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2018 Wage Trends and Wage Outlook for 2019

Center for Labor Trends Analysis*

I. Large Growth in Both Nominal and Real Wages in 2018

In 2018, nominal wage growth rate of workers (based on the data of all workers at establishments with one or more permanent employees) increased by 5.3% year-on-year (y-o-y) despite the slowdown in economic activity and employment. The size of the increase is relatively huge given that nominal wage growth has recently stagnated in the 2-3% range. Real wage also rose significantly by 2.4%p y-o-y to 3.7%.[1)] The Ministry of Employment and Labor started to collect data on all workers at establishments of one or more permanent employees in 2018 to publish the data on labor conditions under *the Labor Force Survey at Establishments*. During 2008-2010, the data covered all workers at establishments with five or more permanent employees; and during 1999-2007, only permanent workers at establishments with five or more permanent employees. A similar pattern was observed in nominal wage growth and real wage growth even when the survey subjects were expanded.

[Figure 1] and [Figure 2] show the trends in economic growth rate and wage growth rate. Although both nominal GDP growth and nominal wage growth per capita show slowing trends in the long term, they moved in opposite directions in 2018, with growth rate of nominal GDP per capita falling by 2.4%p and nominal wage per capita increased by 2.8%p y-o-y.

Meanwhile, the negotiated wages increase rate set by the agreement of labor and management at establishments with

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1) Since 2018, the data on labor conditions under *the Labor Force Survey at Establishments* published by the Ministry of Employment and Labor have covered all workers at establishments of one or more permanent employees. During 2008-2010, the data covered all workers at establishments with five or more permanent employees; and during 1999-2007, only permanent workers at establishments with five or more permanent employees. Nominal wage growth rate and real wage growth rate showed a similar pattern even when the survey subjects were expanded.

Figure 1. Trends of Nominal GDP Growth Rate and Nominal Wage Growth Rate (Per Capita)

(Unit : %)

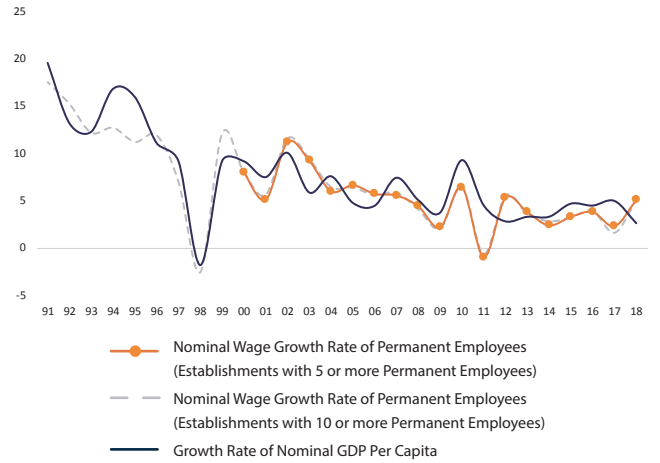


Figure 2. Trends of Real GDP Growth Rate and Real Wage Growth Rate (Per Capita)

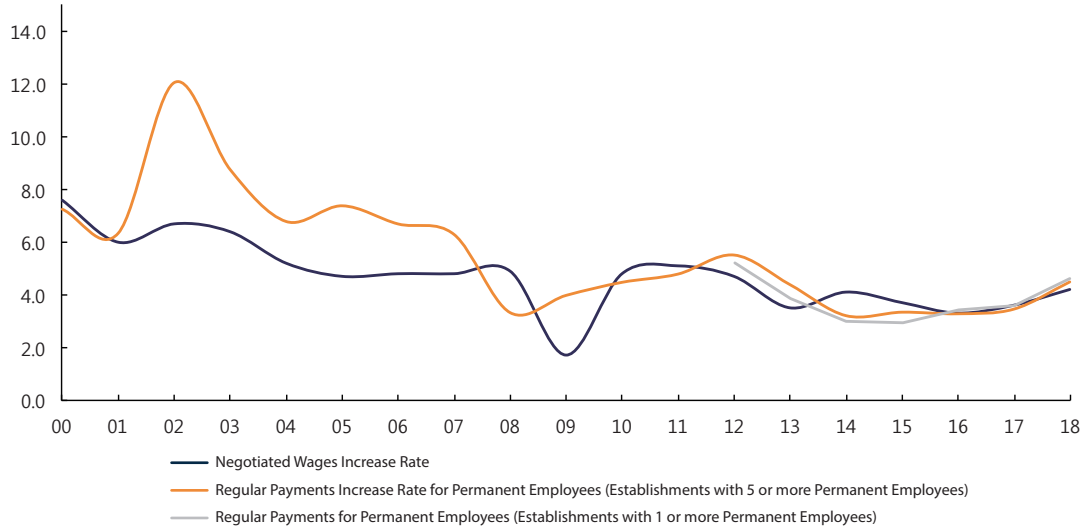
(Unit : %)

Note : 1) Nominal wage growth rate is based on the total earnings of permanent workers at establishments with 5 or more employees.
2) Real wage growth rate is based on the total earnings of permanent workers at establishments with 5 or more permanent employees; Consumer Price Index 2015=100.
3) Calculated by dividing real GDP from per capita real GDP growth rate by population projections (Consumer Price Index 2010=100)

Source : Ministry of Employment and Labor, *The Labor Force Survey at Establishments*, http://laborstat.moel.go.kr/
The Bank of Korea, *Economic Statistics System*, http://ecos.bok.or.kr/

Figure 3. Trends in Increase Rate of the Negotiated Wages and the Regular Payments for Permanent Employees

(Unit : %)



Note : 1) The negotiated wages increase rate refers to the rate of wage increase set by the agreement of labor and management at establishments with 100 or more employees, excluding variable pay such as overtime pay and special bonuses. Therefore, it differs from the rate of increase in nominal wage paid to workers. The graph shows the monthly accumulated data.
2) Regular payments for permanent employees are based on the data of permanent workers at establishments with five or more permanent employees

Source : Ministry of Employment and Labor, *The Labor Force Survey at Establishments*, http://laborstat.moel.go.kr/
The e-Nara Indicators, http://www.index.go.kr

100 or more employees was 4.2% in 2018, up 0.6%p from the previous year. As confirmed by [Figure 3], the increase rate of negotiated wages also showed a gradual decline over the long term, but has risen slightly since 2017. As for regular payments for permanent employees, which normally show a similar trend to the increase rate of negotiated wages, they went up significantly in 2018 (1.4%p y-o-y), slightly exceeding the increase rate in negotiated wages.

II. Wage Trends in 2018

1. A Sharp Increase in Wages of Permanent Workers

The high nominal wage growth rate in 2018 appears to be closely related to the increase in wage growth for permanent workers and large-scale businesses as compared to 2017. In particular, the two factors are associated with the increase in regular payments and special cash payments for permanent workers (see Table 1). While non-permanent workers saw a 5% increase in wage growth in both 2017 and 2018, permanent employees saw a 5.1% increase in wage growth (up by 2.5%p y-o-y) in 2018 due to a significant rise in regular payments and special cash payments.

