage gaps has been evidenced in both developed and developing countries in recent years.

- Personal and job characteristics of women (e.g., education, occupation, and job status), labor market structure (e.g., occupational segregation by gender), as well as institutional, cultural, and social norms.

1. Introduction



Thailand is an interesting case study to examine the evolution of gender wage gap.

- Social and economic development from 1985 to 2017.
- Thai females still undertake a major share of household responsibilities as well as balance their roles as workers and as mothers
- The female labor force participation rate in Thailand is historically high and stable with the average rate for married women being close to 80% from 1985 to 2016 (Liao and Paweenawat, 2018).

1. Introduction



Thailand is one of the developing countries that has been witnessing a steady decrease in gender wage gap from the 1980s to recent years (Nakavachara 2010; Mutsaklisana 2011; Khorpetch and Kulkolkarn 2011; Bui and Permpoonwiwat 2015; Jithitikulchai 2017)

■ The improvement of Thai women's education

1. Introduction

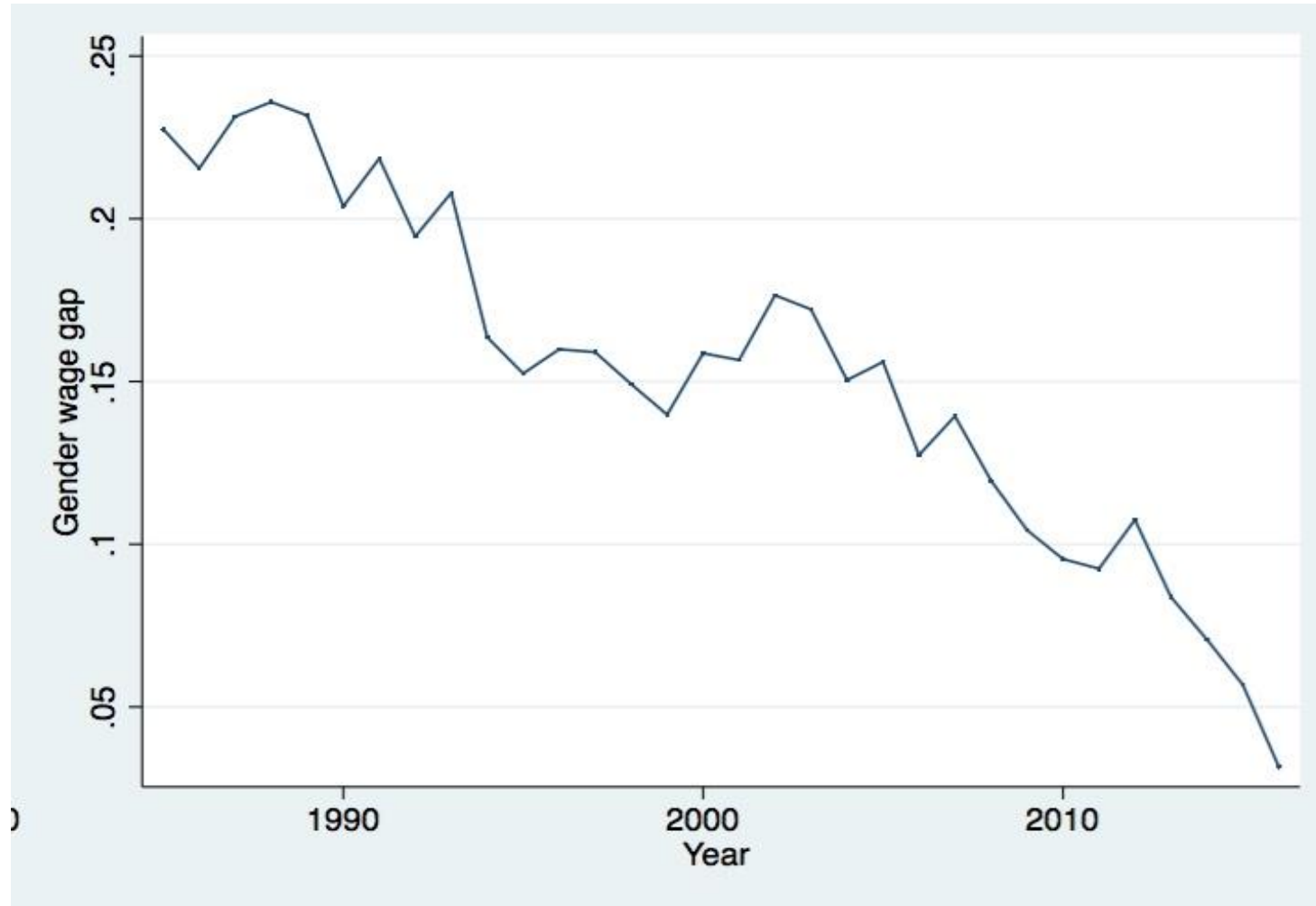


Figure1. Gender wage gap in Thailand (1985-2017)

Source: Authors' Calculation from LFS (1985-2017)

