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Abstract

On November 25, 2022, the third workshop on "Issues Surrounding Price Developments during the COVID-19 Pandemic," entitled "The Wage Formation Mechanism in Japan," was held at the Bank of Japan's Head Office. The workshop featured lively discussions on wage developments and the link between wages and prices based on the characteristics of Japan's labor market and recent changes therein, involving experts and scholars in economics and empirical analysis.

Session 1 highlighted various factors that made nominal wages in Japan prior to the COVID-19 pandemic more sluggish than those in the United States and Europe and reported recent changes in the factors. Further, issues on the outlook for the pace of wage growth in the future were presented, and problems in looking at average wages as well as the link between wages and prices were discussed.

Session 2 focused on the nominal wage growth of full-time workers in Japan taking into account Japan's "dual labor market," consisting of an "internal labor market," where labor reallocation takes place within firms and wages follow the seniority-based system, and an "external labor market," where employment adjustment occurs across firms and wages are mainly determined by supply and demand in the market. It was shown that the sensitivity of nominal wage growth to labor market conditions differed between the internal and external labor markets.

The panel discussion in Session 3 mainly covered two issues: (i) what were the key factors in considering nominal wage developments, and (ii) whether inflation caused by

* The views expressed at the workshop and summarized in this paper are those of the individual speakers and do not necessarily represent the views of the Bank of Japan, the Monetary Affairs Department, or the Research and Statistics Department.

cost-push factors would lead to higher wages and in turn make stable 2 percent inflation achievable. With regard to issue (i), the view was expressed that while it was necessary to assess the link between wages and labor market conditions and between wages and productivity for each type of employment, factors arising from changes in the composition of workers mainly due to demographic changes were also important. Regarding issue (ii), it was pointed out that future developments in aggregate demand and the outcomes of efforts to reflect the previous fiscal year's inflation in the annual spring labor-management wage negotiations would be important. Moreover, the view was expressed that in terms of the outlook for whether the price stability target of 2 percent could be achieved in a sustainable and stable manner, it was important whether 2 percent inflation would become the new social norm in Japan.

1. Introduction

This paper is a summary of the third workshop on "Issues Surrounding Price Developments during the COVID-19 Pandemic," entitled "The Wage Formation Mechanism in Japan," held on November 25, 2022 at the Head Office of the Bank of Japan (BOJ).[1] The workshop began with opening remarks by BOJ Executive Director Masaaki Kaizuka. In Sessions 1 and 2, staff members of the BOJ's Research and Statistics Department and Monetary Affairs Department gave presentations, followed by comments from discussants (Ryo Kambayashi, Professor at Hitotsubashi University in Session 1; and Tsutomu Watanabe, Professor at the University of Tokyo in Session 2) and discussions with floor participants. The panel discussion in Session 3 featured presentations by panelists (Takeo Hoshi, Professor at the University of Tokyo; Daiji Kawaguchi, Professor at the University of Tokyo; and Koji Nakamura, Director-General of the BOJ's Monetary Affairs Department) and discussions with floor participants under the moderator (Kazuo Ueda, Professor at Kyoritsu Women's University). The workshop concluded with closing remarks by BOJ Executive Director Shinichi Uchida (see Appendix 1 for the program).

The remainder of the paper is a summary of the opening remarks, the two presentation sessions, the panel discussion, and the closing remarks. Honorific titles of speakers are omitted below and their affiliations are as of the date of the workshop (see Appendix 2 for a list of speakers and their affiliations).

2. Opening Remarks

Kaizuka looked back at the discussions on wages and prices in the previous two workshops and outlined the reasons for setting the agenda of the present workshop to "The Wage Formation Mechanism in Japan." Regarding the first workshop, he made the following two observations. First, he highlighted that participants shared the view that, in a situation unique to Japan, there was a risk that the chronic deflationary factors that had been in place since before the COVID-19 pandemic might continue. Second, he noted that the discussions highlighted that one of the key issues regarding future price

[1] For summaries of the first and second workshops on "Issues Surrounding Price Developments during the COVID-19 Pandemic," entitled "Characteristics of Price Developments in Japan," held on March 29, 2022, and "The Philipps Curve and Cost Pass-Through in Japan," held on May 30, 2022, respectively, see:
https://www.boj.or.jp/en/research/brp/ron_2022/ron220523a.htm/
https://www.boj.or.jp/en/research/brp/ron_2022/ron220831a.htm/

developments was wage developments. Turning to the second workshop, he observed that the analyses presented there highlighted that wage growth in Japan had been sluggish against a background of relatively limited cost-push pressures compared to the United States, and that the discussions highlighted that to achieve the price stability target in a sustainable and stable manner going forward, it was important for wages to rise steadily amid rising inflation expectations.

He then pointed out that with workers and employers getting ready for next year's annual spring labor-management wage negotiations, the need to discuss wages had become even more important. He also stressed that understanding wage developments was extremely important in considering economic and price developments and that the BOJ aimed to create an environment in which firms could raise wages and the price stability target could be achieved in a sustainable and stable manner, accompanied by wage increases.

He concluded his opening remarks by expressing his strong hope that the present workshop would deepen our understanding of price and wage developments in Japan.

3. Session 1: "Issues Regarding Wage Developments in Japan"

(1) Presentation

In the presentation, Ichiro Fukunaga provided an overview of the various factors that made nominal wages in Japan prior to the COVID-19 pandemic more sluggish than those in the United States and Europe and discussed how the factors had been changing since the outbreak of the pandemic. He then presented issues regarding the outlook for the pace of wage growth in the post-pandemic period.

