

Minimum Wage Increases and Labor Market Outcomes in South Korea: Heterogeneous Effects Across Demographic Groups and Employment Structure

Jihu Park and Seokhwan Lee

arsjihu0111@gmail.com, lshtwins0909@gmail.com

ABSTRACT

This study examines the relationship between minimum wage increases and unemployment in Korea using data from 2010 to 2025. The analysis focuses on overall unemployment, demographic-specific unemployment rates, employment structure, and changes in labor market outcomes before and after the COVID-19 pandemic. While minimum wage increases are not significantly associated with the overall unemployment rate, disaggregated analysis reveals heterogeneous effects across demographic groups. Minimum wage increases are associated with reduced unemployment among youth and university-educated workers, whereas unemployment tends to increase among low-educated workers. Furthermore, the post-COVID analysis suggests that the relationship between minimum wage and unemployment became more pronounced following the pandemic. These findings indicate that the employment effects of minimum wage increases are not uniform across all workers but vary depending on individual characteristics and labor market conditions. These findings suggest that policymakers should look beyond aggregate unemployment figures and consider the diverse impacts of minimum wage policy across different worker groups.

1. INTRODUCTION

South Korea introduced the minimum wage system in 1988, and the minimum wage has since been adjusted annually by the Minimum Wage Commission. The policy applies a single national minimum wage across all industries and regions. Although the system was originally designed to protect low-wage workers and improve living standards, the scale and speed of recent increases have generated considerable debate. In particular, the Moon Jae-In administration's pledge to raise the minimum wage to ₩10,000 per hour by 2020 led to the sharpest increase in the history of the system, with the annual growth rate exceeding 16% in 2018.

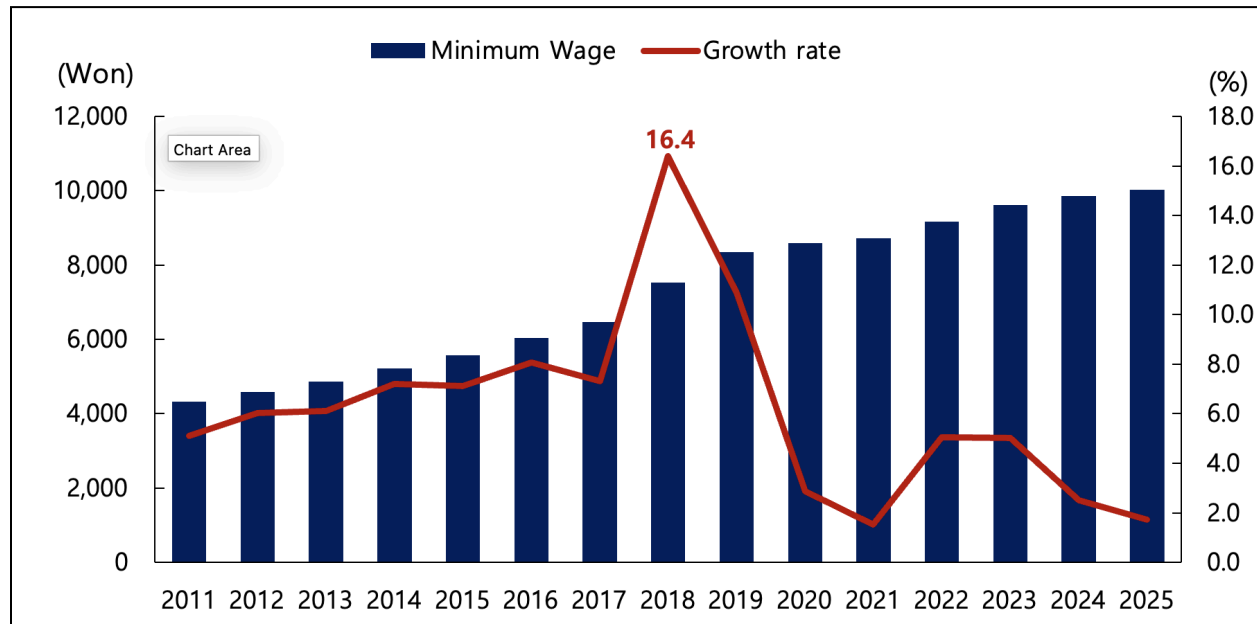
While supporters argued that higher minimum wages would improve income and reduce inequality, critics raised concerns about rising labor costs for small businesses and self-employed workers. A 2024 survey

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conducted by the Federation of Korean Industries (FKI) found that 48% of self-employed respondents considered the minimum wage to be burdensome to the sustainability of their businesses. Concerns over labor costs became particularly significant among small businesses, restaurants, and accommodation services, where labor-intensive employment structures are common. As a result, policymakers later adopted a more cautious approach, and the annual increase rate slowed considerably. Figure 1 shows the steady increase in the minimum wage level, along with fluctuations in its annual growth rate over time.

