

Choi, Kyungsoo

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Employment Effect of Minimum Wage Increase

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KDI FOCUS

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For Inquiry: KDI Communications Unit

Address: 263, Namsejong-ro, Sejong-si 30149, Korea

Tel: 82-44-550-4030 **Fax:** 82-44-550-0652

Authors | Kyungsoo Choi, Fellow at KDI (82-44-550-4063)

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Employment Effect of Minimum Wage Increase

Kyungsoo Choi, Senior Fellow at KDI

“The objective of a minimum wage increase is to improve the quality of low-wage jobs and to narrow wage gaps. The sharp minimum wage increase in 2018 has so far produced no significant declines in employment. However, if drastic increases continue in the next two years, the level of the minimum wage as a ratio to the median wage will exceed those in other advanced economies and employment growth will likely exhibit a large drop distorting the wage structure. Thus, an adjustment in the pace of minimum wage increases is required.”

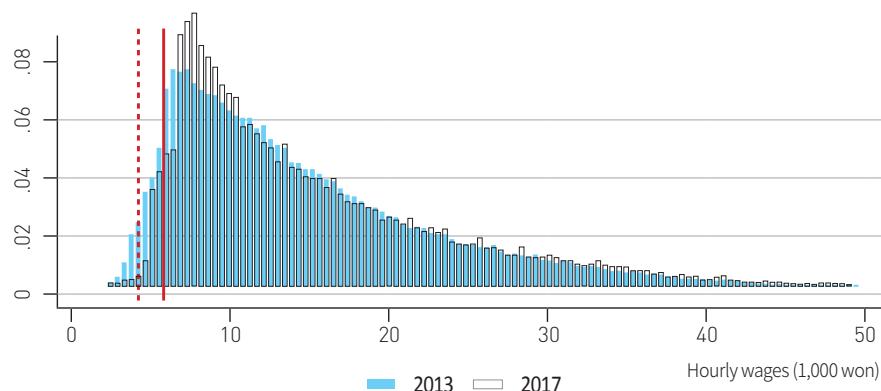
I . Effects of Minimum Wage Increases up to Now

Korea's minimum wage increased by 16.4% in 2018 to mark 7,530 won per hour. The increase is remarkable after a moderate, approximately 7% per year rise maintained in the past decade. Further, to reach the government's target of 10,000 won by 2020, the minimum wage needs to be raised by 15% in the next year and year after. Then, what does this mean for employment? This study examines the likely effects through foreign case studies and research in economics.

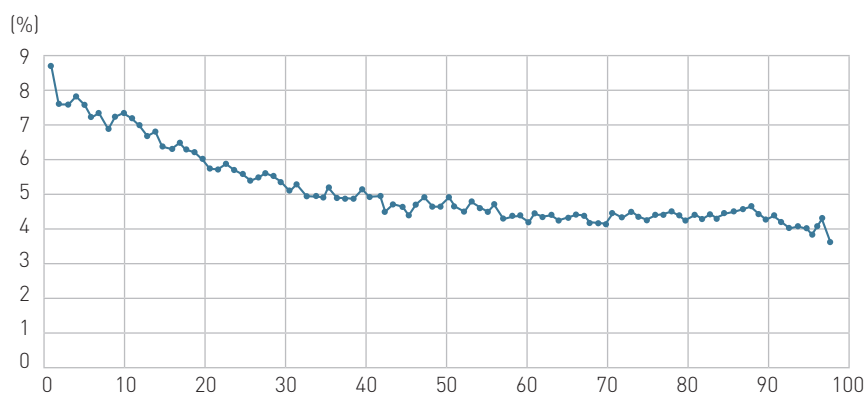
The purpose of the minimum wage is to guarantee workers' minimum income level. It is becoming an increasingly more important policy tool as jobs grow in personal

The purpose of the minimum wage increase is to guarantee the wage level of the low-paid, the number of which is growing as personal service jobs increase.

