Structural Drivers of Wage Inequality: An Analysis of Minimum Wage Policy Impact on Thai and CLM Migrant Workers

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Abstract

The declining working-age population of Thailand's labor force relies on both Thai and large numbers of migrant workers from Cambodia, Laos, and Myanmar (CLM), who are disproportionately absorbed into both the formal and informal sectors, specifically into low-wage, unstable jobs with weak enforcement and vulnerable employment conditions. The study aims to examine the impact of changes to the minimum wage policy on the wages of Thai and CLM workers in the formal and informal sectors. The analysis uses minimum wage data and cross-sectional, pooled third-quarter data from the Thailand Labor Force Survey (2023-2024). It focuses on private-sector employees, who represent most Thai and CLM workers. This research employs continuous difference-in-differences to identify how changes in the minimum wage policy affect Thai and CLM differently before (2023) and after (2024).

The result indicates that the wage distribution appears to improve wages for both Thai and CLM workers following the policy changes. The continuous difference-in-differences result shows that a 1-percentage-point growth in minimum wage significantly reduces the hourly wage response in the formal sector by approximately 3.16% for CLM workers relative to Thai workers. Otherwise, a 1-percentage-point growth in minimum wage significantly increases the hourly wage response by approximately 1.93% for CLM workers compared to Thai workers in the informal sector. Overall, the findings indicate the existing vulnerability of CLM workers and enforcement gaps that continue to hinder the transmission of wage outcomes across sectors, suggesting expanding the social security fund coverage and strengthening law enforcement and compliance in the Thai labor market.

Keywords: Minimum Wage, Wage Differential, Thai, CLM, continuous Differences in Differences

Background and Statement of the Problem

The migration pattern has rapidly increased in Southeast Asia due to political instability, a lack of job opportunities, and income differences between countries. Migrants from CLM countries move to Thailand due to demographic reasons, better job opportunities, and wage disparities in neighboring countries (Brixi & Evans, 2012). Moreover, the decline in the working-age population may lower productivity and slow economic growth in Thailand, thereby creating more job opportunities for CLM migrant workers. Those dire economic situations have driven many civilians, particularly working-age civilians and young, skilled & unskilled workers from neighboring countries, to move to Thailand. In parallel, women migrants from CLM countries move both internally and across borders to work in Thailand to attempt better living conditions (Sakulsri et al., 2020). In Thailand, migrant workers are concentrated across multiple sectors, particularly in manufacturing, construction, agriculture, seafood and fisheries, and other low-paid, low-skilled Thai industries, which are often described as "Triple-D" (dirty, demanding, and dangerous) (Arnold, 2005).

In Thailand, the first minimum wage policy was introduced in 1972 and later extended by the Ministry of Interior and the National Wage Committee (NWC). The Thai government introduced a new minimum wage policy on the 1st of January 2024, with minimum wages ranging from 330 to 370 baht across 77 provinces.

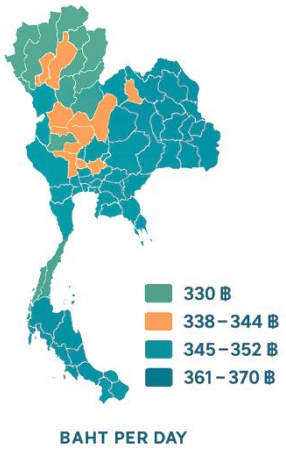

Fig. 1. Distribution of New Minimum Daily Wage Rate across the Province as of 1st January 2024

Note: The figure illustrates the new minimum wage policy across provinces, adapted from the Ministry of Labor 2023, "Notification of the Wage Committee on Minimum Wage Rate (No. 12)".

Figure 1 describes the distribution of the new minimum wage changes across all 77 provinces on 1st January 2024, and the most populated provinces with industrial activity and urban and tourism-oriented provinces found higher minimum wage improvements. The minimum wage plays a critical role by setting a floor on wages for local workers and legal migrants (Epstein et al., 2013). Although CLM migrant workers in Thailand account for 10% of the total labor force and have made a significant contribution to the Thai economy, relatively little is known about the impacts of the minimum wage on migrant workers (Bhula et al., 2019). CLM workers are systematically treated differently from native Thai workers despite equivalent skills and qualifications in both the formal and informal sectors, a reality rooted in a complex interplay of economic, legal, and socio-cultural factors that constitute pervasive discrimination. Being assigned to 3D jobs increases the likelihood of being assigned to low-wage jobs, informal employment, and heavy, high-risk work, including long hours and a lack of security (Quadrini, 2018).