< Figure 1 : Trends in Minimum Wage and Growth Rate in South Korea (2011–2025)>



From a theoretical perspective, the traditional competitive labor market model predicts that increases in the minimum wage reduce employment because firms face higher labor costs. Under this view, firms may respond by reducing hiring, cutting working hours, or replacing labor with capital. However, alternative theories such as monopsony models suggest that moderate increases in the minimum wage do not necessarily reduce employment. Therefore, the relationship between minimum wages and employment remains theoretically and empirically controversial.

Empirical findings have also produced mixed results. Card and Krueger (1994) report that minimum wage increases did not reduce employment in the fast-food industry in New Jersey, challenging the traditional competitive labor market model. In contrast, Neumark and Wascher (2000, 2006) present evidence supporting negative employment effects. Later, Doucouliagos and Stanley (2009) argue that publication selection bias may partly explain why many studies report negative employment effects. Similar debates have also emerged in Korea. Lee and Hwang (2016) find that minimum wage increases reduce employment among vulnerable worker groups such as women, young workers, and low-skilled workers. However, Kim (2019) reports limited effects on overall employment while showing reductions in

employment among daily workers and declines in working hours. Lee, Kim, and Choi (2019) suggest that firms may respond to higher labor costs by reducing new hiring and increasing short-hour employment. In addition, Hong and Moon (2019) show that the effects of rapid increases in the minimum wage in Korea differ depending on worker characteristics and labor market conditions. Overall, previous studies suggest that the employment effects of minimum wage increases are not uniform and may vary depending on the data, empirical strategy, and worker groups examined.

Despite the growing literature, several limitations still remain. Many previous studies focus on specific demographic groups or particular labor market outcomes, while relatively fewer studies examine broader changes in employment structure. In addition, the COVID-19 pandemic created significant disruptions in the labor market, which may have altered the relationship between minimum wages and employment. Therefore, this study adopts a broader analytical framework by examining not only the overall unemployment rate, but also unemployment by gender, age, and education level. Furthermore, this study analyzes changes in employment structure, including full-time and part-time employment, and compares the periods before and after the COVID-19 pandemic. Using annual data from Korean Statistical Information Service (KOSIS), this study aims to provide a more comprehensive understanding of the relationship between minimum wage increases and labor market outcomes in South Korea.

2. LITERATURE REVIEW

Card and Krueger (1994) examine the impact of minimum wage increases on employment using a natural experiment in the fast-food industry in New Jersey and Pennsylvania. Exploiting the increase in New Jersey's minimum wage in 1992, they apply a difference-in-differences approach, comparing fast-food restaurants in New Jersey with those in neighboring Pennsylvania. They find that employment in New Jersey was higher relative to Pennsylvania, suggesting that the minimum wage increase was not associated with a reduction in employment. This result contrasts with the prediction of the traditional competitive labor market model, which predicts that higher minimum wages may result in a reduction in employment. The authors argue that labor market frictions or monopsonist features may explain the absence of negative employment effects.

Building on the findings of Card and Krueger (1994), Neumark and Wascher (2000) question their conclusions by re-examining the same New Jersey-Pennsylvania natural experiment using payroll records instead of survey data. While Card and Krueger rely on telephone survey responses, Neumark and Wascher employ administrative wage records, which are generally considered to be more accurate measures of employment. Using this alternative dataset, they find that employment in New Jersey declined by approximately 3.9% to 4.0% relative to Pennsylvania following the minimum wage increase. This result contrasts sharply with Card and Krueger's findings and is consistent with the predictions of the traditional competitive labor market model. The authors suggest that the discrepancy is primarily to measurement error in the original survey data, emphasizing the importance of data reliability in empirical analysis.

In response, Card and Krueger (2000) revisit their earlier study and reassess the employment effects using more comprehensive administrative data and a revised sample. By incorporating data from the Bureau of Labor Statistics and refining their measure of employment, they find that the increase in New Jersey's minimum wage was not associated with a relative decline in employment. Their results remain broadly consistent with their original findings, suggesting that the negative effects reported by Neumark and Wascher may be driven by differences in sample selection rather than true economic effects. This exchange highlights how empirical conclusions can be sensitive to data sources and sample construction.

Extending this debate, Neumark and Wascher (2006) provide a comprehensive review of the minimum wage literature developed since the 1990s. Surveying a wide range of studies across different countries and methodologies, they argue that the most credible evidence is generally consistent with the view that minimum wage increases are associated with lower employment among low-skilled workers. In particular, they find that employment effects tend to be concentrated among vulnerable groups, suggesting that the neutral or positive findings reported in earlier case studies may not be universally applicable. Overall, their review reaffirms the traditional perspective that minimum wage increases may be associated with negative impacts on labor demand.