[Figure 1] Hourly Wage Distribution and the Minimum Wage: 2013 and 2017



[Figure 2] Hourly Wage Growth by Percentile: 2013-2017 Averages



Note: Average growth rates excluding 2015 as there was a major revision of sample in 2015.
Source: Calculated by author using the MOEL's Survey Report on Labor Conditions data sets.

services such as in sales, food services, and care-giving, while clerical and production jobs trend down. Minimum wage increases can narrow the pay gap at the bottom. However, higher wages often entail job cuts and noncompliance. Due to the hierarchical structure of wages, a minimum wage increase raises wages above the minimum level while job distribution becomes dense around the minimum level.¹⁾

[Figure 1] presents the hourly wage distribution and minimum wages for 2013 and 2017. From the Ministry of Employment and Labor's (MOEL) survey, the hourly wages were calculated by dividing the regular pay by regular working hours excluding overtime. In setting the minimum, parts of the pay are not counted in (e.g. social security, bonuses, benefits and allowances). As such, the hourly wages of minimum wage workers are actually slightly above the minimum level.²⁾

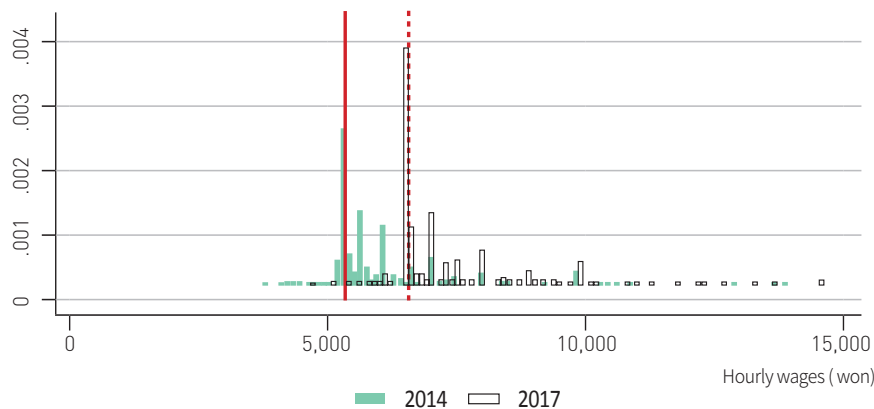
An increase in the minimum wage from 4,860 won in 2013 to 6,470 won in 2017 pushed up the bottom distribution and formed a clustering around the new minimum rate. In 2017, the bottom wage gap—measured as the ratio of the bottom 10% wage to the median—

The share of below-minimum wage workers was 7.6% in the MOEL's 2016 Wage Survey and 13.4% in Statistics Korea's 2017 Economically Active Population Survey.

1) Minimum wage increase affects wages up to 1.2-1.3 times the minimum (Neumark and Wascher, 2008).

2) If the weekly holiday allowance—weekly holiday with pay—is included in minimum wages, employees' hourly wages are 1.2 times the minimum wage.

[Figure 3] Hourly Wage Distribution and the Minimum Wage: 2014 and 2017



Note: Vertical dotted lines denote the minimum wage as of 2014 (5,210 won) and 2017 (6,470 won).
Source: Calculated by author using Statistics Korea's Economically Active Population, August Supplementary Survey.

narrowed with the increase.³⁾ [Figure 2] is the annual average hourly wage growth in 2013-2017 and shows that low wages experienced higher growth during the period. Both the demand growth and minimum wage increase contributed to this rise.⁴⁾ According to a US study, the minimum wage increase accounted for 40% in reducing the mid-to-bottom wage gap.⁵⁾

There are some technicalities in calculating the minimum wage regarding the inclusion of various benefits/allowances, extra pay, etc., and payment schemes are very diverse. Also, as the MOEL does not review compliance at all establishments, it is not possible to measure the scope of noncompliance precisely. According to the Minimum Wage Commission's estimates, as of 2016, 7.3% are paid below the minimum wage in Korea, which is slightly higher than in advanced economies.⁶⁾