The Thai government has sought to extend social protection nationwide, including to informal workers, under Article 40 of the Social Security Act. In Thailand, the formal sector comprises workers with access to the Social Security Fund (SSF), while the informal sector comprises workers without such access to the Social Security Fund (SSF). A person of at least 15 years of age whose employment lacks protection or is regulated by the social security system, as per the National Statistical Office. Nevertheless, the enrolment of the Social Security Fund (SSF) remains far below the size of the informal workforce due to low and unstable incomes, cost, limited awareness & benefits, and administrative barriers, resulting in coverage gaps in the registration process. Since the minimum wage policy doesn't apply to government and agricultural workers, other private-sector employers covered by the policy would be accountable for both formal workers under the Social Security System and informal workers without protection by specific laws and unstable employment, where the majority of CLM workers are concentrated.

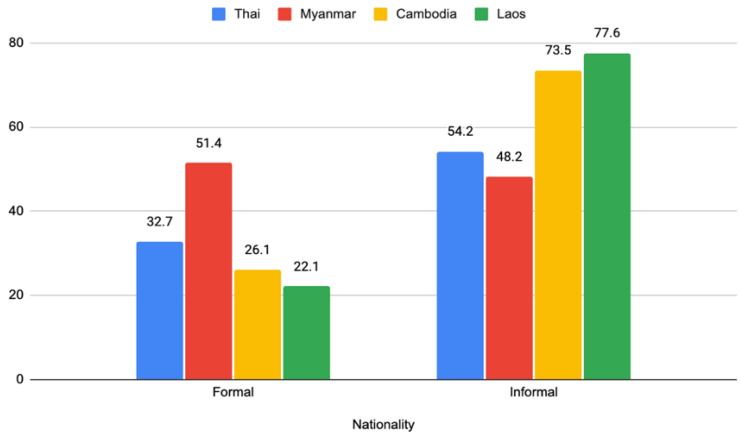

Fig 2. Percentage distribution of workers in the formal and informal sectors.
Note: From the Thai labor force surveys 2023 & 2024 by the National Statistical Office of Thailand, Bangkok

Figure 2 presents the shares of workers under the Social Security Fund (SSF) as formal-sector employment and workers not under SSF accessibility as informal-sector employment, as a proportion of the Thai labor force, as surveyed in 2023 and 2024. In the labor force, there is a clear and persistent pattern: workers from Cambodia, Laos, and Thailand are mostly in the informal sector, not registered with the SSF (about two-thirds), compared to the formal sector, registered with the SSF (about one-third). In contrast, Myanmar workers appear to have a similar distribution across formal and informal employment. Within this dual structure, CLM workers are disproportionately clustered in low-wage, informal, and risky occupations, frequently earning below the minimum wage and in violation of Thai labor market law and policy. Studies on minimum wage hikes across global studies can be seen as beneficial to native workers compared to migrant workers, who are often in irregular, uncovered, and informal work. National Minimum Wage Hike in the UK suggested that migrant workers have a chance to increase their wages in sectors where irregular conditions, compliance, and social coverage are weaker (Dustmann et al., 2013). The sector without social protection or law enforcement led employers to shift workers, particularly migrant workers, to low-wage, less protected jobs, which is significant for male workers with low skills and undocumented status (Ingwersen and Thomsen, 2023). Otherwise, the minimum wage jump can enhance reallocation to informal or less regulated jobs, and wage gaps between native and

migrant workers were narrow at the lower end of the wage distribution at first (Biewen et al., 2022). The policy impact is more unfavorable for low-wage workers to earn wage increases, but this effect is more significant in large industries and sectors where the region has strong enforcement.

Many studies have already shown that informal workers in Thailand are more likely to earn lower wages and face higher occupational risks, suggesting that informality is often a constraint rather than a voluntary choice. Wage gaps between formal and informal employment are observed across all wage quartiles (Korwatanasakul, 2021). The documented migrants and native workers with access to social security funds and law enforcement can be affected positively by the minimum wage policy, rather than undocumented and informal migrant workers who don't have access to SSF with the weaker law enforcement (Leckcivilize, 2015; Carpio et al., 2018; Lathapipat and Poggi, 2016). Leckcivilize (2015) highlights that minimum wages can reduce wage gaps among workers in the formal sector, but they don't in the informal sector due to high noncompliance and weak law enforcement. Carpio et al. (2018) used the Thai Labor Force Survey (LFS) and Household Socioeconomic Survey during the period between 2001 and 2011 to analyze the 2012 minimum wage impact on the labor market and welfare, and they found that the minimum wage hike has a significant increase in wages for low-wage workers, particularly for the young, less educated and elderly. Furthermore, the study by Lathapipat and Poggi (2016) revealed that the minimum wage policy is significant for average workers, particularly for the younger age group between 15 and 24 years old, whereas it has no effect on workers at the bottom of the distribution. Evidence from numerous Thai studies shows that informal workers experience substantial wage penalties relative to formal workers across the entire wage distribution, with the largest gaps at the bottom, and that informal employment is associated with higher occupational risks and more precarious livelihoods. Although the existing literature examines either formal or informal wage gaps in aggregate or migrant-native differentials, it does not systematically analyze how nationality and formality jointly shape wage outcomes. Informal employment accounts for a large share of the labor market in Thailand but may adversely affect law enforcement, social security, economic growth, and social well-being.