Looking at different wage types of permanent workers

Table 1. Recent Trends in Wages and Working Hours

(Unit : thousand won/month, hour/month, %, Consumer Price Index 2015=100.0)

			2011	2012	2013	2014	2015	2016	2017	2018
The Labor Force Survey at Establishments	All workers (establishments with one or more permanent employees) (Increase Rate)		2,607 (-7.4)	2,744 (5.3)	2,837 (3.4)	2,904 (2.4)	2,991 (3.0)	3,106 (3.8)	3,207 (3.3)	3,376 (5.3)
	Real Wage Growth Rate		-	(3.0)	(2.1)	(1.1)	(2.3)	(2.8)	(1.3)	(3.7)
	Permanent Workers	Total Earnings (Increase Rate)	2,806 -	2,948 (5.0)	3,046 (3.3)	3,117 (2.3)	3,204 (2.8)	3,331 (4.0)	3,418 (2.6)	3.592 (5.1)
		Real Wage Growth Rate	-	(2.8)	(2.0)	(1.0)	(2.1)	(3.0)	(0.6)	(3.6)
		Regular Payments (Increase Rate)	2,226 -	2,343 (5.2)	2,433 (3.8)	2,506 (3.0)	2,580 (3.0)	2,668 (3.4)	2,764 (3.6)	2,891 (4.6)
		Overtime Pay (Increase Rate)	151 -	152 (0.6)	154 (1.3)	170 (10.5)	181 (6.2)	189 (4.2)	190 (0.6)	197 (3.7)
		Special Cash Payments (Increase Rate)	428 -	452 (5.6)	458 (1.3)	440 (-4.0)	443 (0.6)	475 (7.2)	464 (-2.2)	504 (8.5)
	Total Earnings of Non-permanent Workers (Increase Rate)		1,152 -	1,207 (4.8)	1,247 (3.3)	1,253 (0.5)	1,281 (2.2)	1,288 (0.6)	1,353 (5.1)	1,428 (5.5)
The Economically Active Population Survey (Supplementary Survey)	Total Earnings (Increase Rate)		2,033 (4.3)	2,109 (3.7)	2,189 (3.8)	2,240 (2.3)	2,304 (2.9)	2,372 (3.0)	2,430 (2.4)	2,558 (5.3)
	Real Wage Growth Rate		-(0.2)	(1.9)	(2.2)	(0.7)	(2.2)	(2.5)	(0.2)	(4.2)
Consumer Price Growth Rate			4.0	2.2	1.3	1.3	0.7	1.0	1.9	1.5
Real GDP Growth Rate			3.7	2.3	2.9	3.3	2.8	2.9	3.1	2.7
Working Hours (Monthly)	All workers (Establishments with 5 or more Employees) (Increase Rate)		176.6 -	174.8 (-1.0)	172.6 (-1.3)	170.6 (-1.2)	171.5 (0.5)	169.4 (-1.2)	166.3 (-1.8)	163.9 (-1.4)
	Permanent Workers (Increase Rate)		182.8 -	181 (-1.0)	179 (-1.1)	177.4 (-0..9)	178.7 (0.7)	177.1 (-0.9)	173.3 (-2.1)	171.2 (-1.2)

Note : 1) Since 2011, *the Labor Force Survey at Establishments* published by the Ministry of Employment and Labor has expanded the survey subjects to include establishments with 1 or more employees, increased the survey frequency from quarterly to monthly, used the updated industrial classification (8th KSIC to 9th KSIC), and re-generated the time-series data from 2008.

2) The wage statistics of *the Labor Force Survey at Establishments* published by the Ministry of Employment and Labor are the data from establishments with 1 or more permanent employees since 2011, while those of *the Economically Active Population Survey* (Supplementary Survey by Employment Type in August) published by Statistics Korea apply to all wage workers.

3) The real wage growth rates are calculated using the June to August CPI of respective years from *the Economically Active Population Survey*.

4) For real GDP growth rate, Consumer Price Index 2010=100.

5) The number inside parentheses denotes the differences from the previous year.

Source : Ministry of Employment and Labor, *The Labor Force Survey at Establishments*, http://laborstat.moel.go.kr/

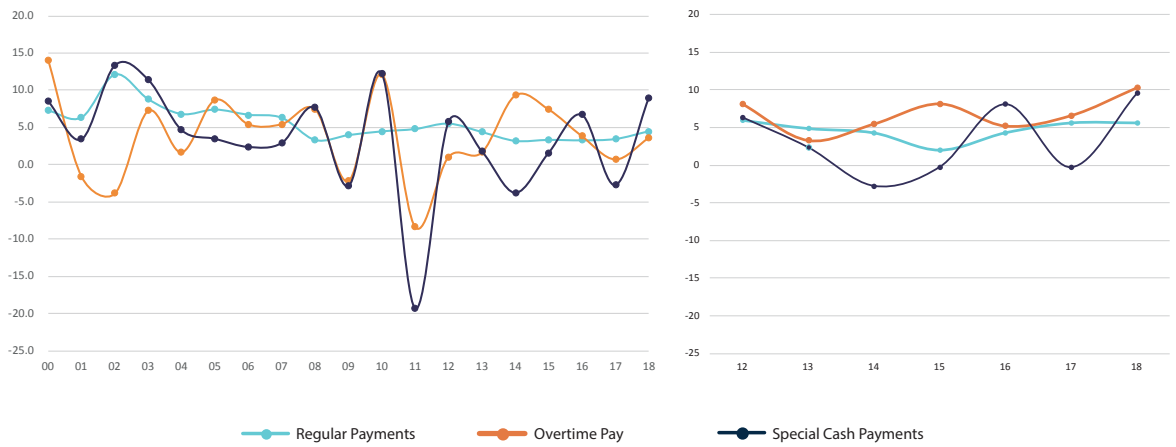
Statistics Korea, *The Economically Active Population Survey* (Supplementary Survey by Employment Type in August), raw data, each year.