The MOEL survey covers workplaces with five or more employees. To estimate the share of workers paid below the minimum economy-wide, Statistics Korea's Economically Active Population Supplementary Survey is needed which covers all employed workers. But wages in the survey are based on self-reporting and there exists some under-reporting. Although the proportion of workers below the minimum is 13.4% as of 2017 in the data set, the actual share of noncompliance is not commonly believed to be as high. The survey records hourly wage rates for workers paid by the hour. Among them, those below the minimum accounted for just 4%.⁷⁾ Their wage distribution is concentrated at the minimum level, meaning that the wages would automatically increase with the minimum wage increase (Figure 3).

3) The median-to-bottom 10% (hourly) wage ratio has decreased continuously from 2.0 in 2008 to 1.9 in 2010, to 1.8 in 2012, and to 1.7 in 2017.

4) The demand for low-skilled workers began to increase from around the late 2000s, and their employment and wage both improved (Choi, 2017). Such trends were observed from the 1990s in the US (Autor and Dorn, 2013).

5) According to Autor, Manning, Smith (2016, p.88), in case of the US in 1979-1989, minimum wages attributed to 30-55% of the changes in the wage gap in the bottom 50% and 10% wage groups while demand affected the remaining. Minimum wages were found to affect the bottom 15%.

6) According to the Minimum Wage Commission's 2013 Report on Key Labor and Economic Indicators Analysis, Jun, 2013, pp.72~80, as of 2012, Japan recorded 1.7% and the US 4.7%, lower than the UK (5.1%), Canada (5.8%), France (11.1%), Portugal (12.7%) and Mexico (13.2%).

7) Note that, hourly wage workers account for only 7.6% of all wage workers and accurate information on hourly wages of entire samples cannot be obtained.

II . Impact of the Minimum Wage Increase on Employment

1. Employers' Response

Other than cutting

employment, there are several options available to employers

to respond to the minimum wage increase such as raising prices, shortening working hours, reducing employee benefits/allowances and strengthening labor intensity.

At the center of the debates over the effects of minimum wage increases is their impact on employment. Will the increase deprive those who want to work of much-needed jobs? Or, will there be no significant effects, as in the past? The answers depend on how employers respond.

Generally, when there is a rise in the minimum wage, employers do not reduce workers instantly as that would entail major changes to their business. Instead, they seek alternative measures: they may consider raising prices; cutting back on employee benefits/allowances and; shortening working hours or reducing training/labor costs. When the increase in the minimum rate reduces worker turnover, employers save on labor costs and they can increase work intensity. Indeed, in both domestic and foreign case studies, no meaningful impact on employment has been found from a modest rise in the minimum wage as employers absorb the shock through various means. Korea's minimum wage was raised by 84% in real terms from 2005 up to 2016, from 37% to 50% of the median wage (Table 1). However, the employment effect was deemed minimal. If the impact was substantial, the employment of those under 25 and middle-aged women—the majority of minimum wage workers—would have plunged.⁸⁾

In economics, it is common knowledge that when wages rise by 10%, employment decreases by roughly 3%, putting employment elasticity at -0.3. Being unable to raise prices due to market competition, companies substitute labor to reduce production costs. However, if all wages rise simultaneously (e.g. minimum wage increase) employers can raise prices without worrying about their competitors and there will be no notable cutbacks in employment. Misunderstanding over the minimum wage effects stems from confusion over the effects of individual firms' wage increase and an overall wage increase. An increase in the minimum wage will change the price structure among goods and services but will have little impact on employment.

How much a minimum wage increase affects product prices or employers differs across studies. A US case study found that almost all of the impact was absorbed by employers in the form of reduced labor costs or profits.⁹⁾ Another study showed that in the case of a huge increase in the minimum wage, 80% of the increase was relayed onto a rise in product prices.¹⁰⁾

The manufacturing sector is differently affected as manufacturing goods prices are determined by trade. When the minimum wage is raised international competitiveness

8) The increase in youth unemployment is irrelevant to minimum wages as youth unemployment rose among the highly educated who are not paid minimum wages.