Despite national laws and regulations that equally apply to all workers regardless of their demographic and nationality, migrant workers continue to encounter structural obstacles due to the discriminatory regulations, lack of legal protections, and limitations on registering SSF funds. The existing studies and literature primarily highlight the existing gaps in how minimum wage policy changes affect different segments of the labor market in Thailand across sectors, firm size, demographic characteristics, human capital factors, gender, and workers. A critical empirical gap persists and remains questioned in the Thai context: how the minimum wage policy differently impacted CLM workers versus Thai workers in formal and informal employment. There is still limited causal evidence on whether CLM migrant workers experience policy impacts differently across the formal and informal sectors, and how these minimum-wage policy reforms interact with this segmentation. To address these limitations, this study aims to explore the intersections and quantify the heterogeneous causal effects of policy changes using Thai labor force survey data. By focusing on Thai and CLM workers, this study aims to quantify how nationality and informality intersect to shape earnings in Thailand's labor market.

Research Objective

1. To analyze whether minimum wage growth affects the wages of Thai and CLM workers differently.
2. To investigate these differences related to the distinction between the formal and informal sectors.

Expected Benefits

1. To provide additional evidence on the existing heterogeneous causal effects between Thai and CLM migrant workers across formal and informal sectors.
2. To identify sectors where the impact of policy doesn't transmit equally and to provide improvements for better social security plan registration, law enforcement, and Social Security Fund (SSF) coverage, particularly for migrants and low-wage workers.
3. To suggest analytical approaches for monitoring policy change compliance at the provincial and industry levels to strengthen Thailand's labour market regulation.

Conceptual Framework

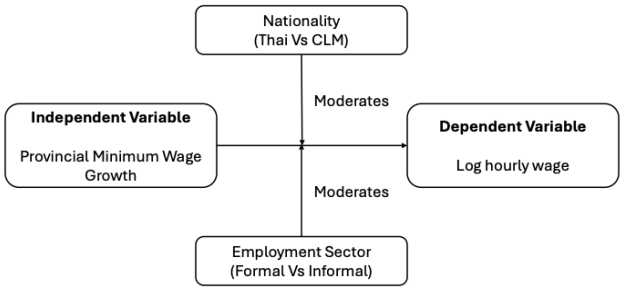

Fig 3. Conceptual Framework

The researcher develops a conceptual framework to analyse the relationship between provincial minimum wage growth and the real hourly wage outcomes for Thai vs CLM workers in the private sector of the Thai Labor Force. The study focuses on formal and informal sector employment as moderating factors, where the policy's impact may not be transmitted equally across these sectors due to weaknesses in law enforcement and limitations in registering with the Social Security Fund (SSF). This may cause heterogeneous wage differentials between Thai and CLM workers. In addition, other control variables include demographic variables such as age, gender, education attainment, industry, firm size, married, urban or rural, and regional fixed effects to account for determinants of wage outcomes. This is illustrated in Figure 3.

The study hypotheses are as follows

1. The 2024 provincial minimum wage policy increases workers' real hourly wages in Thailand.

2. The effects of provincial minimum wage growth on real hourly wages differ between Thai and CLM migrant workers in the formal employment sector.

3. The effects of provincial minimum wage growth on real hourly wages differ between Thai and CLM migrant workers in the informal employment sector.