1. Introduction

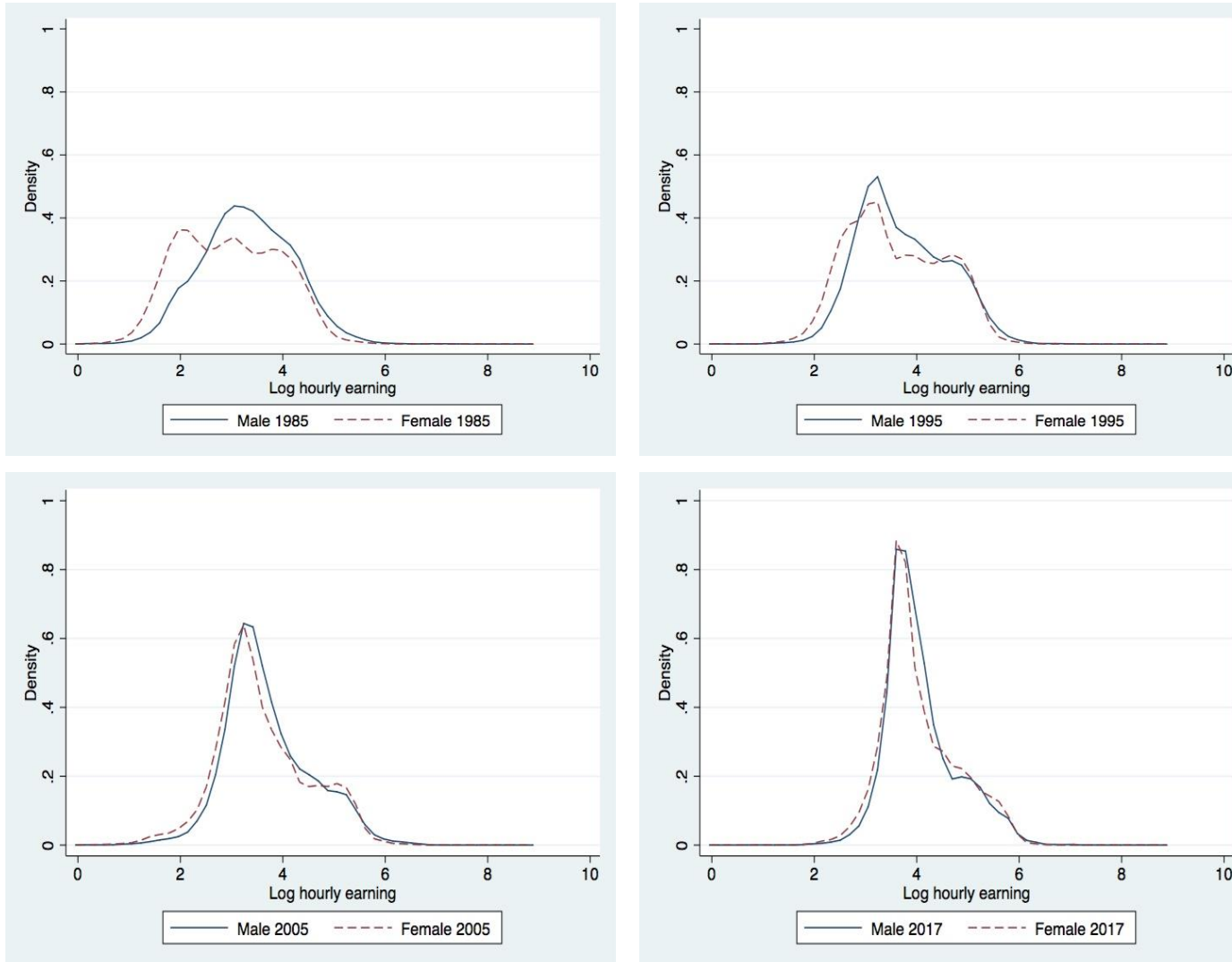


Figure 2. Log hourly wage density comparison (male VS female)

1. Introduction



The first objective of this paper is to examine the evolution of gender wage gap in Thailand by using data from the Labor Force Survey (LFS) for 1985–2017.

- Applying the Oaxaca-Blinder decomposition (Oaxaca 1973; Blinder 1973) and Juhn-Murphy-Pierce (JMP) decomposition (Juhn et al. 1991, 1993).
- Accounting for not only conventional human capital, but also the industry and occupation factors that contribute to the changes in gender wage gap.