_____, *The Household Income and Expenditure Survey*, KOSIS.

The Bank of Korea, *Economic Statistics System*, http://ecos.bok.or.kr/

Figure 4. Trends in the Increase Rate of Wages for Permanent Workers by Wage Type (Left: Based on Average Monthly Wages, Right: Based on Hourly Wages)

(Unit : %)



Note : Based on the data of permanent workers at establishments with 5 or more permanent employees.
Source : Ministry of Employment and Labor, *The Labor Force Survey at Establishments*, http://laborstat.moel.go.kr/

Table 2. Contribution to the Changing Rate of Increase in Regular Payments and Special Cash Payments by Industry (Based on Average Monthly Wages)

(Unit : %p)

	Regular Payments			Special Cash Payments		
	2016	2017	2018	2016	2017	2018
Changing Rate of Wage Increase for Permanent Workers (Total)	0.4	0.2	1.0	6.6	-9.4	10.7
Mining and Quarrying	0.0	0.0	0.0	0.0	0.0	0.0
Manufacturing	-0.4	-0.8	0.5	2.6	-4.1	6.2
Electricity, Gas, Steam and Water Services	0.0	-0.1	0.1	0.2	-0.6	0.2
Sewerage, Waste Management, etc.	0.0	0.0	0.0	0.0	0.0	0.0
Construction	0.5	0.5	0.2	0.6	-0.2	0.3
Wholesale and Retail Trade	-0.2	0.1	-0.1	1.0	-0.4	-0.2
Transportation	-0.1	0.1	0.2	-0.1	-0.3	0.9
Accommodation and Food Service Activities	-0.1	-0.3	0.7	0.2	0.0	-0.1
Publishing, Video, etc.	0.2	0.1	-0.2	0.1	0.5	-0.3
Financial and Insurance Activities	0.2	0.0	0.1	-0.3	-0.3	1.4
Real Estate Activities, Renting and Leasing	0.0	0.0	-0.1	0.0	-0.3	0.3
Professional, Scientific, etc.	0.4	-0.2	-0.6	2.3	-2.7	2.2
Business Facilities Management, etc.	0.4	-0.2	0.0	-0.2	0.1	-0.1
Education	-0.5	0.4	0.5	-0.4	0.2	0.0
Human Health and Social Work Activities	-0.1	0.7	-0.7	0.5	-0.9	-0.3
Arts, Sports and Recreation Related	0.0	0.0	0.1	0.0	0.0	0.0
Membership Organizations, etc.	0.0	-0.1	0.2	0.1	-0.2	0.2
Total	0.4	0.2	1.0	6.6	-9.4	10.7

Note : 1) Based on the data of permanent workers at establishments with 1 or more permanent employees.
2) This table shows how the wage fluctuations in different industries affect the changes in regular payments and special cash payments for permanent employees. For example, in 2018, regular payments and special cash payments for permanent workers increased by 1.0%p and 10.7%p y-o-y, respectively. The accommodation and food service industry contributed the most (0.7%p) to the 1.0%p increase in regular payments for permanent workers, and the manufacturing industry contributed the most (6.2%p) to the 10.7%p increase in special cash payments for permanent workers.
Source : Ministry of Employment and Labor, *The Labor Force Survey at Establishments*, http://laborstat.moel.go.kr/

(regular payments; overtime pay; special cash payments), regular payments rose by more than 5% each year before the Global Financial Crisis but have recently flattened out in the 3% range after a gradual, stepped decline. In 2018, however, they increased by 4.6%, up by 1.0%p from 3.6% in 2017, reflecting a growth in the increase of regular payment. The industries that saw a large increase in regular payments include the construction industry (7.0%), accommodation and food service activities (6.3%), human health and social work activities (5.9%), business facilities management and business support services industry (5.6%) and manufacturing (5.4%). In particular, it was the accommodation and food service industry (0.7%p contribution, see Table 2) that contributed the most to the 1.0%p increase in regular payments in 2018.

Special cash payments for permanent workers also rose significantly (up by 10.7%p y-o-y). Such growth is attributed mostly to the delayed payment of the 2017 negotiated wages—especially among large-scale businesses in the manufacturing industry—given out in 2018 (the growth rate in special cash payments was -2.2% in 2017).

In addition, special cash payments are, by nature, closely related to the business performance of firms. In terms of the ratio of operating profit to net sales, the manufacturing industry saw an improvement of 1.6%p y-o-y to 7.6% in 2017 (9.1% for large corporations), and continued to record growth every quarter in 2018 over the same period in the previous year, resulting in the rise of special cash payments in 2018. On the other hand, the ratio of operating profit to net sales of the service industry declined in the second and third quarters of 2018—except in the first quarter—over the same period in the previous year.

The manufacturing sector, which reported good profitability indicators in 2018, saw an increase in special cash payments by 13.6% over the previous year, and noticeably by 25.1% in large-scale businesses with more than 300 employees. On the other hand, the accommodation and food service industry, which recorded a slowdown in the ratio of operating profit to net sales, experienced a y-o-y decrease of 11.5% in special cash payments, and the human health and social work industry also saw a decrease of 8.5%.

The industries with the biggest increase in special cash payments in 2018 are as follows: professional, scientific and technical activities (21.6%) including the headquarters of manufacturing firms, followed by real estate activities, renting and leasing (19.9%), manufacturing (13.6%) and transportation (12.2%). In addition, special cash payments increased by 10.7%p y-o-y thanks to the big contribution of the following industries; manufacturing (6.2%p, see Table 2), followed by financial and insurance activities (1.4% p).

In addition, as shown in [Figure 4], the increase rate of overtime pay for permanent workers (based on monthly average), which had been slowing since 2014, rose in 2018 (However, the total overtime hours for permanent workers decreased from an annual average of 10.1 hours in 2017 to 9.5 hours in 2018). The accommodation and food service industry saw the biggest increase in overtime pay for permanent workers both in 2017 and 2018, by 22.3% and 28.3%, respectively. In addition, the construction industry (21.9%) and the publishing, video, etc. sector (21.7%) saw an increase by more than 20%, far exceeding the average growth of overtime pay (3.7%). It was confirmed that these industries experienced a noticeable increase in the number of overtime hours compared to other industries.

2. A Significant Wage Rise in Large Firms, but Mostly Due to the Special Cash Payments in Q1

Looking at the wage growth by establishment size in 2018, it can be observed that the wage growth of large businesses with more than 300 employees grew significantly. In 2017, the rate of wage increase was 4.6% for SMEs but only 0.5% for large-scale businesses due to a sharp decline in special cash payments. This was largely due to the delays in the wage settlement of the large-scale businesses in the manufacturing sector, resulting in the failure to pay out the negotiated wages including incentives in 2017.

In 2018, the rate of wage increase in SMEs with less than 300 employees was 4.6%, which was the same as the previous year, while the wage increase rate in large-scale businesses rose by 6.0%p y-o-y to 6.5%. Such a sharp growth for large-scale businesses can be explained by the fact that special bonuses for permanent workers were paid out mostly in Q1 of 2018, resulting in the 42.6% growth (7.3% for SMEs) in special cash payments in Q1 over the same quarter of the previous year. Also, large-scale manufacturing firms of other transportation equipment and automobiles paid out their 2017 negotiated wages in 2018, which appears to have contributed to raising the wage growth rate for large enterprises.[2] Furthermore, the generous performance incentives offered to employees of large enterprises in the semiconductor, petrochemical, air transportation, and financial insurance industries that benefited from favorable business conditions in 2017-2018 also played a part. For example, in the large-scale automobile and trailer manufacturing, special cash payments increased sharply from -2.8% in 2017 to 58.2% in 2018; in the manufacturing of other transportation equipment, from 1.6% to 33.0%; in the manufacturing of electronics parts, and telecommunications device, from 20.8% to 27.2%; in air transportation -1.0% to 26.0%; and in financial and insurance related services from -7.8% to 17.1%. Meanwhile, it was analyzed that the wage type that contributed the most to the wage growth of 6.0%p for large-scale businesses in 2018 was special cash payments (4.8%p) for permanent workers.