Research Methodology

Defining the Continuous Treatment Variable

In Thailand, all provinces have experienced increases in the minimum wage, with slight differences in magnitude. The analytical approach of this study is a continuous difference-in-differences model, with the continuous treatment variable defined as the proportional change in the provincial minimum wage before and after the policy change. In line with labor market segmentation theory, employment is divided into formal and informal sectors based on SSF registration, allowing us to examine how the policy's effects differ in wages for Thai and CLM workers across these sectors. The continuous difference-in-differences framework reports heterogeneous time trends across worker groups, demonstrating the limitations of models that rely on additive time effects. Although the pre-policy period in this study is 2023, we create a treatment variable using the minimum wage data from the Ministry of Labor and the National Wage Committee's Notification on Minimum Wage Rate for 2022 and 2024, since no minimum wage was introduced in 2023. Therefore, the 2022 minimum wage represents the last minimum wage change effect before the 2024 reform. This treatment variable measures the provincial growth rate of the statutory minimum wage between 2022 (pre-policy minimum wage change) and 2024 (post-policy minimum wage change). This approach adapts the empirical strategies used in previous studies on minimum wage policy (Cengiz et al.,2019; Blau et al., 2023; Bailey et al., 2021). This treatment variable examines the extent to which workers in different provinces are exposed to the policy change and leverages cross-provincial variation in policy intensity. The continuous treatment variable is defined as

$$MWgrowth_p = \frac{MW2024_p - MW2022_p}{MW2022_p}$$

where MWgrowthp captures the proportional growth of the minimum wage in province p, MW2024p represents the statutory minimum wage in province p in 2024 (post policy), and MW2022p represents the statutory minimum wage in province p in 2022 (pre policy).

Estimating Wage Determinants and Policy Effects within the Mincer Earnings and Continuous differences in differences framework

The study applies continuous difference-in-differences methodology, the standard approach in labor economics for policy evaluation (Autor, Manning & Smith, 2016). To examine whether the policy's average impact is heterogeneous and sensitive to pre-existing structural segmentation in Thailand's labor market. These specifications are rooted in the canonical earnings function, ensuring comprehensive control for human determinants of wages and the dependent variable, taking the natural logarithm of hourly wage, following the Mincerian framework, which captures percentage returns to human capital investments (Mincer, 1974; Deming, 2024). To analyze the wage determinants of the policy effects, this study grounded the Mincerian tradition but advanced in two critical respects. First, the use of education attainment dummies to allow for non-linearity, reflecting the quality of educational achievement, unlike the classical earnings equation, which used continuous years of schooling as the measure of education. Second, age serves as a proxy for labor-market experience, with age2 capturing the empirically observed inverted U-shaped lifecycle earnings profile: rapid wage growth early in the career, peaking in midlife, and flattening or falling thereafter (Polacheck, 2004). Accordingly, the comprehensive specification is a continuous-differences-in-differences model.

$$\log(Wage)_{ipt} = \beta_0 + \beta_1 MWgrowth_p + \beta_2 post_t + \beta_3 CLM_i + \beta_4(MWgrowth_p \times post_t) + \beta_5(MWgrowth_p \times CLM_i) + \beta_6(post_t \times CLM_i) + \beta_7(MWgrowth_p \times post_t \times CLM_i) + \beta_k X'_i + \gamma_r + \varepsilon_{ipt}$$

where log $(Wage)_{ipt}$ represents the dependent variable, the natural logarithm of the worker's real hourly wage, where all monthly wage, daily wage, and weekly wage are converted into hourly wage, consistent with the Mincer framework's focus on percentage-based returns. Using the log, the estimated coefficients can be interpreted as approximate percentage changes in wages (Wooldridge, 2019). After the regression, the interaction term ($MWgrowth_p$ x $post_t$ x CLM_i) is calculated as a percentage effect: $(e^{\beta x 0.01} - 1) \times 100$ to show a 1 percentage point increase in provincial minimum wage growth. $MWgrowth_p$ is the continuous treatment variable capturing the proportional change in statutory minimum wage in $provinces_p$ between 2022 to 2024, $Post_t$ is a dummy variable for time fixed effect 1 for the year 2024 (post-policy) and 0 for the year 2023 (pre-policy), CLM_i is

a dummy variable whether worker is a (Cambodia, Laos and Myanmar) with Thai workers as the reference group.

X'_i represents the vector of control variables. Control variables include the dummy variable for workers living in the urban area or not , marital status (single or married), head of household or not, demographic variables including age and age^2, dummy variable for gender (male or female), and, moreover, employment characteristics like part-time or full-time worker, employment status (formal or informal) where workers register Social Security Fund(SSF) is denoted as formal and workers who don't register SSF is denoted as informal, firm size(small firm with lower than 49 employee or large firm with over 50 employee), industry group using the (production or services) where International Standard Industrial Classification of All Economic Activities (ISIC) standard is used to stratify industry group, and γ_r is the region fixed effects, which control for all time-invariant, unobserved characteristics across regions such as different minimum wage levels, economic structures, institutions, and different institutions and ε_{ipt} is the error term. By clustering all standard errors at the region level to account for within-region correlation, the model can ensure it identifies effects by comparing workers within the same region over time.