- Results: Education is the major contributor for the convergence of gender wage gap. Occupation and industry account for the rapidly diminishing gender wage gap.

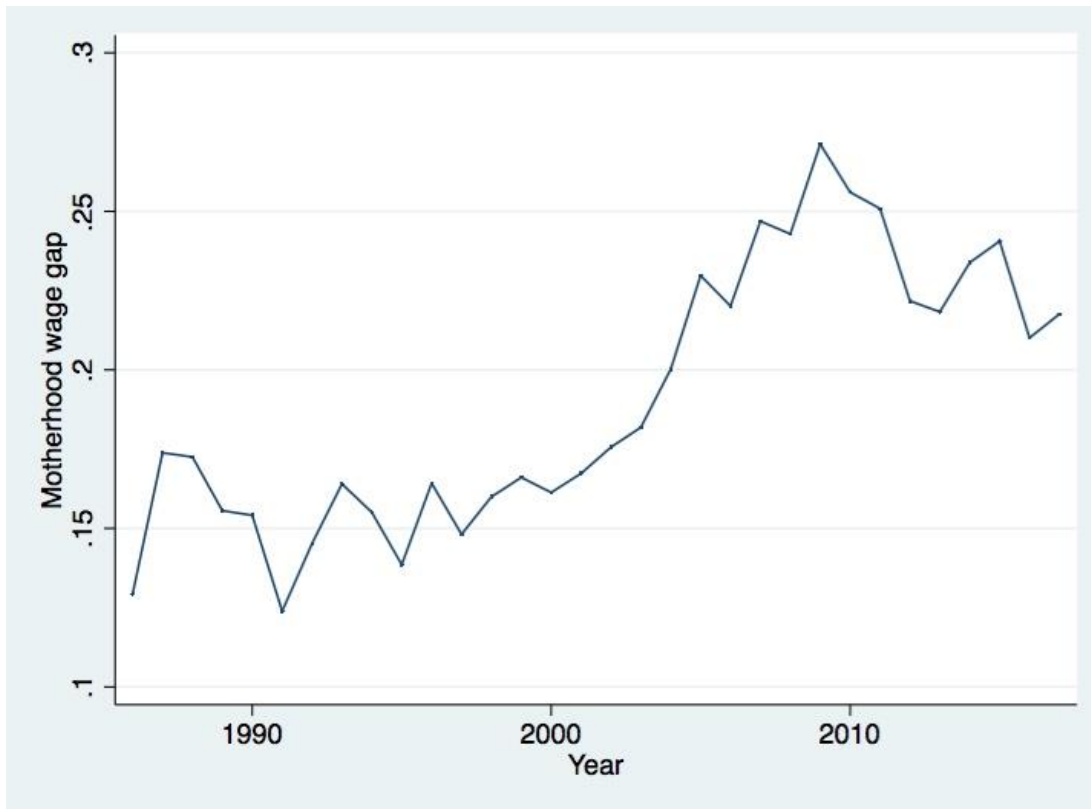
1. Introduction



Even though Thailand has been experiencing a convergence in the gender wage gap over the last three decades, the gap between mothers/mother-workers and non-mothers/non-mother workers has increased approximately 10% over time, while for males, the changes are relatively small.(Figure3)