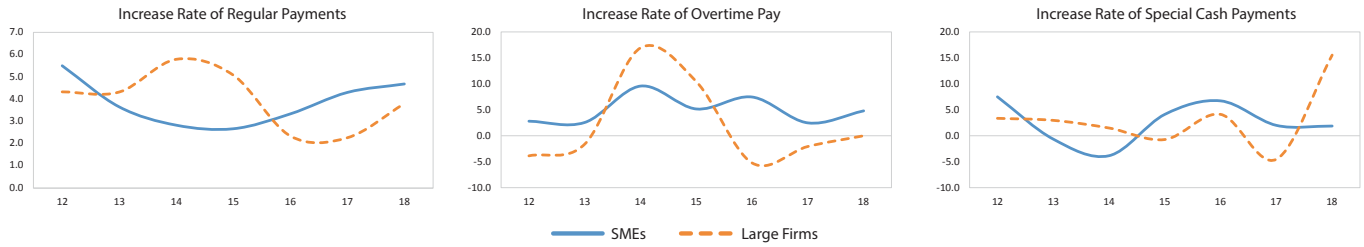
3. Impact of the Minimum Wage

While the rise in special cash payments served as an important factor in raising the wage growth rate among large-scale businesses in manufacturing, professional, scientific and technical activities, the increase in regular payments—rather than in special cash payments—had a greater impact on wage growth in the case of the accommodation and food service industry, and the business facilities management and business support services industry, which are characterized by a high ratio of workers earning less than the minimum wage. Since a minimum wage hike affects the different wage types included in ordinary wages, it results in a rise in the increase rate of regular payments.

The wage increase rate in accommodation and food service activities in 2018 was 8.1% (8.6% based on hourly wage), significantly higher than the 2.0% average during the period from 2011 to 2017. This is due to the large increase in the regular payments for permanent workers (6.3%) as well as the huge rise in the wages of non-permanent employees (11.3% based on hourly wage). The business facilities management and business support services industry shows a similar movement as the accommodation and food

Figure 5. Trends in the Increase of Wages by Establishment Size and by Wage Type

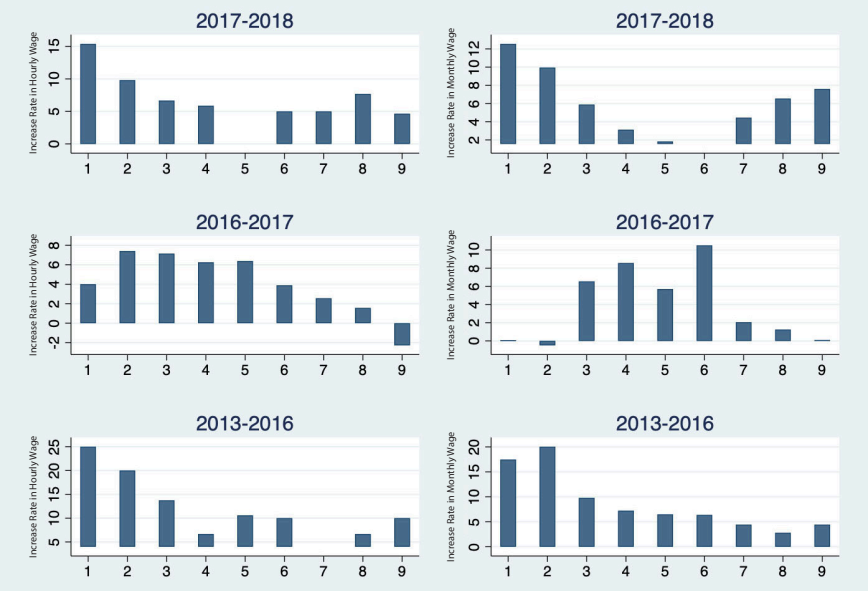
(Unit : %)



Note : Based on the total earnings of permanent workers at establishments with 1 or more permanent employees.
Source : Ministry of Employment and Labor, *The Labor Force Survey at Establishments*, http://laborstat.moel.go.kr/

2) When analyzing the rate of wage increase by establishment size on a quarterly basis, the data shows that the rate for large enterprises in Q1 of 2018 was 16.2%, reflecting a huge y-o-y increase (-0.7% in Q1 of 2017), while the rate for SMEs slowed to 5.1%. However, in Q2, Q3 and Q4 of 2018, the rate of wage increase for SMEs was found to be higher than the rate of wage increase for large-scale businesses.

Figure 6. Wage Growth Rate by Decile of the Hourly Wage Distribution



Note : After breaking down the hourly wages by decile, the increase rate in hourly wage is calculated using the highest wage growth rate in each decile. The rate of increase in monthly wage is calculated using the average rate of wage increase in each decile.

Source : Statistics Korea, *The Economically Active Population Survey* (Supplementary Survey by Employment Type in August), raw data, each year.

service industry.

When comparing the wage growth rate by breaking down the hourly wages by decile using the data of *the Economically Active Population Survey* (Supplementary Survey by Employment Type in August) published by Statistics Korea, it is found that, between 2017 and 2018, the wage growth rates of the bottom two deciles—highly affected by the minimum wage—are high and their levels are also very high at 15% and 10%, respectively. However, the growth rate decreases gradually as it goes to the middle, and the growth rate for top deciles does not differ significantly. In the case of monthly wages, the wage growth rates of the bottom two deciles are also high, at 12% and 10%, respectively. Again, the growth level decreases as it goes to the middle, but gradually increases as it reaches top deciles. In 2018, the wage growth rate for large-scale businesses was high, evidently reflecting the characteristics of jobs that are highly-paid.

4. Contribution to Wage Growth by Sector

Based on the characteristics of the 2018 wage trends that we have examined so far, <Table 4> shows how different wage types affect the rate of wage increase. The most significant feature of wage fluctuations in 2018 is a rise in the increase of regular payments and special cash payments for permanent workers. The rate of wage increase in 2018 was 2.02%p higher than the 2017 rate of wage increase, which is attributed to the growth in the wage of permanent workers (1.78% p) as shown by <Table 4>.

