

Effect of Minimum Wage on Changes in Thai Labor Market

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Introduction

- This study used individual level panel data of Matched-Outgoing Rotation Group data set (Research Institute for Policy Evaluation and Design (RIPED), 2018)
 - Existing studies rely on cross-sectional or provincial level panel data.

Introduction

- This study evaluate effect of minimum wage on changes in Thai labor market during 2002 to 2013.
- These changes are including,
 - Wage,
 - working hour,
 - labor income,
 - overtime income,
 - bonus income,
 - and various type of compensation such as food, cloth, house, other money, and other goods.



Real Minimum Wage Change 1994 - 2017

- The overall trend of real minimum wage had decrease until 2011.
- During 2012 to 2013, minimum wage jump to 300 Bath per day.
- This is an increase of real minimum wage by 63 percent on average.
- We evaluate the effect during these two period separately.



Introduction

- This study emphasis on an analysis during 2012 to 2013 where minimum wage jump to 300 Baht per day.
 - This study view this phenomenon as a quasi-natural experiment.



- We also emphasis on result on employment as our key result.
- The existing literature found a positive effect of minimum wage on employment. The explanation was based on monopsony theory (Strob, 2016; Ken Ariga, 2015, Lathapipat and Poggy, 2016)
- This study found a negative effect during 2002 to 2011, but a mixed effect during 2012 to 2013.



Matched Outgoing Rotation Group (Matched-ORG) Data

- Matched-ORG data was created from Thai Labor Force Survey (LFS) data.
- From 2002 onward, the National Statistical Office (NSO) start using Outgoing Rotation Group sampling procedure for LFS.
 - The survey will repeat on the same individual for at least two periods of time.
 - This provide opportunity for researcher to create panel data from existing cross-sectional LFS.
- Individual in LFS were matched across time by following criterions,
 - live in the same household,
 - have the same characteristics, including same gender, same or relevant age, same years of schooling, and marital status.

Matched Outgoing Rotation Group (Matched-ORG) Data





The trends of Matched-ORG are consistent with original LFS data.

Matched Outgoing Rotation Group (Matched-ORG) Data



The composition of worker type between LFS and ORG is relatively similar.

Information on foreign Worker

 In this study we recognize that Thai labor market is endow with foreign worker in a significant amount.



Data on Foreign Worker

- Matched-ORG
 - The Thai Labor Force Survey (LFS) data which is the original data of Matched-ORG contain a subset of foreign worker
 - We can identify foreigner from the question in LFS which ask,
 - Did you registered as a foreign worker (i.e. having working permit)
- number of foreign with working permit (Foreign Worker Administration Office, 2007-2015)

Methodology



- $\frac{\Delta W_{isym}^2 \Delta W_{isym}^1}{\Delta W_{isym}^1}$ denote percentage change of wage from year 1 to year 2.
- $\frac{MW_{sym}^2 MW_{sym}^1}{MW_{sym}^1}$ denote percentage change of minimum wage from year 1 to year 2.
- $\frac{MW_{sym}^{1} MW_{sym}^{0}}{MW_{sym}^{0}}$ denote percentage change of minimum wage from year 0 to year 1.
 - $R(W_{isym}^1, MW_{sym}^1)$ denote dummy variables indicate position in wage structure.
 - X_{isym} , M_{im} , S_{is} , and Y_{iy} denote controlled variables on individual characteristic, quarter, province and calendar year respectively.

Empirical Model (Neumark & Washer, 2004)



Percent change in minimum wage x Dummy variables for	Real Wages	Real Labor Income	Working Hour	Over Time Income	Bonus Income
W/MW ≤ 0.9	1.777***	1.109***	-0.430***	-9.709***	-182.7
	(0.288)	(0.324)	(0.133)	(2.311)	(2,309)
$0.9 < W/MW \le 1.1$	1.839***	1.029***	-0.389***	-10.60***	-241.9
	(0.279)	(0.314)	(0.130)	(2.422)	(2,060)
$1.1 < W/MW \le 1.2$	2.415***	1.706***	-0.826***	-14.37***	701.6
	(0.375)	(0.423)	(0.174)	(3.412)	(2,741)
$1.5 < W/MW \le 2$	1.627***	0.509	-0.464***	-32.22***	3,382*
	(0.282)	(0.318)	(0.105)	(2.717)	(1,796)
Observation	62,773	62,764	66,058	8,852	5,422

Effect of Minimum Wages during 2002 to 2011

- Minimum wage has positive effect on wages and labor income.
- But the effect on working hour, over time income, and bonus income is negative.

Percent change in minimum wage x Dummy variables for	Food	Cloth	Other money	Other goods	House
W/MW ≤ 0.9	-0.815	7.646	4.071	-2.165	1.616
	(2.205)	(9.272)	(8.363)	(5.474)	(2.313)
$0.9 < W/MW \le 1.1$	-1.345	-7.802	-1.443	-10.06**	-4.525*
	(2.352)	(7.727)	(8.258)	(4.985)	(2.553)
$1.1 < W/MW \le 1.2$	0.215	4.268	-2.501	-1.709	-2.024
	(3.051)	(11.89)	(11.73)	(7.017)	(3.881)
$1.5 < W/MW \le 2$	-1.280	1.548	11.93	1.116	-0.547
	(2.620)	(6.909)	(8.108)	(5.142)	(2.710)
Observation	7,583	2,879	9,841	3,327	2,913

 Minimum wage has negative effect for various kind of compensation, especially for minimum wage worker.