1. Introduction

Figure3. Motherhood & Fatherhood wage gap in Thailand (1985-2017)



1. Introduction



Several studies in developed countries (e.g., Walffogel 1998; Cools and Strom 2014; Grimshaw and Rubery 2015) have found that the convergence of men's and women's earnings has slowed down in recent years, and this trend has been accompanied by a greater **gender** wage gap among parents and non-parents, which is also known as the family gap in wages.

1. Introduction



Our second objective is to estimate the wage gap associated with parenthood.

- We explore the wage gap associated with marriage and parental status for both men and women.
- To the best of our knowledge, no previous studies have empirically focused on the effect of parenthood on gender wage gap in **the Thai labor market**. Furthermore, our study is the first to analyze whether parenthood-based gender wage gaps exist and how they evolve over time in Thailand.

1. Introduction



Our estimation begins with analyzing data from the LFS for 1985–2017, which provides us with a large number of observations and covers a long time span.

■ However, the results obtained from models using this cross-section data might suffer from individual heterogeneity.



To overcome this limitation, besides LFS, we also use panel data from Socio-Economic Survey (SES) for 2005–2012, and compare the results from different models.

1. Introduction



Following Juhn and McCue (2017), we use the fixed effects model along with the event-study analysis and cohort-specific estimation to explore the wage gap associated with marriage and parenthood.



We found wage penalty for both motherhood and fatherhood in Thailand, which contradicts the existing evidence of motherhood penalty and fatherhood bonus in most developed countries.

2. Literature review

-  The decreasing trend in gender wage gap has been witnessed worldwide and has been studied for decades (e.g., Newell and Rely 2001; Dimova and Gang 2004; Goldin 2006; Blau and Khan 2008; Weichselbaumer et al. 2007).
-  Besides human capital factors, recent studies suggest that industry structural transformation has had a significant impact on gender wage gap across countries. (e.g., Olivetti and Petrongolo 2014 ;Weeden et al. 2016; Blau and Kahn 2017)

2. Literature review



Gender wage gap in Thailand:

- Nakavachara (2010) identified the increase in female education as the main contributor to the decline of gender wage gap from 1985 to 2005.
- Khorpetch and Kulkolkarn (2011) find that while female workers were more productive than their male counterparts, they received lower wages because of gender discrimination.
- Bui and Permpoonwiwat (2015) find that the gender wage gap in Thailand has decreased from 1996 to 2013, and that there are different degrees of discrimination against females in different industries.

2. Literature review

- Parenthood wage gap has not received much attention, especially in developing countries.
- Walffogel (1998) finds that in the US, while the gender wage gap has been narrowing, the motherhood wage gap has been increasing.
 - May attribute to institutional structure in the US that emphasizes equal pay but not family-friendly labor market policies, such as maternity leave and childcare.
 - However, in the case of Thailand, high emphasis on maintaining family ties in Thai families and the rapid decline in fertility rate in Thailand (Knodel et al. 1987) might provide a different picture in this regard.

2. Literature review

- ⬡ Theoretically, parenthood has a negative effect on labor force supply, considering the time constraint on individuals' total time (Goldin 1995; Gronau 1988; Glauber 2007).
- ⬡ However, the impact of fertility on labor force outcomes differs by gender
 - Women tend to participate less in the labor market, while men tend to work harder acting as the breadwinner in the family (“motherhood penalty” and “fatherhood premium”)

3. Data and variables



We use two datasets in this study:



First, we use the annual Labor Force Survey (LFS) of Thailand from 1985 to 2017, collected by the National Statistical Office (NSO) of Thailand.

- Only use the third quarter of the (Sussangkarn and Chalamwong 1996 ; Paweenawat and McNown 2018).