More specifically, we identified the industry sectors that led the fluctuations in regular payments and special cash payments,[3] and analyzed the extent to which each sector contributed to the increase rate of wage growth (see Table 5). All in all, the rate of wage increase (2.02%p) in 2018 can be explained by two factors: the increase of regular payments

3) The industry sectors with a high ratio of workers earning less than the minimum wage include: accommodation and food service activities, wholesale and retail trade, transportation, renting and leasing, business support services, and social work activities. And those prone to fluctuations in special cash payments are large-scale manufacturing businesses with more than 300 employees that posted a huge increase in special cash payments in 2018, including manufacturing of basic metals (24), manufacturing of electronics parts (26), large-scale automobile and trailer manufacturing (30), and manufacturing of other transportation equipment (31).

Table 3. Effect of the Ratio of Workers Earning Less than Minimum Wage on Wage Level by Industry

(Unit : 100*%)

	All	Permanent	Permanent	Permanent	Permanent	Temporary
	Total Earnings	Total Earnings	Regular Payments	Overtime pay	Special Cash Payments	Total Earnings
Ratio of Workers Earning Less Than Minimum Wage by Industry in 2018 (β_1)	0.003*	0.004***	0.003***	-0.014*	-0.005	0.010*
	-0.02	0	0	-0.03	-0.44	-0.02

Note : 1) p-value in parentheses, * p<0.05, ** p<0.01, *** p<0.001

2) Refers to the effect of a 1% increase in the ratio of this year's minimum wage being higher than the previous year's hourly wage on the wage level

Source : Ministry of Employment and Labor, *The Labor Force Survey at Establishments* (data on labor conditions), raw data.

Statistics Korea, *The Economically Active Population Survey* (Supplementary Survey by Employment Type in August), raw data, each year.

Table 4. Contribution of Different Wage Types to the Changing Rate of Wage Increase

(Unit : %p)

	Wage Increase Rate for All Workers (T)	Changes in the Wage Increase Rate for All Workers (A)	Permanent Employees (B)	Regular Payments (B1)	Overtime Pay (B2)	Special Cash Payments (B3)	Non-permanent Employees (C)
2013	3.42	-1.81	-1.82	-1.22	0.03	-0.63	0.01
2014	2.40	-1.02	-0.83	-0.51	0.44	-0.76	-0.19
2015	3.00	0.60	0.58	0.09	-0.18	0.67	0.02
2016	3.82	0.82	0.76	0.06	-0.11	0.81	0.06
2017	3.26	-0.56	-0.43	0.84	-0.15	-1.13	-0.13
2018	5.28	2.02	1.78	0.32	0.13	1.33	0.24

Note : 1) Based on data of all workers at establishments with 1 or more permanent employees.

2) Showing the contribution of different wage types to the changing rate of wage increase in non-agricultural sector, excluding domestic services, international and foreign institutions.

3) A=B+C, and B=B1+B2+B3.

4) T = this year's rate of wage increase (T_t) – previous year's rate of wage increase (T_{t-1}).

Source : Ministry of Employment and Labor, *The Labor Force Survey at Establishments*, http://laborstat.moel.go.kr/

for permanent employees (1.07%p) in sectors with a high ratio of workers earning less than the minimum wage; and the increase of special cash payments for permanent employees (1.03%p) in sectors prone to fluctuations in special cash payments. Of course, the increase in regular payments in sectors with a high ratio of workers earning less than the minimum wage may not be all due to the minimum wage. Estimating a regression model (see Table 3) shows that the effect of the minimum wage hike on wage increases is approximately 0.6%p(= 0.3*2%p).[4]

$$\ln Y_{i,t} = \alpha + \beta_1 mwr_{KSIC,t}\, 1[t = 2018]_{i,t} + KSICf(t)\,\gamma + e_{i,t}$$

In the above model, β_1 refers to the relative wage level (ln Y) changing according to the ratio of workers earning less than the minimum wage (mwr) increases by 1%, as of 2018 by industry, and the characteristics of the industry and time series ($KSICf$(t))[5]were taken into account.

5. Impact of the Reduction of Maximum Working Hours

With the new Labor Standards Act (hereinafter referred to as the 52-hour workweek system) going into effect on July 1, 2018, it can be expected that the lowering of the maximum working hours and the resulting decline of over-

4) According to our analysis, the wage level rises by 0.3($\hat{\beta}_1$) when the ratio of workers earning less than the minimum wage increases by 1%. Since the ratio of workers earning less than the minimum wage rose by 2%p (13.3% in 2017 and 15.5% in 2018) between 2017 and 2018, it can be said that the effect of the minimum wage hike on the overall wage growth increased by 0.6%p.

5) Includes industry dummy, year dummy, lagged variable*industry dummy, (lagged variable)^2*industry dummy

Table 5. Contribution of Industries with a High Ratio of Workers Earning Less than the Minimum Wage and of Industries Prone to Fluctuations in Special Cash Payments to the Changing Rate of Wage Increase

	Wage Increase Rate for All Workers (T)	Changes in the Wage Increase Rate for All Workers (A)	Industries with a High Ratio of Workers Earning Less than the Minimum Wage (B)		Industries Prone to Fluctuations in Special Cash Payments (C)	Other Industries (D)
			Regular Payments for Permanent Employees (B1)	Wages for Non-permanent Workers (B2)		
2013	3.42	-1.81	-0.31	-0.01	-0.50	-0.98
2014	2.40	-1.02	0.44	0.07	-0.49	-1.03
2015	3.00	0.60	-0.46	-0.09	0.83	0.32
2016	3.82	0.82	0.10	0.01	0.69	0.03
2017	3.26	-0.56	-0.51	-0.04	-1.23	1.23
2018	5.28	2.02	1.07	0.05	1.03	-0.13

Note : 1) Based on data of all workers at establishments with 1 or more permanent employees.
2) Showing the contribution of each industry group to the changing rate of wage increase in non-agricultural sector, excluding domestic services, international and foreign institutions.
3) The industry group with a high ratio of workers earning less than the minimum wage (B) include: accommodation and food service activities, wholesale and retail trade, transportation, renting and leasing, business support services, and social work activities.
4) The industry group prone to fluctuations in special cash payments (C) consists of large-scale manufacturing businesses with more than 300 employees that posted a huge increase in special cash payments in 2018, including manufacturing of basic metals (24), manufacturing of electronics parts (26), large-scale automobile and trailer manufacturing (30), and manufacturing of other transportation equipment (31).
5) A=B+C+D, and B=B1+B2.
6) T = this year's rate of wage increase (T_t) – previous year's rate of wage increase (T_{t-1}).
Source : Ministry of Employment and Labor, *The Labor Force Survey at Establishments*, http://laborstat.moel.go.kr/

time pay will affect wages in 2019.

Using the raw data on labor conditions from The Labor Force Survey at Establishments (2017-2018) published by the Ministry of Employment and Labor on a monthly basis, we estimated the effect of the revised law on wages. Through this data, the effect of the 52-hour workweek system was estimated using a triple difference model.