9) Schmitt, John, "Why does the minimum wage have no discernible effect on employment?" Washington, 2013.

10) Harasztosi and Lindner (2017), Table 5.

Unlike individual companies facing their wage increase, a rise in the legislated minimum wage applies to the overall economy, meaning that companies can adjust prices to spread out the impact.

The majority of job loss resulting from an increase in the minimum wage is observed in the manufacturing industry while the impact has been weak in services sectors.

<Table 1> Minimum Wage Relative to the Median Wage (full-time)

Year	1995	2000	2005	2010	2016
France	0.52	0.56	0.60	0.61	0.61
Germany	0.47
Hungary	0.37	0.36	0.46	0.47	0.51
Japan	0.31	0.32	0.33	0.37	0.40
Korea	0.28	0.29	0.37	0.45	0.50
Spain	0.38	0.36	0.37	0.38	0.37
UK	..	0.41	0.45	0.46	0.49
US	0.35	0.36	0.32	0.39	0.35

Source: OECD (<http://stats.oecd.org>, last accessed: Feb. 22, 2018).

erodes and employment is adjusted. In fact, observed cases of large job destruction due to the minimum wage have all been in the manufacturing sector. For an economy that depends on low-wage, labor-intensive export goods, the effects of the minimum wage increase can be critical.

2. Analysis of Foreign Cases

The US Minimum Wage Commission¹¹⁾ conducted a large-scale, four-year study to see if minimum wage increases reduced employment starting from 1977. The study revealed a very small effect: a 10% increase of the minimum wage reduced the employment of teenage workers (aged 16-19) by 1.5% and by a lesser degree for those aged 20-24. Teenagers account for 5% and the 20-24s about 10% of all workers in the US. If we assume that the impact for those aged 20-24 is half of that for teenagers, the employment elasticity is estimated to be -0.015. That is, employment would shrink 0.15% on a 10% rise in the minimum rate, which is very small. Subsequent studies in the US have found even smaller effects. A review of 64 studies¹²⁾ conducted in 1972-2007 found that the impact is nonexistent or very small. Another review of 27 studies since the 2000s found that the effects on employment may be statistically significant but too small to be economically meaningful.¹³⁾ Recent studies focus on why the effects are small rather than whether the effects are small.

One reason for the small estimated effects in the US may be the low level of the minimum wage, measured as the ratio to the median wage. The US stands at a low 35% as of 2016, implying that the share of minimum wage workers is small making the impact of the increase small (Table 1). On the other hand, Korea already marks a very high 50%,

The higher the minimum-to-median wage ratio, the smaller the impact from the minimum wage increase. In 2016, the ratio marked 35% for the US and 50% for Korea.

11) US Minimum Wage Study Commission (1981).

12) Doucouliagos, Hristos and T.D. Stanley, "Publication Selection Bias in Minimum-Wage Research? A Meta-Regression Analysis," *British Journal of Industrial Relations*, 47(2), 2009, pp.406~428.

13) Wolfson, Paul and Dale Belman, "What Does the Minimum Wage Do?" Upjohn Institute for Employment Research, 2014.

Hungary raised the minimum wage by 60% in 2000-2004 in real terms, commensurate with Korea's planned increase. The employment of wage workers retreated by approx. 2%.

which means that Korea should be compared to countries that have a comparably high minimum wage level.

Minimum wage studies advance rapidly as raising them becomes popular. As such, results from the latest studies are more important. A recent study on Hungary's case¹⁴⁾ found that employment declined approximately 2% when the minimum wage increased by 60% between 2000 and 2004 in real terms. In terms of employment elasticity, the estimate is -0.035, more than double the US' -0.015. As the study used data on establishments with five or more employees, there may be some upward bias. However, workers at establishments with five or more workers comprise most of the workers (70% in Korea) and it is natural that Hungary's elasticity is higher since it has more minimum wage workers and the increase is sharper. As the share is 5% for the US and 20% for Hungary, if this gap is taken into account, the difference between the two estimates is not substantially large.