3. Data and variables

-  We include individuals aged between 15 and 65 years
-  Three mutually exclusive educational groups according to their level of education (Primary, secondary, university)
-  Seven industrial, seven occupational, and five regional dummy variables

Figure4. The changes of percentage in gender difference in occupations

Year	Men	Women	Difference
Managerial jobs and related			
1985-1995	75.50%	24.50%	51.00%
1996-2006	70.87%	29.13%	41.74%
2007-2017	69.30%	30.70%	38.59%
Professional jobs and related			
1985-1995	65.29%	34.71%	30.57%
1996-2006	52.95%	47.05%	5.91%
2007-2017	48.66%	51.34%	-2.67%
Administration jobs and related			
1985-1995	42.97%	57.03%	-14.05%
1996-2006	36.08%	63.92%	-27.84%
2007-2017	30.84%	69.16%	-38.32%
Production jobs and related			
1985-1995	58.07%	41.93%	16.14%
1996-2006	61.92%	38.08%	23.83%
2007-2017	70.30%	29.70%	40.61%
Agricultural jobs and related			
1985-1995	50.51%	49.49%	1.03%
1996-2006	52.99%	47.01%	5.97%
2007-2017	54.17%	45.83%	8.34%

3. Data and variables

Table1. Summary statistics for LFS 1985-2017, men and women

	With children		Without children	
	Female	Male	Female	Male
Mean of labor force participation	0.679	0.838	0.764	0.872
Log hourly wage	3.563	3.693	3.831	3.859
Log monthly wage	8.805	8.959	9.076	9.125
Age	36.509	36.529	42.909	41.357
Education:				
Primary level	0.609	0.565	0.570	0.499
Secondary level	0.310	0.364	0.261	0.359
University level	0.074	0.063	0.152	0.125
Observations	1,365,789	1,180,178	667,066	597,201

3. Data and variables

-  Second, we use data from the Thai Socio-Economic Survey (SES) conducted by the NSO in 2005, 2006, 2007, 2010, and 2012, in order to further estimate the earnings gap.
-  The survey comprises randomly sampled 15,000 individuals and 6,000 households all over the country. It contains both household and individual information, but does not contain information on working hours.

3. Data and variables

Table2. Summary statistics for SES panel 2005-2012, men and women

	With children		Without children	
	Female	Male	Female	Male
Mean of labor force participation	0.709	0.846	0.766	0.855
Log monthly wage	10.138	10.303	10.485	10.496
Age	37.371	37.128	42.215	40.872
Education:				
Primary level	0.514	0.483	0.481	0.452
Secondary level	0.268	0.334	0.208	0.326
University level	0.218	0.183	0.310	0.222
Observations	21,339	18,768	10,496	9,370

4. Methodology

4.1 Estimating the gender wage gap



In order to investigate the gender wage gap for both point in time and across time periods, two decomposition methods are applied.

1) Blinder-Oaxaca decomposition

$$\bar{Y}^1 - \bar{Y}^2 = \bar{X}^1 \beta^1 - \bar{X}^2 \beta^2 = \beta^1 (\bar{X}^1 - \bar{X}^2) + \bar{X}^2 (\beta^1 - \beta^2) \quad (3)$$

where Y_i is the log wages of individual i , X_i is the vector of explanatory variables, including education, marital status, number of children, age, age squared, and regional dummies. β_i is a vector of coefficients and ε_i is the error term. In equation (3), the wage gap consists of two terms: the first term represents the impact of gender difference in explanatory variables, and the second term represents the unexplained differential.

4. Methodology

2) Juhn-Murphy-Pierce decomposition

-  Juhn-Murphy-Pierce (JMP) decomposition method analyzes the change in the earnings gap across time (Juhn et al. 1991, 1993).
-  JMP decomposition is not based on average workers, as the BO decomposition, but on the distribution of workers under the wage structure (Blau and Khan 1997; Rubery et al. 2002).