Beginning on July 1, 2018, the 52-hour workweek system will be introduced in establishments with more than 300 employees, as well as government, municipal, and public institutions. Five business sectors including land transportation are exempt from the reduced working hours. As for the 21 business sectors which are not allowed to be exempt, including sale of motor vehicles and parts, they must apply the new system after July 1, 2019 (see Table 6). To estimate the policy effect using a triple difference model, three dummy variables were created: whether or not the establishment is with more than 300 employees ($D1_{i,t} = 1[P_{i,t} \geq 300]$); whether or not the data is dated later than July 2018 ($D2_{i,t} = 1[t \geq 201807]$); and lastly, whether or not the industry is part of the remaining group after removing the 5 exempt sectors and the 21 sectors which are not allowed to be exempt ($D3_{i,t} = 1[IND_{i,t} < 52hour]$). This can be expressed in the following formula:

$$Y_{i,t} = \alpha + \beta_1 D1_{i,t} + \beta_2 D2_{i,t} + \beta_3 D3_{i,t} + \beta_4 D1_{i,t} D2_{i,t} + \beta_5 D1_{i,t} D3_{i,t} + \beta_6 D2_{i,t} D3_{i,t} + \beta_7 D1_{i,t} D2_{i,t} D3_{i,t} + T_{Month} + T_{Year} + e_{i,t}$$

Here, the coefficient indicating the policy effect is β_7,[6] and $Y_{i,t}$ are variables that are expected to be influenced by policies such as total working hours, total working hours of permanent workers, overtime hours, and per capita overtime pay, etc. In addition, given the difference in working hours per month and per year due to public holidays, the data was controlled for month and year.

6) β_7 indicates the policy effect in the triple difference model for the following reason:
$(Y|D1=1, D2=1, D3=1, T) = \beta_1+\beta_2+\beta_3+\beta_4+\beta_5+\beta_6+\beta_7$
$-(Y|D1=1, D2=1, D3=0, T) = \beta_1+\beta_2+\beta_4$
$-(Y|D1=1, D2=0, D3=1, T) = \beta_1+\beta_3+\beta_5$
$-(Y|D1=0, D2=1, D3=1, T) = \beta_2+\beta_3+\beta_6$
$+(Y|D1=1, D2=0, D3=0, T) = \beta_1$
$+(Y|D1=0, D2=1, D3=0, T) = \beta_2$
$+(Y|D1=0, D2=0, D3=1, T) = \beta_3$

Table 6. Business Sectors Exempt or Not Exempt from Reduced Working Hours[7]

5 sectors exempt from the reduced working hours	21 sectors which are not allowed to be exempt from the reduced working hours (effective after July 1, 2019)
49. Land transportation and pipeline transportation; 50. Water transportation; 51. Air transportation; 529. Other transportation services; and 86. Healthcare.	37. Sewage, wastewater and human waste treatment services; 45. Sale of motor vehicles and parts; 46. Wholesale trade and commission trade, except of motor vehicles and motorcycles; 47. Retail trade, except motor vehicles and motorcycles; 521. Warehousing; 55. Accommodation; 56. Food and beverage service activities; 59. Motion picture, video and television program production, sound recording and music publishing activities; 60. Broadcasting; 611. Postal services; 612. Telecommunications; 64. Financial institutions, except insurance and pension funding; 65. Insurance and pension funding; 66. Activities auxiliary to financial service and insurance activities; 70. Research and development; 713. Advertising; 714. Market research and public opinion polling; 74. Business facilities management and landscape services; 85. Education; 87. Social work activities; and 961. Personal care services.

Note : The number in front of each business sector refers to industry divisions (2-digit level) and occupation minors (3-digit level) according to the Korean Standard Industrial Classification.

Table 7. Policy Effect of the 52-hour Workweek System

	Total Working Hours	Total Working Hours of Permanent Employees	Total Contractual Working Hours of Permanent Employees	Total Overtime Working Hours of Permanent Employees	Overtime Pay for Permanent Employees
*D*1 *D*2 *D*3	-3.028***	-3.087***	-0.61	-2.477***	-43.820***
	0	0	-0.39	0	0
R-squared	0.044	0.052	0.057	0.009	0.012
Obs(n)	281737	281737	281737	281737	281737

Note : 1) P-value in parentheses, *p<0.05, **p<0.01, ***p<0.001

2) The unit for workings hours is hour/month, and the unit for pay is thousand won/month.

Source : Ministry of Employment and Labor, *The Labor Force Survey at Establishments* (data on labor conditions), raw data, each year.

Table 8. Policy Effect of the 52-hour Workweek System (Monthly Wage)

	Total Earnings	Total Earnings of Permanent Employees	Regular Payments of Permanent Employees	Overtime Pay of Permanent Employees	Special Cash Payments of Permanent Employees	Total Earnings of Temporary Daily Workers
*D*1 *D*2 *D*3	39.164	37.729	39.132	-43.820***	42.417	-10.991
	-0.56	-0.57	-0.36	0	-0.37	-0.83
R-squared	0.012	0.012	0.01	0.012	0.019	0.057
Obs(n)	281737	281737	281737	281737	281737	64083

Note : 1) p-value in parentheses , * p<0.05, ** p<0.01, *** p<0.001

2) The unit for monthly wage is thousand won/month.

According to the analysis, the 52-hour workweek system resulted in a 2.48-hour reduction of overtime work for permanent workers, leading to a reduction of total working hours of permanent workers and overall total working hours by 3 hours (see Table 7). In addition, the number of contractual working hours for permanent workers decreased but it was not statistically significant and did not affect the working hours of temporary daily workers. Out of the total earnings, the overtime pay for permanent workers decreased by about 44,000 won, which did not affect the

7) The questionnaire of *the Labor Force Survey at Establishments* provides industrial classifications only up to occupation minors (3-digit level)

regular payments and the special cash payments for permanent workers, or payments for temporary daily workers (see Table 8). However, we cannot rule out the possibility that the reduction effect on working hours and wages is somewhat weak for the above analysis period during which the enforcement of punishment is postponed. Since actual punishment will be imposed from April this year and the 52-hour workweek system will be applied to the 21 business sectors that are not allowed to be exempt beginning in July, it is reasonable to conclude that the reduction effect in working hours and wages will likely be somewhat stronger in 2019 than the current estimates.

III. Relative Wage Level of Different Types of Workers

In 2018, various issues arising from the double-digit increase in the minimum wage (16.4%) and the reduction of working hours received much attention throughout the year. The purpose of the minimum wage is to stabilize employees' life and to improve the quality of the labor force by guaranteeing a certain minimum level of wages to employees, thereby contributing to the sound development of the national economy. This system protects low-wage workers by forcing their employers by law to pay above a certain level of wages. It was found that a sharp rise in the minimum wage in 2018 contributed to lowering the share of low-wage workers from more than 20% to 18.0% (5.8%p drop from the previous year).