All specifications are estimated using Ordinary Least Squares (OLS), with region-clustered standard errors providing conservative and reliable inference, ensuring robustness to within-group correlation. Due to limitations in the data structure, the analysis focuses only on the 2023-2024 period, limiting the ability to test parallel trend assumptions. Nevertheless, the empirical strategy exploits cross-provincial variation in minimum wage growth to identify wage responses across Thai Vs CLM workers.

Data used in the study

The study used the Thai Labor Force Survey from the National Statistical Office, which is widely used in labor economics research because it provides a robust empirical foundation for both descriptive and causal analyses, including policy changes, minimum wage impacts, informality, and gender wage inequality. The study focuses on third-quarter data for 2023 and 2024. Distortion from the peak Covid-19 period can be reduced, and the analysis can focus on nationality for countries without a record of

country of origin before 2023, thereby making it more reflective. The benefit of using third-quarter data is that it suggests labor mobility, especially among agricultural workers, is heavily influenced by seasonal factors, thereby reducing potential bias in labor mobility analysis, particularly in contexts where seasonal migration shapes labor force dynamics (Sussangkarn, 1995). The study focuses on working-age individuals aged 15 to 65 in the private sector.

Table 1: Summary Statistics of The Key Variable from the Thai Labor Force Survey (2023-2024)

Variables	2023(Pre)		2024(Post)	
	Thai N = 9,046	CLM N = 1,596	Thai N = 9,319	CLM N = 1,991
Hourly wage (THB)	45 (11)	45 (7)	46 (11)	46 (10)
Age	40 (13)	32 (9)	41 (13)	32 (8)
Firm size				
Large firm	1,930 (21%)	725 (45%)	1,870 (20%)	1,004 (50%)
Small firm	7,116 (79%)	871 (55%)	7,449 (80%)	987 (50%)
Gender				
Male	5,435 (60%)	941 (59%)	5,551 (60%)	1,183 (59%)
Female	3,611 (40%)	655 (41%)	3,768 (40%)	808 (41%)
Married	2,104 (23%)	38 (2.4%)	2,167 (23%)	53 (2.7%)
Employment				
Formal	3,126 (35%)	806 (51%)	3,003 (32%)	1,057 (53%)
Informal	5,920 (65%)	790 (49%)	6,316 (68%)	934 (47%)
Urban Residence	4,871 (54%)	1,143 (72%)	5,131 (55%)	1,311 (66%)
Household head	3,719 (41%)	889 (56%)	3,827 (41%)	1,123 (56%)
Education level				
None	140 (1.5%)	740 (46%)	190 (2.0%)	918 (46%)
Lower Education	8,906 (98%)	856 (54%)	9,129 (98%)	1,073 (54%)
Part-time (<40 hrs/wk)	1,082 (12%)	58 (3.6%)	871 (9.3%)	46 (2.3%)
Industry Type				
Services	3,867 (43%)	557 (35%)	4,106 (44%)	658 (33%)
Production	5,179 (57%)	1,039 (65%)	5,213 (56%)	1,333 (67%)
Region				
Bangkok (Metropolitan)	383 (4.2%)	151 (9.5%)	385 (4.1%)	198 (9.9%)
Central Region	3,782 (42%)	950 (60%)	3,742 (40%)	1,292 (65%)
Northern Region	1,529 (17%)	124 (7.8%)	1,531 (16%)	133 (6.7%)
Northeastern Region	1,586 (18%)	7 (0.4%)	1,870 (20%)	25 (1.3%)
Southern Region	1,766 (20%)	364 (23%)	1,791 (19%)	343 (17%)
Mean (SD); n (%)				

Note: The Author's calculation using the Thai labor force survey (2023-2024) data and the table illustrates the mean (SD) for continuous variables and n (%) for categorical variables. Provinces are omitted.