While the debate between Card and Krueger and Neumark and Wascher highlights the sensitivity of minimum wage effects to data and methodology, subsequent research further suggests that empirical findings are not uniform across studies. Doucouliagos and Stanley (2009) examine the presence of publication selection bias in the minimum wage literature through a large-scale meta-analysis. Using 1,474 estimates from 64 U.S. studies, they apply meta-regression techniques to distinguish genuine effects from those driven by selective reporting. Their findings indicate that the negative employment effects reported in some studies may be overstated due to publication bias. Once such bias is accounted for, the overall effect of minimum wage increases on employment appears to be statistically insignificant. This suggests that the traditional view of negative employment effects is not strongly supported when the broader literature is considered.

More recent research has extended this discussion to different institutional contexts, including South Korea, where the minimum wage experienced a rapid increase in the late 2010s. Doh, Kim, Kim, Lee, and Song (2024) analyze the employment effects of minimum wage increases by comparing periods of gradual and rapid increases between 2015 and 2019. Using a difference-in-differences framework based on firm-level exposure, they find that while moderate increases do not significantly affect employment, rapid increases are associated with a decline in employment, particularly among firms with higher exposure. They further suggest that firms adjust to sharp wage increases by substituting low-skilled labor with capital and higher-skilled workers.

However, it is important to note that empirical findings in the Korean context are also mixed. Lee and Hwang (2016) provide evidence of negative employment effects using the Survey on Labor Conditions by type of employment from 2006 to 2014. Their study exploits differences in minimum wage exposure

across demographic groups and finds that a 1% increase in the minimum wage reduces employment by about 0.14% when employment is measured in terms of 44-hour jobs. The negative effects appeared to be more pronounced among women, young and older workers, low-educated workers, short-tenure workers, and employees in small enterprises. This suggests that the burden of minimum wage increases may be concentrated among groups that are more vulnerable in the labor market.

Kim (2019), however, reports that the aggregate employment effect is more limited. Using regional employment data from 2008 to 2018, Kim finds no statistically significant effect on the overall employment rate, but reports a significant decline in employment among daily workers. The study also finds that minimum wage increases reduce average working hours while raising hourly wages and monthly earnings for wage workers. This result is important because it suggests that minimum wage policy may change the composition and intensity of work even when the overall employment rate does not move significantly.

Lee, Kim, and Choi (2019) further shift the focus from existing employment to new hiring and working hours. Using worker-level data from 2008 to 2017, they find that minimum wage increases reduce new employment and increase the share of new workers working fewer than 15 hours per week. Their results imply that firms may respond to higher labor costs by limiting new hiring or splitting jobs into shorter-hour positions. The effects are especially visible among women, young and older workers, and workers with a high school education or less.

Hong and Moon (2019) examine the more recent period of rapid minimum wage increases in 2018 and 2019. Their study suggests that the effects of minimum wage increases during this period are not confined to employment alone, but are also related to changes in wage distribution, working hours, and income outcomes. In this sense, the Korean literature does not provide a single conclusion. Rather, it reveals that minimum wage relationships differ across outcomes, worker groups, and labor market adjustments.

3. EMPIRICAL RESULTS

3.1 Data Description

The data used in this study were collected from two national sources: the Korean Statistical Information Service (KOSIS) and Index Korea. KOSIS provided information on labor market outcomes, including unemployment rates by gender, age group, education level, working hours, and employment status. Additional macroeconomic variables, including GDP growth and CPI inflation, were also collected to control for broader economic conditions. Data on the minimum wage and annual minimum wage increases were obtained from Index Korea.

The sample period covers 2010 to 2025. This period was selected because it includes both gradual and rapid increases in the minimum wage, as well as major labor market disruptions such as COVID-19

pandemic. Therefore, the dataset allows comparisons across different economic conditions and policy environments.

The unemployment rate was calculated by dividing the number of unemployed individuals by the economically active population and multiplying the result by 100. Unemployment rates were then constructed for different demographic groups, including gender, age, and education level. In addition, employment structure variables were calculated using the share of workers in different categories, such as full-time and part-time employment, and employment status (regular, temporary, and daily workers).

To account for delayed policy effects, lagged values of the minimum wage, GDP growth, and CPI inflation were used in the regression analysis. The minimum wage variable was transformed into logarithmic form to reduce scale differences and interpret proportional changes more appropriately. By combining labor market indicators with macroeconomic controls, this study aims to examine the relationship between minimum wage changes and unemployment from multiple perspectives.

< Table 1. Summary Statistics >

This table reports summary statistics for the main variables used in the analysis. The sample covers annual observations from 2010 to 2025. Unemployment rates are measured as percentages of the economically active population. Employment structure variables are calculated as the share of each employment category relative to total employment. The minimum wage variable is expressed in the logarithmic form. GDP and CPI represent real GDP growth and inflation rates, respectively.