So, at this point, we would like to analyze the changes caused by such a high rate of wage increase in 2018 to the relative wage level of workers according to their characteristics by examining *the Labor Force Survey at Establishments* and *the Economically Active Population Survey* (Supplementary Survey by Employment Type in August). The aforementioned characteristics of the 2018 wage growth were based on the Labor Force Survey at Establishments, which was conducted by the Ministry of Employment and Labor on business establishments. In *the Economically Active Population Survey* (Supplementary Survey by Employment Type in August) for which Statistics Korea collects data on each household, the nominal wage growth was found to be 5.3%, which was the same as the result of *the Labor Force Survey at Establishments*.[8)]

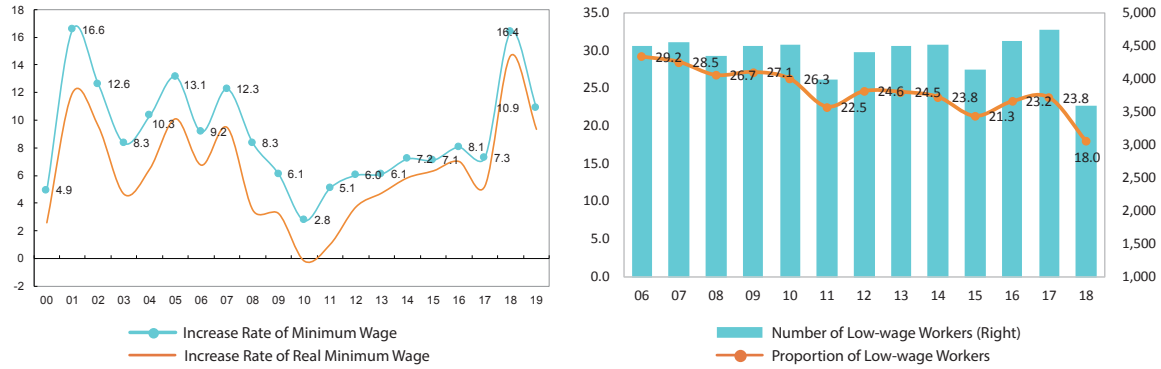
First, looking at the relative wage level (hereinafter based on monthly wage) by employment status, both surveys indicate that the relative wage level of non-permanent workers in comparison with that of permanent workers improved compared to 2017. According to *the Labor Force Survey at Establishments*, the relative wage level of non-permanent workers in 2018 was 69.0%, the highest figure since 2011, the period for which comparable data is available. *The Economically Active Population Survey* also confirms that the relative wage level of non-permanent workers was 56.0%, showing a year-on-year improvement. The same survey shows that the relative wage level of non-regular workers also improved compared to the previous year.

According to *the Labor Force Survey at Establishments*, the wage increase of large-scale businesses greatly expanded in 2018 (0.5% → 6.5% based on the data of all workers) while that of SMEs remained the same as that of the previous year, resulting in the narrowing of the gap in the rate of wage increase by establishment size from 4.1%p in 2017 to 1.9%p in 2018. The relative wage level of SMEs stood at 57.9% in 2017, higher than other years, as the rate of wage increase of large-scale businesses slowed considerably due to delayed payment of the negotiated wages in large-scale businesses in the manufacturing sector in 2017. Special cash payments for large-scale businesses rose significantly

8) The two surveys differ in terms of survey subjects, timing and respondents. In the case of *the Economically Active Population Survey* (Supplementary Survey in August), all wage earners were surveyed on their labor conditions such as wages, whether or not they participate in the four major public insurance schemes, welfare benefits, etc.

Figure 7. Trends in the Minimum Wage Increase Rate, and Number and Proportion of Low-wage Workers

(Unit : %, thousand person)



Note : Low-wage workers refer to those whose average hourly wage is less than two-thirds of the median hourly wage

Source : Statistics Korea, *The Economically Active Population Survey* (Supplementary Survey in August), raw data, each year.

Table 9. Trends in the Relative Wage Level of Different Types of Workers

	The Labor Force Survey at Establishments				*The Economically Active Population Survey*					
	Average Monthly Wage		Average Hourly Wage		Average Monthly Wage			Average Hourly Wage		
	SMEs (Large-scale=100)	Non-permanent Workers (Permanent Workers =100)	SMEs (Large-scale =100)	Non-permanent Workers (Permanent Workers =100)	SMEs (Large-scale =100)	Non-permanent Workers (Permanent Workers =100)	Non-regular (Regular =100)	SMEs (Large-scale =100)	Non-permanent Workers (Permanent Workers =100)	Non-regular (Regular =100)
2012	56.8	40.9	55.4	57.8	56.5	102.0	56.8	54.9	48.9	64.4
2013	56.6	40.9	55.5	59.4	56.4	104.3	56.2	55.3	49.3	64.8
2014	55.1	40.2	54.5	60.7	56.7	101.9	55.9	56.0	50.5	64.3
2015	54.9	40.0	54.2	62.8	57.7	75.3	54.5	57.2	52.0	65.0
2016	55.6	38.7	54.7	63.9	56.4	77.5	53.5	55.9	52.2	65.4
2017	57.9	39.6	57.2	65.5	59.0	75.9	55.0	59.5	55.4	66.9
2018	56.9	39.8	56.6	69.0	60.4	78.0	54.7	61.5	56..0	67.9

Note : 1) *The Labor Force Survey at Establishments* uses the data of total earnings of all workers at establishments with 1 or more permanent employees.

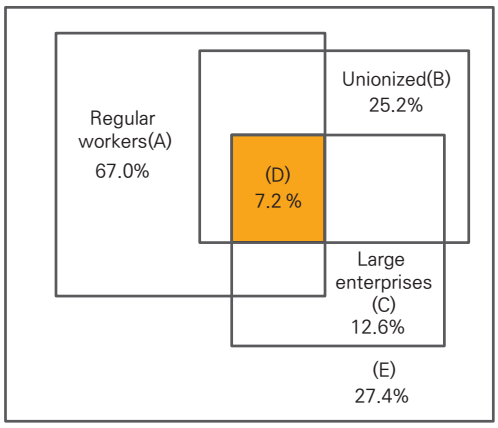
2) *The Economically Active Population Survey* uses the data of all wage workers, and Hourly Wage = Average Monthly Wage/((Average hours worked per week*30.4)/7).

Source : Ministry of Employment and Labor, *The Labor Force Survey at Establishments*, http://laborstat.moel.go.kr/

Statistics Korea, *The Economically Active Population Survey* (Supplementary Survey in August), each year.