4. Methodology



The change in the gender wage gap between two time points ($t=0,1$) can be decomposed into:

$$\Delta \bar{Y}_1 - \Delta \bar{Y}_0 = (\Delta \bar{X}_1 - \Delta \bar{X}_0)\beta_1 + \Delta \bar{X}_0(\beta_1 - \beta_0) + \sigma_1(\Delta \bar{\theta}_1 - \Delta \bar{\theta}_0) + \Delta \bar{\theta}_0(\sigma_1 - \sigma_0) \quad (5)$$

- The first term on the right-hand side is the observed X effect, indicating the changes in the quantities of observable characteristics over time.
- The second term is the observed price effect, which is associated with the changes in the net wage returns to each observed characteristic over time.
- The third term is the unobserved quantity effect, and the fourth term is the unobserved price effect.

4. Methodology

4.2 Estimating the parenthood wage gap



The estimation of parenthood wage gap begins with the normal Blinder-Oaxaca decomposition (equation 3) using LFS, concerning the effects of marriage and the presence of children.



Individual heterogeneity-our results from LFS suffer from the self-selection bias.

■ For example, poor or less motivated women are more likely to marry and have children.

4. Methodology

-  Use the SES panel data and apply the fixed effects model
-  As suggested by Juhn and McCue (2017), the fixed effects model cannot solve the selection bias entirely, as the selection is based on differences in expected earnings trajectories rather than in the level of earnings.
-  Therefore, we conduct an event-study analysis, estimating the earnings trajectories before and after the event, in particular, marriage and the presence of children (Juhn and McCue 2017).
-  We estimate the parenthood gap by comparing the cohorts born between 1955 and 1994.

5. Results

5.1 Gender wage gap

-  We find a positive wage gap, and the gap continues to decrease over time, **from 0.344 log points to 0.033 log points.**
-  The explained gap decreases over time and becomes increasingly negative, which indicated that females, on average, have more favorable observed characteristics (Nakavachara 2010).
-  For details of explained part, education plays a significant role in the explained gap.
-  The impact of industry and occupation variables shows an increasing trend (0.009 to -0.012; 0.039 to -0.027).

Table3. Blinder-Oaxaca results (Men and Women)

	1985		1995		2005		2017	
Total Difference	0.344		0.141		0.105		0.033	
Unexplained	0.162		0.200		0.183		0.134	
Explained	0.182		-0.059		-0.077		-0.101	
Explained details:								
<i>Education:</i>	0.008	2.26%	-0.043	-30.52%	-0.071	-67.81%	-0.079	-243.52%
Primary level	0.004		0.001		-0.004		-0.050	
Secondary level	0.015		0.008		0.020		-0.052	
University level	-0.012		-0.052		-0.088		0.022	
<i>Age&Age square:</i>	0.106	30.74%	0.053	37.90%	0.011	10.70%	0.015	46.17%
Age	0.308		0.136		0.031		0.024	
Age squared	-0.203		-0.082		-0.020		-0.009	
Industry variables	0.009	2.55%	-0.003	-1.81%	-0.002	-2.37%	-0.012	-35.99%
Occupation variables	0.039	11.24%	-0.072	-51.20%	-0.018	-17.04%	-0.027	-82.46%
Regions	-0.012	-3.52%	-0.007	-4.77%	-0.003	-3.18%	-0.001	-3.36%

5. Results

5. Results

-  We divide the data into three time periods: 1985–1995, 1995–2005, and 2005–2017
-  The wage gap decreases by 20.3% during 1985–1995, 3.5% during 1995–2005, and 7.3% during 2005–2017.
-  The results are consistent with BO method.
-  The gender wage gap in Thailand has witnessed a decreasing trend over the last 32 years, and the wages of men and women almost converge on each other.