Variable	Mean	Standard Deviation	Minimum	Maximum
Unemployment Rate				
Total Unemployment Rate	3.400	0.423	2.700	4.000
Male Unemployment Rate	3.450	0.475	2.600	4.000
Female Unemployment Rate	3.312	0.390	2.800	4.000
Age 15-29	8.012	1.386	5.867	9.832
Age 30-49	2.606	0.241	2.222	2.978
Age 50 and above	2.471	0.368	1.851	3.209
Middle School or Less	3.090	0.575	2.197	4.156
High School	3.694	0.529	2.761	4.447
University or More	3.274	0.454	2.564	3.937
Employment Structure				
Part-time Share	20.366	5.016	14.626	30.830
Full-time Share	77.938	5.098	67.606	83.715
Regular Employees	50.889	4.931	42.350	57.826
Temporary Employees	18.398	1.628	16.248	21.250
Daily Workers	5.320	1.353	3.007	7.598

Macroeconomic Variables				
Log(Minimum Wage)	8.817	0.318	8.321	9.213
GDP Growth	2.869	1.646	-0.700	7.000
CPI Inflation	2.081	1.317	0.400	5.100

Table 1 reports summary statistics for unemployment rates, employment structure variables, and macroeconomic controls from 2010 to 2025. The average total unemployment rate is 3.400%, indicating that unemployment in South Korea remained relatively stable over the sample period. However, unemployment differs considerably across demographic groups. In particular, the unemployment rate for individuals aged 15-29 averages 8.012%, which is substantially higher than that of older age groups. This result could be explained by that younger workers may face greater difficulties entering the labor market, possibly due to limited work experience or competition for stable jobs. In contrast, unemployment rates among individuals aged 30-49 and those aged 50 and above remain below 3%, implying greater labor market stability.

Differences are also observed across educational groups. High school graduates record the highest average unemployment rate (3.694%), while individuals with middle school education or less show the lowest average unemployment rate (3.090%). University graduates exhibit an unemployment rate between these groups. This pattern suggests that unemployment risk does not necessarily decline linearly with educational attainment and may reflect differences in labor market entry or occupational composition.

Employment structure variables indicate that the Korean labor market is still largely dominated by full-time employment, with full-time workers accounting for approximately 77.938% of total employment compared to 20.366% for part-time workers. Temporary employment represents a larger share of employment than daily work, implying the continued presence of non-standard employment arrangements. Furthermore, the relatively larger standard deviation of part-time employment may reflect that this category may be more sensitive to changes in economic conditions.

Regarding macroeconomic variables, the logarithm of the minimum wage averages 8.817 and increases steadily over the sample period, reflecting continuous minimum wage growth. GDP growth average 2.869%, while CPI inflation averages 2.081%, although both variables show noticeable fluctuations. In particular, the negative GDP growth observed during the sample period likely captures economic shocks associated with COVID-19.

Overall, the summary statistics reveal differences in unemployment and employment structure across demographic groups. Higher unemployment among younger workers and variation across education groups suggest that the effects of minimum wage changes may differ depending on worker characteristics.

These patterns provide an initial indication that heterogeneous labor market effects should be considered in subsequent analyses.

3.2 Empirical Results

3.2.1 Baseline Model

To examine the relationship between minimum wage changes and unemployment, this study first estimates a baseline regression model using the overall unemployment rate as the dependent variable. The main explanatory variable is the logarithm of the minimum wage. GDP growth and CPI inflation are included as control variables to account for broader economic conditions that may be related to changes in unemployment.

Since changes in the minimum wage may not be immediately reflected in labor market outcomes, both contemporaneous and lagged models are estimated. The contemporaneous model examines whether minimum wage changes are associated with unemployment within the same year, while the lagged model considers delayed effects by using one-year lagged values of the minimum wage and macroeconomic control variables. This approach allows the analysis to assess both short-term and longer-term patterns of adjustment in the labor market.

Baseline model:

$$Unemployment_t = \beta_0 + \beta_1 Minimum\ wage_t + \beta_2 GDP_t + \beta_3 CPI_t + \epsilon_t$$

Lagged model:

$$Unemployment_t = \beta_0 + \beta_1 Minimum\ wage_{t-1} + \beta_2 GDP_{t-1} + \beta_3 CPI_{t-1} + \epsilon_t$$

< Table 2. Relationship between Minimum Wage and Overall Unemployment Rate >

This table reports the estimated relationship between minimum wage and the overall unemployment rate. Column (1) presents the contemporaneous specification, while column (2) presents the lagged specification. Real GDP and CPI inflation are included as control variables in all models. T-values are reported in parentheses. *, **, and * indicate statistical significance at the 10%, 5%, and 1% levels, respectively.**

	(1) Contemporaneous Effect	(2) Lagged Effect
Minimum Wage	-0.041	-0.259
	(-0.12)	(-0.91)
Real GDP Growth	0.097	0.022

	(1.35)	(0.38)
CPI Inflation	-0.212*	-0.255***
	(-2.92)	(-4.52)
Adjusted R-squared	0.336	0.613

Table 2 reports statistics for the relationship between the minimum wage and the overall unemployment rate using both contemporaneous and lagged effects. The minimum wage variable shows a coefficient of -0.041 (contemporaneous) and -0.259 (lagged), both of which are insignificant and have t-values of -0.12 and -0.91, respectively. This shows that a minimum wage increase are not significantly associated with the overall unemployment rate. One possible explanation is that the effects of minimum wage changes vary across demographic groups. For example, the unemployment rate may decrease for some group while increasing for others. As a result, the opposing patterns may offset one another at the aggregate level, leaving the overall unemployment rate largely unchanged. Therefore, although minimum wage increases do not appear to have a significant effect on aggregate unemployment, the relationship may differ across demographic groups.