In fact, cases of a large employment decrease following a minimum wage increase are very rare since governments shun minimum wage increases if they start to undermine employment. One such case, however, is Puerto Rico in 1974-1983. This self-governing US territory had its own minimum wage system which was gradually revised to the US level until 1983. As a result, the minimum wage increased from \$1.10 in 1968 (\$1.60 in the US) to \$3.26 in 1981 (\$3.35 in the US). Total employment declined 8-10% in 1973-1987.¹⁵⁾ The estimated elasticity is between -0.15 and -0.11. As of 1983, 44% of all workers are paid below the minimum wage.

Among the many minimum wage studies in Korea, one-third have found no effects while some report very large effects.¹⁶⁾ None of these are suitable for the post-2018 scenario and thus, foreign case studies are referred to in this study.

III. Employment Decline Effects in 2018

Using results from existing literature, this study estimates the effects from the 2018 minimum wage increase on employment.¹⁷⁾ The decline in employment can be extrapolated through the following equation with the 'ε' parameter denoting the elasticity.

$$\%Wage\ Workers = \epsilon \times \% \Delta (Minimum\ Wage / Median\ Wage)$$

The minimum-to-median wage ratio is estimated to have climbed by 12% from 0.49 in 2017 to 0.55 in 2018 (Table 2). Plugging in Hungary's elasticity estimate (-0.035) to ε in the above equation produces a -0.42%p change in the growth rate of wage workers. This,

14) Harasztosi, Peter, and Attila Lindner, "Who Pays for the Minimum Wage?" American Economic Association webpage, under review by *American Economic Review*, 2017.

15) Castillo-Freeman, Alida and Richard Freeman, "Minimum Wage in Puerto Rico: Textbook Case of a Wage Floor," *Industrial Relations Research Association Proceedings*, 43, 1990, pp.243~253.

16) Refer to <Table 1>, p.110, Kang (2017) for summary of preceding domestic studies. Four in twelve studies concluded that no reduction in employment was seen while the rest presented different findings that vary including a huge reduction estimated.

17) Refer to Harasztosi and Lindner (2017), Table 1 and p.12. The standard deviation of estimated elasticity (-0.035) is 0.004.

<Table 2> Minimum Wage-to-Median Wage Ratio

	Hourly min. wage ¹⁾	Hourly median wage ²⁾	Min.-to-median ratio ³⁾
2017	6,470	13,243	0.49
2018	7,530	13,582	0.55
2019	8,682	14,057	0.61
2020	10,010	14,549	0.68

Note: 1) The minimum wage for 2019 and 2020 are assumed to increase 15.3%, respectively, so that the minimum wage is 10,000 won by 2020.

2) A yearly increase of 3.5% from 2018 is assumed.

3) Hourly wages were applied, and thus figures are different to those in <Table 1> in which the data are based on the MOEL's report.

Source: 2017 figures were calculated by author using the MOEL's Survey Report on Labor Conditions.

multiplied by the size of wage employment (20 million), produces an employment decline of approximately 84,000. If the US' elasticity estimate (-0.015) is plugged in, the estimate is 36,000. Korea's minimum-to-median wage ratio is far higher than that of the US and is close to Hungary's in 2005. In addition, Korea's share of minimum wage workers is higher than the US' 5%¹⁸⁾ and nears Hungary's 20%. In light of this, the employment decline in Korea is roughly estimated at 36,000-84,000.¹⁹⁾

The actual decline, however, has been lower than the prediction up to April 2018, maybe owing to the government's injection of the job stabilization fund which is supposed to cover the 9% increase in the minimum wage. As of May 16, 2018, about 90% or 1.95 million of eligible workers applied for the fund. However, whether the fund reduced the effect of the minimum wage increase or the effect has been actually smaller than predicted cannot be discerned since the minimum wage increase and injection of the fund were started simultaneously. If the fund was the reason, the implication is that negative effects may expand in the following years unless the fund is scaled up correspondingly.