5. Results

Table4. Juhn-Murphy-Pierce results (Men and Women)									
	1985-1995			1995-2005			2005-2017		
Change in total difference (dT)		-0.203			-0.035			-0.073	
Change in unexplained part		0.002			-0.019			-0.051	
Change in explained part		-0.002			-0.016			-0.021	
		Q	P		Q	P		Q	P
Change in explained details:									
Total	-0.205	-0.149	-0.057	-0.016	-0.019	0.003	-0.021	0.001	-0.022
(% of dT)		73.25%	27.81%		54.88%	-8.80%		-1.15%	30.56%
Education:	-0.045	-0.051	0.006	-0.029	-0.019	-0.011	-0.010	-0.006	-0.005
(% of dT)		24.85%	-2.83%		52.92%	30.71%		7.96%	6.26%
Primary level	-0.006	-0.009	0.003	-0.001	0.001	-0.001	-0.046	-0.002	-0.043
Secondary level	-0.005	-0.005	0.000	0.015	0.033	-0.018	-0.071	-0.003	-0.068
University level	-0.034	-0.036	0.002	-0.043	-0.052	0.008	0.106	-0.001	0.107
Age	-0.155	-0.092	-0.062	-0.092	-0.082	-0.011	-0.003	0.019	-0.022
Age square	0.104	0.048	0.056	0.051	0.042	0.009	0.006	-0.011	0.017
Industry variables	-0.261	0.767	0.202	0.053	0.036	0.017	0.000	-0.003	0.003
Occupation variables	-0.089	-0.047	-0.043	0.004	0.008	-0.004	-0.013	0.001	-0.014
Change in unexplained details:	0.002	0.019	-0.017	-0.019	-0.023	0.004	-0.051	-0.028	-0.023
(% of dT)		-9.31%	8.25%		66.29%	-12.37%		39.02%	31.57%

5. Results

5.2 Parenthood wage gap

-  Overall, the parenthood wage gap for both mothers and fathers over the three decades show wage penalty
-  Table 5 The negative results indicate that those without children earn a higher wage than those with children for both the married and unmarried groups, suggesting a negative impact of motherhood on women's wages.
-  The result is consistent with previous studies on motherhood penalty (Becker 1981, 1985; Waldfogel 1997; Glauber 2008; Juhn and McCue 2017).

5. Results



In general, for the married group, the gap has declined across cohorts (-0.257 to -0.103; -0.209 to -0.063; -0.096 to -0.02). For the overall sample, the unmarried group shows a larger wage gap compared with the married group.



Previous studies on the parenthood wage gap mainly focus on developed countries. The magnitude of motherhood wage gap varies based on different sample selections and methodologies. (Waldfogel 1997:6% to 13%; Budig and England 2001, 5%; Juhn and McCue 2017:35%)

5. Results

Table5. Motherhood earning gap by birth cohort and marital status using LFS						
	Overall		Age 25-29		Age 30-35	
Birth cohort	Married	Unmarried	Married	Unmarried	Married	Unmarried
1955-1964	-0.257	-0.399	-0.209	-0.326	-0.096	-0.410
	(0.008)	(0.010)	(0.026)	(0.023)	(0.022)	(0.024)
1965-1974	-0.094	-0.555	-0.242	-0.345	-0.192	-0.395
	(0.006)	(0.007)	(0.011)	(0.013)	(0.012)	(0.015)
1975-1984	-0.042	-0.485	-0.170	-0.233	-0.088	-0.325
	(0.005)	(0.006)	(0.008)	(0.010)	(0.009)	(0.012)
1985-1994	-0.103	-0.435	-0.063	-0.175	-0.020	-0.217
	(0.007)	(0.008)	(0.011)	(0.013)	(0.028)	(0.043)

5. Results

-  Table 6 The left-hand column uses OLS estimation and the right-hand column applies the fixed effects model.
-  Consistent with the LFS results, the estimates for both models show negative values, indicating the motherhood penalty for each cohort.
-  When we take the selection into consideration, especially for the younger-aged children group, the motherhood gap is usually smaller than that obtained from the OLS estimation