CPI inflation shows a statistically negative relationship with the unemployment rate and across both effects, with coefficients of -0.212 (contemporaneous) and -0.255 (lagged). These findings align with macroeconomic theory. During economic expansion, rising demand for goods and services is often accompanied by higher prices and increased labor demand, which may contribute to lower unemployment. Accordingly, the results imply that unemployment is more strongly influenced by macroeconomic conditions rather than by minimum wage policy.

Real GDP Growth has coefficients of 0.097 and 0.022 in both contemporaneous and lagged effects, respectively, neither of which is statistically significant. This indicates that GDP growth does not explain variation in the overall unemployment rate in this model. Among the macroeconomic control variables included, CPI inflation appears to be more closely associated with unemployment, which suggests that price-level dynamics are more closely aligned with labor market conditions than output growth.

Overall, the summary statistics reveal that minimum wage increases do not have a statistically significant effect on the overall unemployment rate, while macroeconomic conditions play a more meaningful role in explaining unemployment fluctuations.

3.2.2 Heterogeneous Effects Across Demographic Groups

Previous studies suggest that the effects of minimum wage increases may differ across worker groups. For example, young workers, women and low-skilled workers are often considered more vulnerable to labor market changes (Lee and Hwang (2016); Kim (2019)). Therefore, this study extends the baseline model by estimating separate regressions for unemployment rates by gender, age, and education level.

Specifically, the analysis examines unemployment among males and females, three age groups (15-29, 30-49, and 50 years and above), and educational attainment groups (middle school or less, high school, and university or above). The same lagged minimum wage and macroeconomic control variables are used to maintain comparability across models. This approach allows the study to identify whether the relationship between minimum wage changes and unemployment differs across demographic groups.

< Table 3. Heterogeneous Effects of Minimum Wage on Unemployment by Demographic Groups >

This table reports regression results examining whether the effects of minimum wage increase on unemployment differ across demographic groups. Separate models are estimated by gender, age, and education level. Lagged values of the logarithm of the minimum wage, GDP growth, and CPI inflation are included in all specification. T-values are reported in parentheses. *, **, and * indicate statistical significance at the 10%, 5%, and 1% levels, respectively.**

Panel A: Gender			
Variables	Male	Female	
Lagged Minimum Wage	-0.586	0.107	
	(-1.85)	(0.39)	
Real GDP Growth	0.013	0.016	
	(0.21)	(0.30)	
CPI Inflation	-0.240**	-0.248***	
	(-3.82)	(-4.48)	
Adjusted R-squared	0.594	0.577	
Panel B: Age			
Variables	Age 15-29	Age 30-49	Age 50 and above
Lagged Minimum Wage	-1.995*	-0.079	0.498
	(-2.34)	(-0.44)	(1.60)
Real GDP Growth	0.039	0.026	0.000
	(0.23)	(0.73)	(0.00)
CPI Inflation	-0.760***	-0.127**	-0.177
	(-4.50)	(-3.59)	(-2.86)
Adjusted R-squared	0.688	0.462	0.407

Panel C: Education			
Variables	Middle or Less	High School	University or more
Lagged Minimum Wage	1.553	-0.476	-0.707
	(4.13)	(-1.38)	(-2.38)*
Real GDP Growth	0.005	0.049	-0.001
	(0.07)	(0.71)	(-0.02)
CPI Inflation	-0.146	-0.301	-0.226
	(-1.95)	(-4.40)	(-3.83)**
Adjusted R-squared	0.645	0.627	0.634

Table 3 reports regression results examining whether the effect of minimum wage increases on unemployment differs across demographic groups. Panel A shows the heterogeneous effect of minimum wage on unemployment by gender. For male unemployment, the lagged minimum wage coefficient is -0.586, which is significant at 10% level, suggesting a tendency for male unemployment to decline following minimum wage increases. However, for females, it appears insignificant that unemployment is 0.107 with a t-value of 0.39. This result suggests that minimum wage increases are not significantly associated with female unemployment. This gender difference may reflect differences in occupational composition and labor market participation patterns between men and women. For example, men would be working more in manufacturing or certain service labor that are more sensitive to wage changes, while women may be experiencing different forms of labor market adjustment.