Employment growth in February-April 2018 weakened sharply from the pace in January and the previous year. In April, wage employment grew by 140,000 from the same month previous year, while in January 2018 it grew by 320,000. The decrease is sometimes attributed to the minimum wage increase, but up to now the effects have not been significant. Here's why.

First, the growth in January 2018 was exceptionally high given the yearly average growth of 260,000 in 2017. Compared to the 2017 growth, the growth in April 2018 posted a decline of approximately 120,000. Second, the population growth retreated by about 80,000 from last year. Multiplied by the employment/population ratio, its effect is to reduce wage worker growth by 50,000. If these two factors are taken into account, the size of the decline amounts to 70,000. Out of this, a large part is due to the restructuring in manufacturing. When all these effects are subtracted, little is left to be explained by the minimum wage increase.

Third, impact from the minimum wage is discerned when employment declines among

If Hungary's estimate is applied, Korea is estimated to see a decrease of 84,000 in employment after the minimum wage increase in 2018. If the US' is applied, the decrease is estimated to be 36,000. As such, Korea's decline in employment is expected at between 36,000 and 84,000.

Growth in employment in April 2018 was smaller by 180,000 than January, but the decrease was more influenced by January's high growth, slowing population growth and manufacturing restructuring than by the minimum wage increase.

18) Refer to Schmitt (2013), Table 1 and p.14.

19) According to the Minimum Wage Commission's report, the minimum wage increase in 2018 is estimated to affect 18.0-23.6% of employees.

<Table 3> Wage Worker-to-Population Ratio by Age Group (%)

	Men aged 15-24	Women aged 15-24	Population aged 15-24	Women in their 50s
Apr. 2015	21.1	28.6	25.0	40.7
Apr. 2016	21.1	29.1	25.2	42.3
Apr. 2017	22.1	30.2	26.3	43.3
Apr. 2018	20.1	29.0	24.7	44.0

Source: Calculated by author using data from Statistics Korea's Economically Active Population Survey.

the minimum wage worker group while other groups are not affected. Employment dropped little among youths aged 15-24 and women in their 50s who are the typical minimum wage workers.

<Table 3> shows the proportion of wage workers in the population among the minimum worker groups. In the 15-24 age group, the ratio slid 1.6%p in 2018 from the previous year. However, the ratio in 2017 was exceptionally high, and compared to previous years, the size of the drop was just 0.3 to 0.5% points. Moreover, the unemployment rate dropped by 2%p for this group in 2018 from the previous year, showing that job conditions did not deteriorate. Summing up, evidence of minimum wage effects is very weak. In this group, a 1%p change is equal to 58,000. Even though a part of it can be attributed to the minimum wage effects, the size is very small. For women in their 50s, the ratio inched up instead.

Another method is to compare employment trends in sectors with high numbers of minimum wage workers with others. Employment in hotels and restaurants remained flat while manufacturing, wholesale and retail trade descended further. Workers aged 15-24 posted losses of 20,000 in manufacturing and 40,000 in wholesale and retail trade. Among them, when other factors like demographic changes are taken into account, the part that can be accrued to the minimum wage impact is again very small. Also, in the industries, women in their 50s did not decrease. It is possible that the impact may show up later as employers substitute labor. Until now, the impact is not significant.