Table 1 presents the summary statistics for core analytic variables from the Thai Labor Force Survey (2023-2024), disaggregated by policy period (pre-2023 vs post-2024) and nationality (Thai Vs Cambodia, Laos, and Myanmar (CLM)), which enables the identification of clear, policy-relevant patterns in worker characteristics and labor market segmentation. This study included 21952 individuals, of whom 18365 are Thai workers, and 3587 are CLM workers, retrieved from the labor force survey conducted in 2023 and 2024. The mean hourly wage is found to be higher after the policy changes in 2024, with minimum wage interventions responding to wage distribution. Both Thai and CLM workers are more likely to be employed in small firms and in informal employment than in large, formal employment. CLM workers are more likely to be concentrated in the production sector, whereas most Thai workers are concentrated in the service sector. CLM workers are mostly younger, less educated, and less likely to be married or to be heads of household. To ensure a reliable comparison between Thai and CLM workers, the study excluded government sector workers, employers, state enterprise employees, members of cooperatives/associations, own-account workers, and unpaid family workers from the analysis, focusing only on private sector employees. Overall, the minimum wage policy changes are likely to vary across nationality, employment, industry group, and demographic groups, a nuanced feature to account for subsequent analyses.

Despite limitations in the parallel-trends assumptions for wage differentials across nationality due to the absence of workers' country of origin and nationality identifiers in the Thai Labor Force Survey Data prior to 2023, we rely on existing parallel trends to reveal wage distribution patterns. Although the LFS provides survey weights, the study does not use them, as its objectives are to estimate the relationship between changes in minimum wage policy and wage outcomes for Thai and CLM workers. Nevertheless, persistent differences in wage estimates may suggest heterogeneous wage responses among Thai and CLM workers.

Research Results

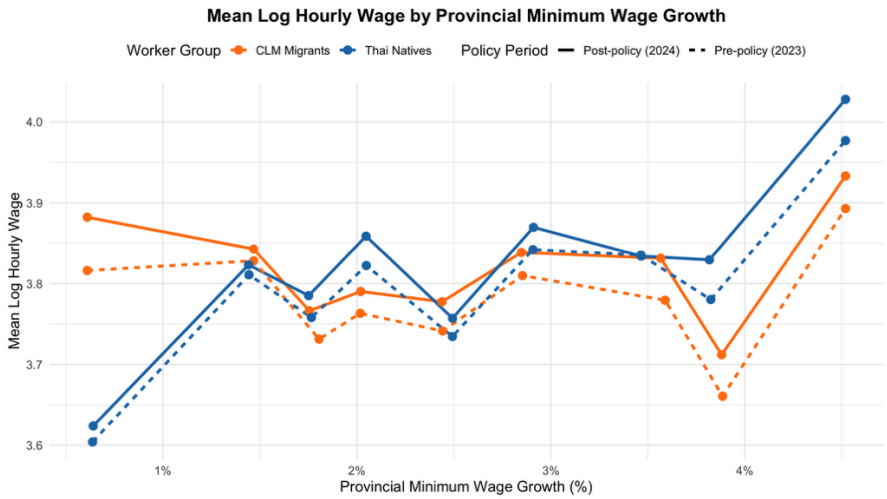

Fig. 4. The pattern of the provincial minimum growth effect on mean log hourly wage.

Note. The line graph shows the preliminary mean log hourly wage growth by provincial minimum wage after the policy changes in 2024, stratified by Thai vs CLM.

Figure 4 represents the relationship between provincial minimum wage growth and the mean log hourly wage for Thai and CLM workers between the pre-policy period (2023) and the post-policy period (2024). The results show that the mean log hourly wage distribution of Thai workers is higher than that of CLM workers. The results indicate that provincial minimum wage growth affected and widened the wage distribution of both CLM and Thai workers, but the magnitude differed. The result provides preliminary descriptive evidence on wage differentials across groups and motivates the subsequent econometric analysis using continuous difference-in-differences. The analysis reports a positive association between provincial minimum wage growth and mean log hourly wages, particularly in the provinces with significant minimum wage increases. Thai workers appear to benefit substantially more than CLM workers, particularly in provinces with the largest minimum wage increases after the policy changes, indicating heterogeneous policy effects and motivating an examination of differential impacts by nationality using the continuous differences-in-differences framework.

Table 2 Regression Result in Overall Combined, Formal, and Informal Sectors

Variables	Overall Combined	Formal	Informal
MWgrowth * Post (2024)	0.430**	0.705**	0.176
	(0.210)	(0.317)	(0.296)
MWgrowth * CLM	-6.512***	-0.334	-8.510***
	(2.428)	(2.396)	(2.675)
Post (2024) * CLM	-0.002	0.099**	-0.061**
	(0.032)	(0.049)	(0.025)
MWgrowth * Post (2024) * CLM	0.168	-3.208**	1.915*
	(1.062)	(1.508)	(1.047)
Constant	3.492***	3.655***	3.463***
	(0.122)	(0.082)	(0.127)
Control	Yes	Yes	Yes
Region Fixed Effect	Yes	Yes	Yes
Observations	21,952	7,992	13,960
R^2	0.227	0.170	0.254
Adjusted R^2	0.226	0.168	0.253

Note: The dependent variable is Log Hourly Wage, and MWgrowth is a continuous treatment variable measuring the change in the statutory minimum wage across provinces, calculated as (MW2024 – MW2022)/MW2022. Standard errors are clustered at the region level and are reported in parentheses. Region fixed effects and control variables are included in the models (coefficients omitted). Continuous difference-in-differences. *Significance at 10% level. ** significance at 5% level. *** significant at 1% level.