Panel B represents the effect of the minimum wage across the three age groups. For the 15-29 age group, the lagged minimum wage coefficient is -1.995 and statistically significant at the 5% level, indicating that minimum wage increases are associated with a reduction in youth unemployment, which has a strong correlation with it. For the age 30-49 age group, the coefficient is -0.079 and insignificant, which suggests that there is little evidence of a meaningful association. For age 50 and above, the coefficient is positive at 0.498 but also insignificant, indicating that older workers are largely no clear relationship within this group by the minimum wage change. These results is not consistent with the conventional view that minimum wage increases worsen youth employment. Several explanations are possible. First, higher minimum wages may increase earnings among lower-wage workers, which could support consumer demand in sectors where young workers are more heavily represented. Second, because young workers are more likely to hold jobs near the minimum wage, wage increases may strengthen incentives to participate in the labor market. While these explanations remain speculative, the results suggest that the relationship between minimum wages and youth unemployment may be more complex than traditional theory predicts.

Panel C indicated the results by education level. For workers with middle school education or less, the coefficient is 1.553, and it is statistically significant, suggesting that minimum wage increases are associated with higher unemployment among low-educated workers. This aligns with the traditional view, as these workers are more likely to hold low-skilled jobs directly affected by minimum wage floors, and employers may respond by reducing headcount. For high school graduates, the coefficient is -0.476 but insignificant, which provides no clear evidence of a systemic relationship. For university-educated workers, the coefficient is -0.707 and statistically significant, indicating that minimum wage increases are associated with lower unemployment among highly educated workers. One possible interpretation is a substitution effect, whereby firms facing higher labor costs for low-skilled positions may increase demand for relatively more skilled workers. However, this explanation should be interpreted cautiously given the limited sample size.

Overall, Table 3 indicates that the effects of minimum wage on unemployment are not uniform across demographic groups. These heterogeneous effects may help explain why no statistically significant relationship is observed at the aggregate level in Table 2.

3.2.3 Employment Structure Analysis

Minimum wage increases may influence labor markets not only through changes in unemployment, but also through shifts in employment composition. Firms facing higher labor costs may reduce non-regular employment, increase part-time workers, or modify hiring patterns rather than lowering overall employment. Therefore, this study further examines whether variations in the minimum wage are related to differences in employment structure.

Specifically, the analysis considers the shares of full-time and part-time employment, as well as regular, temporary, and daily workers. Separate regressions are estimated using the same lagged minimum wage variable and macroeconomic control variables to ensure consistency with previous models.

< Table 4. Effects of Minimum Wage on Changes in Employment Structure >

This table reports regression results examining whether minimum wage changes are associated with changes in employment structure. Panel A presents results for employment shares by working hours, including full-time and part-time employment. Panel B reports results by employment status, including regular, temporary, and daily workers. Lagged values of the logarithm of the minimum wage, GDP growth, and CPI inflation are included in all specifications. T-values are reported in parentheses. *, **, and * indicate statistical significance at the 10%, 5%, and 1% levels, respectively.**

Panel A: Gender

Variables	Part-Time Share	Full-Time Share
Lagged Minimum Wage	14.221***	-14.636***
	(4.92)	(-4.93)
Real GDP Growth	0.309**	-0.348***
	(4.92)	(-0.59)
CPI Inflation	0.685	-0.569
	(0.26)	(-0.96)
Adjusted R-squared	0.702	0.696

Panel B: Age			
Variables	Regular Employees	Temporary Employees	Daily Workers
Lagged Minimum Wage	14.164***	-4.660***	-3.566***
	(21.53)	(-13.53)	(-9.66)
Real GDP Growth	-0.078***	0.009	0.079
	(-0.60)	(0.14)	(1.08)
CPI Inflation	0.166	-0.040	-0.170*
	(1.27)	(-0.58)	(-2.31)
Adjusted R-squared	0.981	0.953	0.923

Table 4 reports regression results examining whether minimum wage changes are associated with changes in employment structure. Panel A examines the relationship between minimum wage and the composition of working hours. The lagged minimum wage coefficient for part-time share is 14.221, which is statistically significant at the 5% level (t-value: 4.92), indicating a strong positive relationship between minimum wage increases and the share of part-time employment. In contrast, the coefficient for full-time share is -14.636, significant at 1% level (t-value: -4.93), suggesting that minimum wage increases are associated with a significant decline in full-time employment share. This means that after the minimum wage increase, the share of part-time jobs among total employed workers rises while the share of full-time jobs declines. These results suggest that firms may adjust working hours in response to higher labor costs associated with minimum wage increases. For example, even when total labor demand remains the same, firms may rely more heavily on part-time arrangements to maintain flexibility in labor costs rather than reducing the total number of workers employed.

Panel B shows the effects of minimum wage on employment composition by contract type. The lagged minimum wage coefficient for regular employees is 14.164, highly significant at the 1% level (t-value: 21.53), indicating that minimum wage increases are strongly associated with a rise in the share of regular employment. While the coefficient for temporary employees (-4.660, t-value: -13.53) and daily workers

(-3.566, t-value: -9.66) are both negative and significant at the 1% level, suggesting that minimum wage increases lead to a decline in the share of more precarious employment forms. Since regular employment is generally considered a more stable and long-term form of work, while temporary and daily employment tends to be insecure and short-term, these findings suggest that minimum wage increases may be associated with a shift toward more stable employment arrangements. One possible explanation is that firms facing higher labor costs place greater emphasis on workforce stability and productivity. However, it is important to notice that an increase in regular employment does not imply that good-quality jobs have increased, as Panel A shows that part-time employment also increased during the same period.