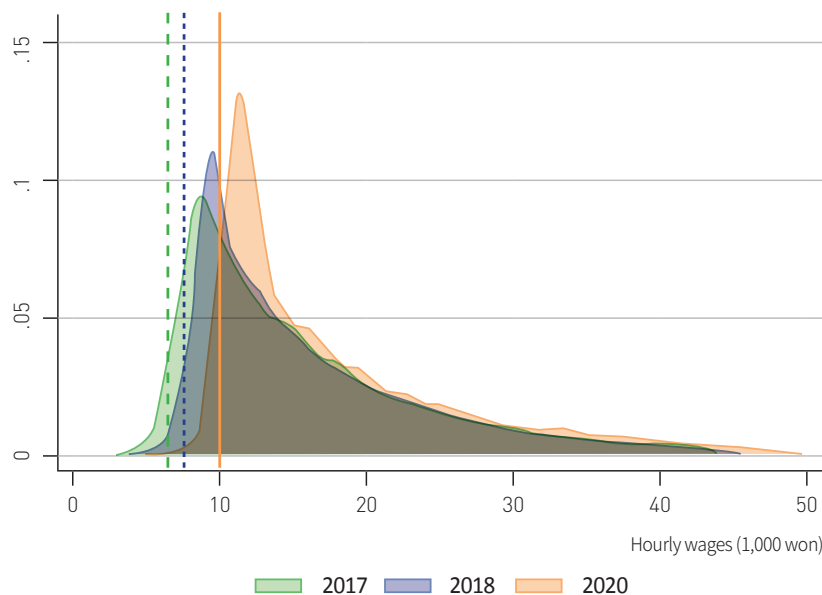
IV . Impact from Continued Increases in the Minimum Wage

If the sharp increase in the minimum wage is repeated in the next two years, the share of minimum wage workers will rise and impact on employment will grow.

The effect of the minimum wage increase on employment in 2018 has been negligible up to now. Then, will the impact be similar in the next year and year after when the minimum wage increases by 15% respectively? Unlikely. It is highly probable that the impact from the minimum wage increase on employment will expand.

If the minimum wage increases by 15% in the next two years, the minimum-to-median wage ratio will ascend about 12% per year (Table 2), and the share of minimum wage workers will continue to grow. [Figure 4] presents a simulation of the hourly wage

[Figure 4] Simulated Distribution of Hourly Wages and Minimum Wage: 2017-2020



Source: Calculated by author using the MOEL's Survey on Labor Conditions.

distribution until 2020. Here, 2017 is the actual figure and the remaining are projections under the assumption that hourly wages below and at the minimum rise at the minimum wage increase rate, those beyond 1.2 times the minimum rise at an average rate during the past four years given in [Figure 2], and wages in between the range rise at a rate proportionally between the minimum wage increase rate and the average rate.²⁰⁾

If the minimum wage increases rapidly, the share of wage workers paid near the minimum level will rise steeply. For instance, the share of those receiving wages below 120% of the minimum is expected to rise from 9% in 2017 to 12% in 2018, 19% in 2019 and 28% in 2020. With the rise, employment elasticity of the minimum wage will likely increase.²¹⁾

[Figure 4] shows that the share of minimum wage workers greatly increases as the minimum wage rises in 2018, and the share of workers paid less than 120% rises to 28% in 2020. (In the simulation, wages below the minimum are assumed to rise at the minimum wage increase rate, and hence, the share of workers paid less than the minimum does not rise.) If employment elasticity rises in proportion to the share of workers paid less than 120%, it will ascend from -0.035 in 2018 to -0.04 in 2019 and -0.06 in 2020. The effect on employment driven by the yearly 15% increase in the minimum wage will likely post 96,000 in 2019 and 144,000 in 2020. These estimates were calculated without considering the effects of the government's job stabilization fund.

A more concerning aspect is that a very high minimum wage may disturb the wage order

The employment effect of the minimum wage increase is estimated to be a decrease of 96,000 in 2019 and 144,000 in 2020, when the effects of the job stabilization fund is not considered

20) Say that the growth rate by percentiles in [Figure 2] is 'g', wages below and at the minimum wage are assumed to grow by 2^*g , those up to 1.2 times the minimum by $g+g^*(w-MW)/(0.2^*MW)$ and those above 1.2 times the minimum by g.

21) The minimum-to-median wage ratio is 60% in France (2015) and 68% in Korea (estimate for 2020).