Table 2 presents the continuous difference-in-differences regression results on wage responses to provincial minimum wage growth after the policy changes in 2024, across the overall combined and formal and informal sectors separately. The results for (MWgrowth x Post (2024)) indicate that the 2024 minimum wage growth has a positive and significant impact on wages in both the overall and formal sectors, but not in the informal sector. This implies that the wage response to minimum wage growth was concentrated only in the formal sector. The coefficient on the triple interaction term (MWgrowth x Post (2024) x CLM) captures the differential wage response to minimum wage growth between Thai and CLM workers in the post-policy period (2024). There is no significant difference in wages between Thai and CLM workers in the overall regression. Otherwise, the results in the formal sector suggest that the wage response to provincial minimum wage growth is significantly lower for CLM workers (-3.208, $p<0.05$) relative to Thai workers after the policy changes. Interpreting the log coefficient, a 1 percentage

point increase in the provincial minimum wage reduces the wage response in the formal sector by approximately 3.16% for CLM workers relative to Thai workers after the policy change. Moreover, the results in the informal sector also showed that the post-wage response to provincial minimum wage growth for CLM workers is significantly higher, 1.915 ($p<0.10$), compared to Thai workers. For CLM workers, a 1 percentage point increase in the provincial minimum wage increases wage responses in the informal sector by approximately 1.93% relative to Thai workers after the policy change.

Table 3 Regression Result in Small Firm & Large Firm Under Formal and Informal Sectors

Variables	Formal Small Firm	Formal Large Firm	Informal Small Firm	Informal Large Firm
MWgrowth * Post (2024)	0.609**	1.055	0.232	-2.797
	(0.537)	(0.676)	(0.340)	(3.007)
MWgrowth * CLM	-1.779	0.340	-8.669***	-6.091**
	(1.547)	(2.925)	(2.482)	(2.638)
Post (2024) * CLM	0.159***	0.060	-0.049	-0.246
	(0.047)	(0.070)	(0.033)	(0.192)
MWgrowth * Post (2024) * CLM	-5.478***	-1.717	1.296	10.091
	(0.892)	(2.403)	(1.330)	(6.488)
Constant	3.585***	3.773***	3.464***	3.652***
	(0.090)	(0.070)	(0.140)	(0.074)
Control	Yes	Yes	Yes	Yes
Region Fixed Effect	Yes	Yes	Yes	Yes
Observations	3,113	4,879	13,310	650
R^2	0.221	0.162	0.266	0.199
Adjusted R^2	0.215	0.158	0.265	0.172

Note: The dependent variable is Log Hourly Wage, and MWgrowth is a continuous treatment variable measuring the change in the statutory minimum wage across provinces, calculated as (MW2024 – MW2022)/MW2022. Standard errors are clustered at the region level and are reported in parentheses. Region fixed effects and control variables are included in the models (coefficients omitted). Continuous difference-in-differences. *Significance at 10% level. ** significance at 5% level. *** significant at 1% level.

To assess the robustness of the results, the model is estimated for large firms and small firms separately under the formal and informal employment sectors, where small firms have 49 workers, and larger firms have 50 workers or more. There is no significant wage differential between Thai and CLM workers in the larger firms in the

formal employment and large and small firms in the informal employment. However, the results in the small firms in formal employment suggest that the wage response to provincial minimum wage growth is significantly lower for CLM workers (-5.478, $p < 0.01$) relative to Thai workers after the policy changes. A 1 percentage point increase in the provincial minimum wage reduces the wage response in the small firms in the formal sector by approximately 5.33% for CLM workers relative to Thai workers after the policy change. The estimated heterogeneous policy effects remain qualitatively similar across these specifications, suggesting that the main findings are robust to alternative model specifications. The analysis reveals that the impact of minimum wage growth varies across employment sectors and firm size. The observed effects also reflect the spillover effects occurring near the statutory minimum wages, where enforcement is weaker, and there is high noncompliance.