Overall, Table 4 reveals that the minimum wage increases are associated with changes in employment composition, with part-time and regular employment rising while full-time, temporary, and daily employment declining. These findings suggest that minimum wage policy may influence not only the level of employment but also the composition and structure of employment in the Korean labor market.

3.2.4 COVID-19 Comparison

The COVID-19 pandemic generated substantial disruptions in labor markets worldwide. In South Korea, restrictions on economic activity, changes in consumer behavior, and uncertainty in business conditions were accompanied by shifts in employment outcomes, particularly in service industries and among vulnerable workers. These disruptions may have changed the relationship between minimum wage changes and unemployment, making it difficult to assume that labor market dynamics remained constant before and after the pandemic.

To examine whether labor market conditions differed following COVID-19, this study conducts the analysis in two steps. First, descriptive comparisons are made between the pre-COVID period and the post-COVID period. Mean values of unemployment rates and employment structure variables are compared to identify broad changes in labor market conditions. The pre-COVID period is defined as years before 2020, while the post-COVID period includes 2020 onward.

Second, regression models incorporating a COVID dummy variable are estimated to examine whether the relationship between minimum wage changes and unemployment differs after the pandemic. The COVID dummy variable equals one for observations from 2020 onward and zero otherwise. In addition, an interaction term between COVID and the lagged minimum wage variable is included to test whether this relationship differs across periods.

The empirical specification is as follows:

$$Unemployment_t = \beta_0 + \beta_1 Minimum\ wage_{t-1} + \beta_2 GDP_{t-1} + \beta_3 CPI_{t-1} + \beta_4 COVID_t + \beta_5 (COVID_t \times MW_{t-1}) + \epsilon_t$$

where $COVID_t$ is a dummy variable equal to one for years after 2020 and zero otherwise. The interaction term captures whether the association between minimum wage changes and unemployment differs after the onset of the COVID-19 pandemic.

This approach allows the analysis to distinguish between general labor market disruptions caused by COVID-19 and changes specifically related to minimum wage effects. Furthermore, comparing pre- and post-pandemic periods helps determine whether vulnerable groups experienced different labor market adjustments following the pandemic.

< Table 5. Changes in Unemployment and Employment Structure Before and After COVID-19 >

This table compares mean values of unemployment rates and employments structure before and after the COVID-19 pandemic. The pre-COVID period includes observations before 2020, while the post-COVID periods includes 2020 onward.

Variable	Pre-COVID	Post-COVID
Unemployment Rate		
Total Unemployment Rate	3.550	3.150
Male Unemployment Rate	3.680	3.067
Female Unemployment Rate	3.360	3.233
Age 15-29	8.730	6.817
Age 30-49	2.680	2.484
Age 50 and above	2.420	2.556
Middle School or Less	2.807	3.561
High School	3.902	3.347
University or More	3.520	2.864
Employment Structure		
Part-time Share	17.064	25.870
Full-time Share	81.363	72.230
Regular Employees	47.784	56.063
Temporary Employees	19.438	16.665
Daily Workers	6.174	3.895

Table 5 compares the mean value of unemployment rates and employment structure before and after the COVID-19 pandemic. The total unemployment rate declined from 3.550 in the pre-COVID period to 3.150% in the post-COVID period, suggesting an overall reduction in unemployment. However, this varies across demographic groups. For males, females, age 15-29, and age 30-49 groups, unemployment rates all declined in the post-COVID period: male unemployment fell from 3.680 to 3.067, female from 3.360 to 3.233, the 15-29 age group from 8.730 to 6.817 and the 30-49 age group from 2.680 to 2.484. In contrast, the age 50 and above group saw unemployment increase from 2.420 to 2.556, suggesting that older workers were affected differently. One possible explanation is that labor market recovery was uneven across age groups, with older workers facing greater difficulties returning to employment after economic disruptions.

Among education levels, the middle school or less group experienced an increase in unemployment from 2.807 to 3.651, which indicated that COVID-19 has a negative impact on low-skilled workers. Meanwhile, high school and university-educated workers saw their unemployment rates decline, suggesting that higher-skilled workers maintained relatively stable employment or found new opportunities during the post-COVID period.

In the employment structure, the part-time share rose from 17.064% to 25.870%, while the full-time share declined from 81.363% to 72.230%, which indicated a notable shift in working hours composition following COVID-19. This is consistent with the fact that the pandemic brought about structural changes in how work is organized, with full-time arrangements giving way to part-time employment. Simultaneously, the share of regular employees increased from 47.784% to 56.063%, while temporary employees declined from 19.438% to 16.665%, and daily workers fell from 6,174% to 3.895%. These changes indicate that the labor market experienced substantial restructuring after COVID-19, although the direction of these changes differed across employment categories.