<Table 4> Simulated Distribution of Hourly Wages and Minimum Wage: 2017-2020

	2016	2017	2018	2019	2020
Below min. wage	2.5	2.1	2.5	2.8	3.0
Less than 120% of min. wage	8.5	8.7	16.5	18.8	28.2
Less than 130% of min. wage	14.9	15.4	26.0	31.2	38.5

Note: 2016 and 2017 based on the MOEL’s Survey on Labor Conditions and 2018, 2019 and 2010 based on author’s calculation in this study.

France experienced other side effects with a very high minimum wage such as disruption of the wage order, etc. Accordingly, France ceased additional minimum wage hikes after reaching 60% of the median.

in the labor market. France, for example, suspended additional increases in its minimum wage after it reached 60% of the median in 2005 due to this reason. Continued increases in the minimum wages may do more harm than good.²²⁾ Many low-wage, low-skill service jobs will be lost, making it difficult for the unskilled to find jobs. The yearly working hours per person between 15 and 64 in wholesale and retail, accomodations and food services—which require the least skills—are as follows (as of 1999): France 175 hours, Germany 217 hours, the UK 239 hours and the US 304 hours, while the minimum-to-median wage ratio is 0.61, 0.47, 0.40 and 0.35, respectively, showing an inverse relationship. Korea has a large self-employed sector and the figure is 345 hours. When only wage workers are included, the figure is just 217 hours as of 2017. Furthermore, if the bottom 30% are paid equally, the pay rise for experience disappears, weakening workers’ incentives and making personnel management difficult. In France, manual workers do not experience pay rises in the first ten years. Government subsidies will also increase exponentially. The Korean government set up 3 trillion won for the job stabilization fund in 2018, which contributed to the smooth landing of the minimum wage increase. However, with the number of minimum wage workers growing sharply (Table 4), the fund will need more and more financial resources. The French government subsidized social insurance contributions for minimum wage workers, but when the payment amounted to 1% of GDP (17 trillion won in Korea), it ended additional increases in the minimum wage. It becomes harder for employers to raise wages since government subsidies disappear with the pay rise. For example, the job stabilization fund subsidizes workers receiving less than 1.9 million won per month at workplaces with less than 30 workers. As a result, the fund in effect sets the maximum at 1.9 million won per month. Lastly, France saw its labor union base weaken as the government took on the role of increasing wages.

Germany adjusts its minimum wage level every two years, as evaluation of the impact of the hike takes two years.

In this regard, continued increases in the minimum wage may result in more unexpected negative effects. Germany, who recently introduced the minimum wage, adjusts the level every two years as it believes it takes at least two years to assess the impact of a minimum wage increase.

22) Gautie (2010).

V . Summary and Policy Implications

Despite concerns over the large increase in the minimum wage this year, the hikes have found their footing without any detrimental side effects, improving low-wage job conditions along the way. However, if the rapid increases continue, adverse effects may show up.

The purpose of minimum wages is to improve the quality of low-paid jobs and this is achieved through price and working-pattern adjustments across the economy. As such, a steep hike can lead to an exponential increase in costs. If Korea's minimum wage is raised by 15% in 2019, it nears that of France which is the highest among advanced OECD countries.²³⁾ Thus, a pace adjustment needs to be considered.

Measures must be sought to minimize the unexpected negative impact while efforts are made to maximize the positive.

23) According to OECD statistics on the minimum-to-median wage ratio, France ranks below Turkey (0.76) and Chile (0.69). In Turkey, however, among those covered by social insurance (66% of total employment), workers paid below the minimum wage account for 57% and those at the minimum 45%, implying that compliance with the legislated minimum wage is very low (EU, 2016). Chile has a low wage level with the minimum wage at US\$ 1.6 (2016), and about 35.8% is not reported, meaning unofficial sectors. The rate of compliance with the minimum wage is estimated to be 50.1% in Turkey and 84.7% in Chile (Broecke, Stijn *et al.*, 2017).

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