Effect of Minimum Wage on various kind of compensation during 2002 - 2011

Percent change in minimum wage x Dummy variables for	Wages	Real Labor Income	Working Hour	Over Time	Bonus
W/MW ≤ 0.9	1.191***	1.254***	0.108	4.226	-56.12
	(0.303)	(0.430)	(0.126)	(5.969)	(73.26)
$0.9 < W/MW \le 1.1$	0.979***	1.226***	0.0807	1.658	57.82
	(0.297)	(0.420)	(0.123)	(5.935)	(110.0)
$1.1 < W/MW \le 1.2$	1.028***	1.193***	0.0953	2.613	-43.15
	(0.301)	(0.427)	(0.125)	(6.149)	(72.49)
$1.5 < W/MW \le 2$	0.648**	0.935**	0.162	6.204	-45.65
	(0.297)	(0.421)	(0.123)	(5.726)	(72.23)
Observation	6,097	6,078	6,333	948	141

• Minimum wage still has positive effect on wages and labor income.

• The effect on working hour and overtime are also positive.

Effect of Minimum Wages during 2012 to 2013

Percent change in minimum wage x Dummy variables for	Food	Other money	Other goods	House
$W/MW \le 0.9$	-1.287	2.571	-7.826	-4.394
	(1.818)	(2.621)	(5.737)	(6.045)
$0.9 < W/MW \le 1.1$	-0.545	0.668	-7.975	-2.891
	(1.714)	(2.602)	(5.820)	(5.696)
$1.1 < W/MW \le 1.2$	-1.388	2.598	-7.653	-2.551
	(1.746)	(2.693)	(5.830)	(6.126)
$1.5 < W/MW \le 2$	-1.078	2.963	-6.498	-0.435
	(1.792)	(2.654)	(6.075)	(5.972)
Observation	564	976	255	175

• Minimum wage still has negative effect on various kind of compensation.

Effect of Minimum Wage on various kind of compensation during 2012 - 2013

Effect of Minimum Wage on Overall Employment during 2002 to 2011

- Empirical model is $E_{i,t} = \alpha + MW_{s,t} + gender_i + ysch_{i,t} + province_i + year_t + \varepsilon_{i,t}$
 - *E*_{*i*,*t*} denote employment of individual *i* at year t
 - ysch_{i,t} denote year of schooling

Independent Variables	Employment
Real Hourly Minimum Wage	-0.000520
	(0.000781)
Female	-0.000625
	(0.00238)
Years of Schooling	-0.000876
	(0.000653)
Years of Working Experience	0.00131***
	(0.000422)
Number of Observation	120,746
Number of Individual	34,885

Effect of Minimum Wage on Employment during 2012 to 2013

Independent Variables	Employment
Real Hourly Minimum Wage	0.000178
	(0.000132)
Female	-0.0272***
	(0.00396)
Years of schooling	-0.000845
	(0.00104)
Years of Working Experience	-0.00243***
	(0.000795)
Number of Observation	13,022
Number of Panel Individual	3,269

• We observed a positive effect of minimum wage on overall employment during minimum wage jump during 2012-2013

Effect of Minimum Wage on Employment of Foreign Worker

Independent Variable	Effect on Employment of Foreigner
Real Hourly Minimum Wage	-9.14e-05
	(0.000364)
Female	-0.00163
	(0.00631)
Years of schooling	0.000177
	(0.00145)
Years of Working Experience	-0.000475
	(0.00129)
Number of Observation	6,598
Number of (Panel) Individual	3,320

• Result suggest the negative effect of minimum wage on employment of foreign worker.

Independent Variables	Effect on Number of Foreign Worker with Working Permit
Minimum Wage	-686.8**
	(301.2)
Constant	39,558***
	(9,419)
Observations	231
Number of provinces	77

- Empirical model is $E_{s,t} = \gamma + MW_{s,t}\delta + \theta_{s,t}$.
- Result suggest that minimum wage has negative effect on number of foreign worker with working permit.

Effect of Minimum Wage on Number of Foreign Worker (with Working Permit) during 2011 to 2013

Discussion &Conclusion



- Minimum wage has positive effect on wages and labor income.
- But it has negative effect on bonus income, overtime income, and various kind of compensation e.g. food, cloth other good, house.
- We do not have a conclusion on effect of minimum wage on employment



- We found a mixed effect of minimum wage on employment.
 - a negative effect on
 - overall employment during 2002 to 2011,
 - foreign worker employment during minimum wage jump during 2012 to 2013,
 - but a positive effect on overall employment during minimum wage jump in 2012 to 2013.

Employment Puzzle: A Substitution between Thai and Foreign Worker?

- Firm can maximize their profit by hiring worker with more skills, given the same minimum wage rate.
- Would firm hire more Thai worker rather than foreigner at the given (300 Baht) minimum wage rate. Given Thais are endowed with more Thai language and literacy skills ?
- The empirical result show positive effect on employment of Thai worker and negative effect on foreign worker seem to support this argument.



- The existing literature e.g. Strobl and Walsh (2016); Ken Ariga (2015); Lathapipat and Poggy (2016) has mention the positive effect of minimum wage on employment in Thai labor market
 - The literatures provided the explanation based on monopsony theory.
 - Our evidence is contradicting with the prediction of monopsony theory.
- We aim to extend our analysis until 2017 for future work.

Thank you