Overall, Table 5 highlights that while the total unemployment rate declined in the Post-COVID period, the patterns differed considerably across demographic groups and employment types. The results suggest that the pandemic coincided with important changes in the structure of the Korean labor market, although these changes were not uniform across workers and employment arrangements.

< Table 6. Effects of COVID-19 and Minimum Wage on Unemployment >

This table reports regression results examining whether the relationship between minimum wage changes and unemployment differs after COVID-19. The COVID dummy equals one for years from 2020 onward and zero otherwise. Interaction term between COVID and lagged minimum wage variables are included to capture potential differences in minimum wage effects after the pandemic. T-values are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Overall and Age-Specific Unemployment				
Variables	Total	Age 15-29	Middle or Less	University or more
Lagged Minimum Wage	0.923	1.624	1.611	0.521
	(1.93)	(1.68)	(2.24)	(1.48)
Real GDP Growth	-0.053	-0.050	-0.004	-0.032
	(-1.05)	(-0.47)	(-0.06)	(-0.84)
CPI Inflation	-0.145*	-0.455**	-0.097	-0.116*
	(-2.64)	(-3.40)	(-0.97)	(-2.38)
COVID Dummy	44.006*	85.520	29.769	33.113*
	(2.80)	(2.22)	(1.04)	(2.37)

COVID X Lagged Minimum Wage	-4.902*	-9.685*	-3.272	-3.736*
	(-2.82)	(-2.28)	(-1.04)	(-2.42)
Adjusted R-squared	0.779	0.881	0.619	0.849

Table 6 reports regression results examining whether the relationship between minimum wage changes and unemployment differs after COVID-19. The total unemployment rate's coefficient is -4.902, which is significant at 10% level with a t-value of -2.82. This shows the negative relationship between minimum wage and unemployment; its relationship became stronger in the post-COVID period. This means that minimum wage increases are associated with a larger reduction in the overall unemployment rate. For the youth group, the COVID lagged minimum wage coefficient is -9.685, which is significant at 10% level with a t-value of -2.28. This shows that the decline in unemployment is more affected by the minimum wage in the post-COVID period. These results may reflect that the government support to youth groups during the pandemic altered their labor market participation patterns more significantly than other groups. For the middle school or less group, the coefficient is -3.272, and the value is statistically insignificant, which suggests that the post-COVID period did not bring the meaningful change that the minimum wage affected low-skilled workers' unemployment. For university workers, the coefficient is -3.736, which is significant at 10% level with a t-value of -2.42, indicating that minimum wage increases were associated with a stronger reduction in unemployment among highly educated workers in the post-COVID period.

Overall, Table 6 shows that the effect of minimum wage on unemployment was exaggerated in the post-COVID period for most groups, particularly among youth and university workers, while the impact on low-skilled workers remained statistically insignificant. These findings show that the post-COVID effect of minimum wage on unemployment varies considerably across demographic groups.

4. CONCLUSION

This study examines the relationship between minimum wage increases and unemployment in South Korea using annual data from 2010 to 2025. Unlike previous studies that focus on specific demographic groups or single employment indicators, this study analyzes unemployment rates and employment structure across gender, age, and education groups within a unified framework.

The results are consistent with the finding that minimum wage increases do not have a statistically significant effect on the overall unemployment rate. However, when the analysis is conducted by demographic group, considerable heterogeneity emerges. Minimum wage increases are associated with reduced unemployment among youth workers and university-educated workers, while unemployment among low-educated workers tends to increase. These contrasting effects may offset one another at the

aggregate level, helping to explain why no significant relationship is observed for the overall unemployment rate.

The analysis of employment structure suggests that firms may respond to an increase in the minimum wage by changing the structure of employment rather than cutting back on employment. Part-time and regular employment increase, whereas full-time, temporary, and daily employment decline. These findings indicate that minimum wage increases may influence not only the level of employment but also the structure of employment.

In addition, the relationship between minimum wage increases and unemployment appears to have changed after the COVID-19 pandemic. The results suggest that the minimum wage effects became more pronounced for certain groups, particularly young workers and university-educated workers, during the post-COVID period.

Overall, the findings indicate that the employment effects of minimum wage increases are not uniform across workers and labor market conditions. Therefore, evaluating minimum wage policies solely through aggregate unemployment measures may overlook important differences across demographic groups. Policymakers should consider these heterogeneous effects when designing and assessing minimum wage policies.

This study has several limitations that should be considered when interpreting the results. First, the analysis uses annual data from 2010 to 2025, which provides a relatively small number of observations. As a result, the statistical results should be interpreted with caution. In addition, several variables show similar upward or downward trends over time. Therefore, the relationships identified in this study do not necessarily imply a causal relationship. Finally, this study focuses on South Korea over a single period and does not use a natural experiment or other research designs that can identify causal effects more clearly. Future research could extend this research by using longer time periods, regional or firm-level data, or other empirical methods to provide more robust evidence on the employment effects of minimum wage increases.

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