Conclusion

The study examines the impact of Thailand's 2024 provincial minimum wage changes on the real hourly wages of Thai and CLM workers using a continuous difference-in-differences framework. The analysis critically examines whether provincial minimum wage growth affects wages differently between Thai and CLM workers across the formal and informal sectors. The empirical findings suggest that provincial minimum wage growth is associated with heterogeneous wage responses across Thai and CLM and labor market segments. The study tests the analysis overall, formally, and informally separately. Minimum wage growth had a positive and significant impact on wage responses for all workers in the overall and formal sectors; the analysis does not find a statistically significant difference in wage responses to 2024 provincial minimum wage changes between Thai and CLM in the overall analysis. However, the analysis results show that minimum wage policy changes in 2024 are associated with a negative wage response for CLM workers in the formal sector, suggesting that CLM workers benefit less from minimum wage adjustments than their Thai counterparts. In contrast, a positive wage response for CLM migrant workers in the informal sector relative to Thai workers is observed, suggesting that wage adjustments among migrant workers may be more

pronounced in segments of the labor market with weaker institutional coverage and limited access to the social security plan.

Overall, the findings indicate that the policy alone does not appear sufficient to narrow wage differentials between worker groups across sectors, whereas the 2024 minimum wage adjustment addressed wages for Thai and CLM workers in the formal and informal sectors. The results also highlight the role of institutional and structural factors, including labour market segmentation, weak enforcement, and limited access to the social security fund. There are some limitations in this study where the analysis relies on a 2023 pre-policy period due to the availability of nationality identifiers in the Thai Labor Force Survey. In line with previous literature, the study focuses solely on social security coverage to stratify the formal and informal sectors, which may limit the ability to observe the complexity of informal employment. Since the study focuses on the Thai Labor Force Survey, the data do not allow for the precise identification of undocumented migrant workers, which may affect estimates of wage responses among migrant populations.

Discussion

The findings in this study highlight that the impact of the 2024 provincial minimum wage policy varies across worker groups and employment sectors, and that minimum wage growth is associated with positive, significant wage responses for both Thai and CLM workers in the formal sector. The empirical results align with those of Piyapromdee et al. (2024), who analyze the minimum wage hike in Thailand and find significant earnings gains across worker types, albeit with heterogeneity in their magnitudes. They further highlight that wage gains are shaped by labor market reallocation and firm heterogeneity, with low-productivity firms exiting and workers sorting into more productive matches. Overall, the results indicate that the minimum wage policy changes in 2024 appear to have improved wages for all workers, consistent with existing findings (Carpio et al., 2018; Lathapipat & Poggi, 2016; Leckcivilize, 2015).

In the informal sector, the positive, statistically significant wage response to minimum wage growth observed among CLM workers after the policy change indicates that migrant workers are concentrated in low-wage jobs and therefore experience larger marginal wage gains following minimum wage increases than their Thai counterparts.

Conversely, in the formal sector, minimum wage growth is associated with a negative wage response among CLM workers, reflecting that their relative wage gains are significantly lower than those of Thai workers, suggesting the presence of institutional barriers such as unequal enforcement of labour regulations, high noncompliance, limited bargaining power, and differences in contract arrangements. Institutional barriers limit the effectiveness of policy in reducing wage inequality between Thai and CLM workers. Overall, the findings imply that while minimum wage growth can raise wages in some segments of the labour market, it does not narrow wage differentials across nationalities within the labour market segmentation.

Recommendation

The study found that wage differentials exist between Thai and CLM workers in the formal and informal sectors, suggesting that CLM workers are disproportionately represented and experience weaker law enforcement and less consistent benefits. The study's findings suggest several policy implications for improving wage effectiveness and equitable wage distribution in Thailand. Addressing structural drivers, including policies that imply labour market segmentation, is necessary to determine whether minimum wage reforms are to function not only as an income-support mechanism but also as a tool for promoting equity and social justice in Thailand's labour market. The study aims to propose improvements to minimum wage enforcement in provinces with higher CLM concentration and to note the limitations of the Social Security Fund (SSF) registration under Article 40. Also suggests improving migrant labour data systems to analyse the contribution of migrant workers in the Thai labour force. In addition, the study suggests strengthening labour law enforcement and mitigating limitations to SSF registration for migrant workers to ensure that policy impacts are more evenly distributed across worker groups. Finally, the study recommends further research to examine the dynamic effects of minimum wages using panel data or event-study difference-in-differences approaches as additional years of data become available, and to broaden the analysis using employer-employee data.

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