5. Results

Table6. Motherhood earning gap by birth cohort and marital status using SES panel				
	OLS		Fixed effect	
Birth cohort	Married	Unmarried	Married	Unmarried
Overall				
1955-1964	-0.158	-0.331	-0.119	-0.321
	(0.057)	(0.081)	(0.070)	(0.103)
1965-1974	-0.257	-0.472	-0.282	-0.504
	(0.050)	(0.054)	(0.061)	(0.073)
1975-1984	-0.310	-0.331	-0.324	-0.322
	(0.035)	(0.039)	(0.046)	(0.046)
1985-1994	-0.196	-0.348	-0.157	-0.337
	(0.058)	(0.058)	(0.066)	(0.061)
Child<6				
1955-1964	-0.452	-0.558	-0.375	-0.527
	(0.076)	(0.122)	(0.089)	(0.146)
1965-1974	-0.124	-0.484	-0.120	-0.524
	(0.059)	(0.071)	(0.069)	(0.088)
1975-1984	-0.295	-0.374	-0.314	-0.348
	(0.038)	(0.053)	(0.048)	(0.060)
1985-1994	-0.198	-0.383	-0.162	-0.376
	(0.061)	(0.073)	(0.068)	(0.077)
Child 6-17				
1955-1964	-0.042	-0.230	-0.017	-0.212
	(0.062)	(0.091)	(0.075)	(0.115)
1965-1974	-0.323	-0.467	-0.341	-0.490
	(0.053)	(0.063)	(0.064)	(0.082)
1975-1984	-0.343	-0.299	-0.344	-0.305
	(0.047)	(0.048)	(0.057)	(0.057)
1985-1994	-0.191	-0.322	-0.165	-0.314
	(0.085)	(0.068)	(0.094)	(0.072)

5. Results

-  Table 7 The negative results indicate the existence of fatherhood penalty across each cohort and age group, which is distinct from the fatherhood bonus found in developed countries.
-  An exception in the literature on fatherhood wage gap is Cools and Strom (2014), who find wage penalty for fathers in Norway, indicating men's increasing involvement in child rearing and a large share of fatherhood penalty can be explained by the duration of parental leave.

5. Results

Table7. Fatherhood earning gap by birth cohort and marital status using LFS						
	Overall		Age 25-29		Age 30-35	
Birth cohort	Married	Unmarried	Married	Unmarried	Married	Unmarried
1955-1964	-0.280	-0.263	-0.192	-0.228	-0.168	-0.283
	(0.006)	(0.011)	(0.020)	(0.023)	(0.015)	(0.025)
1965-1974	-0.122	-0.442	-0.205	-0.274	-0.178	-0.293
	(0.005)	(0.007)	(0.010)	(0.012)	(0.009)	(0.015)
1975-1984	-0.057	-0.396	-0.134	-0.231	-0.092	-0.217
	(0.005)	(0.005)	(0.008)	(0.009)	(0.008)	(0.012)
1985-1994	-0.082	-0.372	-0.048	-0.181	-0.017	-0.199
	(0.007)	(0.006)	(0.010)	(0.011)	(0.019)	(0.028)

5. Results

-  With the rapid progress in social and economic development, the role of women in Thailand has undergone a transformation.
-  Furthermore, there is more support for women, particularly married women, in the labor market.
-  Consequently, married men are expected to share more household responsibilities, including childcare, compared to their wives (Yoddumnern-Attig 1992, Pinyuchon and Gray 1997).
-  Policies promoting men to participate in childbearing and child rearing encourage Thai fathers to be more involved in their wives' pregnancy and childcare (Tanasirijiranont 2016).

5. Results

- Ministry of Labor in Thailand (2017), women are entitled to 90 days of maternal leave.
- Currently, working fathers are not entitled to paternal leave in the private sector.
- Moreover, in the public sector, working fathers are only entitled to 15 days parental leave, which is much shorter compared with developed countries.
 - For example, in Sweden, both parents are offered 480 days of parental leave.
- Thus, the Thailand labor market provides insufficient support for working fathers, consequently reducing their role in sharing household responsibilities such as childcare and child rearing.

6. Conclusion



This study explores the gender wage gap in Thailand from 1985 to 2017.

- A continuous decline in wage **gap Education** has accounted for the largest part in explaining the convergence in gender wage gap over time, followed by the industry and occupation.
- However, this convergence has slowed down in recent years, and the wage gap is greater among parents and non-parents.
- We quantify the wage effects of parenthood and find a wage penalty for both motherhood and fatherhood in Thailand, which is contrary to the findings in most developed countries.

6. Conclusion



The government should strive to lower the cost of child rearing, considering that there is a parenthood penalty for both mothers and fathers.

- For example, the Thai government could implement appropriate policies such as offering subsidies for newborn child, providing paid and adequate maternity leave, family leave