Figure 8. The Structure of Korea's Labor Market

(Unit : %, thousand person, thousand won, won)



		D	E
Number of Workers		1,452	5,489
Average Monthly Wage		424	152
Hourly Wage		23,643	10,395
Seniority		13.7	2.3
Social Insurance	National Pension Participation Rate	98.8	30.7
	Employment Insurance Participation Rate	99.7	39.9
	Health Insurance Participation Rate	76.2	38.0
Welfare Level	Rate of Severance Payment	99.5	36.4
	Rate of Bonus Payment	97.5	33.7
	Rate of Overtime Payment	87.4	20.1
	Rate of Using Paid Leave	98.4	25.8

Note : 'D' = large enterprises, unionized, regular workers

'E' = SMEs, non-unionized, non-regular workers

Source : Statistics Korea (2018), *The Economically Active Population Survey* (Supplementary Survey in August), raw data.

Table 10. 2019 Economic Outlook

(Unit : %)

		2018			2019p		
		1st Half	2nd Half	Yearly	1st Half	2nd Half	Yearly
The Bank of Korea (Jan. 2019)	GDP	2.8	2.5	2.7	2.5	2.8	2.6
	Private consumption	3.2	2.5	2.8	2.5	2.7	2.6
	Investment in plant and equipment	1.9	-5.3	-1.7	-2.1	6.3	2.0
	Investment in construction	-0.1	-7.4	-4.0	-6.1	-0.5	-3.2
	Commodity exports	2.8	4.9	3.9	2.4	3.8	3.1
	Commodity imports	2.5	0.9	1.7	0.6	4.0	2.3
	Consumer Prices	1.3	1.7	1.5	1.2	1.5	1.4
Korea Labor Institute (Dec. 2018)	Rate of growth in employment	0.4			0.5p		
	Unemployment rate	3.9			3.9p		

Note : Figures with "p" means forecasts.

Source : The Bank of Korea, *2019 Economic Outlook*, Press Release (January 2019);
Korea Labor Institute, *Monthly Labor Review*, December 2018 issue.

in 2018, with the negotiated wages of 2017 being paid out in 2018 and the generous performance incentives being offered to employees of large enterprises of certain sectors. Due to such a significant rise in the rate of wage increase of large firms, the relative wage level of SMEs in 2018 was lower than that of 2017. On the other hand, *the Economically Active Population Survey* results showed that the relative wage level of SMEs improved compared with the previous year, and it exceeded 60% in 2018 after staying in the 50% range for a long time.

However, given the relative wage levels of different types of workers identified in both surveys, it can be concluded that the difference in relative wage levels by establishment size or by employment status is still large in Korea's labor market. As shown in [Figure 8], a significant difference is observed in terms of employment stability and welfare between the most advantageous group in the labor market (large enterprises, unionized, regular workers) ('D') and the relatively disadvantaged group (SMEs, non-unionized, non-regular workers) ('E').[9]

IV. Wage Outlook for 2019

1. Macroeconomic Indicators and Labor Market Indicators: Outlook for 2019

Several macroeconomic indicators confirm that the Korean economy continues to slow down in 2019 as it did in 2018. The Bank of Korea (Jan. 2019) announced Korea's economic growth outlook for 2019 at 2.6%, lower than the previous year, citing high uncertainties in the nation's future growth path owing to the changes in external and domestic conditions. Of course, if uncertainties stemming from the U.S and China trade negotiations are resolved; domestic economic conditions are improved through the early implementation of the government's expansionary fiscal policy; and various economic stimulus policies can lead to the expansion of corporate investment, those will serve as an upside risk to economic growth. However, the bank forecasted that the negative impact of the global trade dispute on Korea's exports, the global economic downturn, and the weakening demand for semiconductors are highly likely to be a risk factor for economic growth.

9) *The Economically Active Population Survey* (Supplementary Survey in August) collects data not only on wages for different employment types of wage earners but also on working conditions such as social insurance and welfare. Even in these items, it is possible to observe a gap among workers by establishment size and by employment type.

In response, the Korean government is trying to minimize downside risk through the early implementation of 60% of fiscal budget during the first half of the year with an aim to prevent the economic slowdown from becoming a recession. Furthermore, the double-digit increase in the minimum wage (10.9%) in 2019 is likely to act as a wage growth factor for low-wage workers.

In addition to these economic factors and the government's strong commitment to stimulate the economy, labor relations factors also play an important role in determining the rate of wage increase. Every year, Korea's two major umbrella unions and Korea Employers Federation (KEF) deliver their wage guidelines. The KEF proposed an increase in the range of 2.0% in 2018 but has not made any proposal in 2019. Meanwhile, the two umbrella unions demanded an increase in the rage of 6-7%, lower than their demand in the previous year.

2. Wage Outlook for 2019

Theoretically, looking at the national economy as a whole, when the rate of wage increase is matched with the rate of increase in labor productivity (measured by the rate of increase in the national economic productivity), wage increase will be achieved relative to the contribution of workers, and income distribution can be maintained at the current level. If we assume that the labor share of income does not change, the theoretical wage growth rate corresponding to the productivity increase can be represented by the relationship among real GDP growth rate , consumer price growth rate, and employment growth rate.[10] In this case, if all the 2019 outlooks for the national economy and the labor market—i.e. the Bank of Korea's 2019 economic growth outlook (BOK 2.6%), inflation outlook (BOK 1.4%), and employment growth outlook (Korea Labor Institute 0.5%)—are realized as forecasted, the wage increase rate for the national economy as a whole in 2019 will be about 3.5%.

However, the wage increase rate based on national economic productivity cannot be achieved in reality. Although corporate profits of large-scale businesses continued to improve in 2018 as they did in 2017, there is a high possibility that the profitability of large-scale businesses in the semiconductor and petrochemical industries—that had contributed to wage hikes in 2017-2018—is likely to decline in 2019. This, coupled with the generally unfavorable economic conditions in 2019, is expected to serve as a downward factor for wage increase. In addition, the reduction of maximum working hours, which will begin to be implemented in earnest in 2019, is also likely to serve as a downward factor for wage increase by discouraging overtime work. Furthermore, the decision to set an increase of the annual salaries of civil servants in the 1% range in 2019 will also be a downward factor.

However, the fact that a double-digit increase is applied to the minimum wage both in 2018 and 2019 (10.9%) is expected to serve as a wage growth factor. Considering these upward and downward factors of wage growth, the rate of wage increase in 2019 is expected to be 4.1%, down from 5.3% in 2018. One factor that was not taken into account here is the Supreme Court's ruling on Kia Motors' ordinary wage lawsuit made at the end of 2018. Since the ruling is expected to affect companies facing similar cases, requiring them to pay wages in the form of special cash payments, it can act as an upward factor of wage growth in 2019.

10) Assuming a perfectly competitive market and a linear homogeneous production function, and that the profit maximization condition and the labor share of income are constant, the theoretical wage increase rate based on the productivity-linked wage system can be calculated as "real GDP growth rate + consumer price growth rate – employment growth rate".

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