Specifically, he classified the factors that dampened nominal wage growth in Japan before the pandemic into the following four groups. The first group of factors related to changes in the composition of workers and household labor supply. He showed that the continuous increase in the share of part-time workers with relatively low wages since the 1990s had acted to suppress the average wage of workers overall (i.e., full-time and part-time workers taken together). In this context, he also noted that the labor supply of women and seniors increased markedly in the 2010s, especially among part-time workers. The second group of factors comprised firms' suppression of labor costs due to sluggish labor productivity growth and the severe competitive market environment. Firms also curtailed investment in human capital and found it difficult to increase personnel expenses as the labor share of income remained high. The third group included institutional factors in some industries as well as low labor mobility across industries and firms, which may have suppressed growth in average wages. Finally, fourth was the possibility that low inflation, which had become the social norm, suppressed the rate of wage increases in labor-management negotiations.

Regarding the first group of factors, he pointed out that the upward trend in the share of part-time workers had come to a halt in recent years, especially since the COVID-19 pandemic. Moreover, he expressed the view that, from a labor supply perspective, Japan was entering a phase in which wages would tend to rise, given that the scope for additional labor force participation by women and seniors was expected to diminish partly due to demographic changes. On the other hand, with regard to the second group of factors, he argued that corporate investment in human capital and the accumulation of intellectual property had remained sluggish since the outbreak of the pandemic and highlighted that efforts to improve labor productivity through digitalization and other means remained lackluster at present compared to the United States and Europe. As for the third group, he pointed to the increase in posted wages in job advertisement data for regular employees and argued that the job market was expected to become more active in the future as wages rose. Regarding the fourth item, he pointed out that one of the focal points of negotiations for wage increases in 2023 mentioned in business surveys was the response to rising prices and that there were moves on the part of unions to demand relatively large base pay increases.

Based on these recent changes, his assessment was that an environment for sustained wage increases was beginning to take shape. He then presented the following additional discussion points for considering future wage trends. First, he noted that it would be important to see to what extent wages of full-time and part-time workers rose in response to improvements in labor market conditions. Next, based on an analysis using firm-level panel data, he pointed out that higher growth expectations by firms could make it more likely for wages to rise. Further, referring to government initiatives such as "investment in people" and the introduction of reskilling and job-based employment by some firms, he highlighted that such efforts could lead to higher wages if they proceeded. Finally, he presented an analysis comparing the link between wages and prices to that in the 1970s, when wages and prices both rose substantially, arguing that second-round effects from wages to prices in Japan had been weak since then, and that the key issue was whether this relationship would change.

(2) Comments from the discussant

Discussant Kambayashi started by highlighting that despite the increase in the ratio of non-regular to regular employees the number of regular employees itself had not decreased, and that the number of self-employed workers – which fell outside the "labor market" considered in the presentation – had been decreasing. He also pointed out that the number of foreign workers had been increasing in recent years, compensating for the decline in the number of self-employed workers.

Next, he shared his view on the proper word in Japanese to refer to people who work and earn wages. He then stressed that looking at the wages of employees in terms of averages was problematic, showing that based on the wage distribution observed from the *Basic Survey on Wage Structure*, only 4 percent of employees fell into the range around the average wage. He further argued that there was little point in examining changes in average wages unless productivity changed uniformly across the entire distribution. Moreover, referring to his own research, which linked the *Basic Survey on Wage Structure* and the *Basic Survey of Japanese Business Structure and Activities* at the firm level, he pointed out that the variation in average wages across firms widened between 1995 and 2013. Further, he highlighted a notable difference between Japan and the United States: in Japan, the average wage at low-wage firms had been declining, probably because some low-productivity firms were able to survive, whereas there had been almost no decline in the average wage at low-wage firms in the United States. He then argued that, given this variation in the labor market, it was important to capture wage trends using a variety of indicators, not just average wages.

(3) General discussion

Co-presenter Yoshihiko Hogen agreed with the summary of facts presented by discussant Kambayashi but noted that while mixed income, which includes income from self-employment, had been declining as a trend, it had fluctuated widely due to various measures implemented following the outbreak of the COVID-19 pandemic, and its implications for price developments were not clear. Moreover, he noted that the number of foreign workers had not recovered after falling during the pandemic, and labor market conditions could become tighter if the economic recovery were to continue, especially in industries that were highly dependent on foreign workers, such as restaurants and manufacturing, which could ultimately lead to an acceleration of wage growth. Regarding the issue of looking at wages in terms of averages, he pointed out that it would be useful to examine how developments in the wage distribution were linked to developments in the macroeconomic environment as a whole, using granular data. He then noted that he would like to deepen the analysis of wage developments and their determinants in Japan by looking at various wage indicators, including not only average wages of employees but also data on posted wages for job openings, which would be closer to the concept of marginal cost.

From the floor, regarding the link between wages and prices, Ueda pointed out that if wages rose in response to an increase in labor productivity, this might not push up prices. Moreover, Tsutomu Watanabe asked whether the two-step approach, in which real wages were first explained by real factors such as productivity and labor supply and nominal wages were then explained in the next step in relation to prices, could be applied to any phase, including the current one. In response to these questions, presenter Fukunaga argued that it was necessary to consider two channels through which wages affect prices, namely costs and incomes. That is, while an increase in labor productivity would lead to a decline in unit labor costs, which would exert downward pressure on prices through the cost channel, as pointed out by Ueda, in the income channel, an increase in real wages due to productivity growth could push up prices from the demand side through a virtuous cycle from income to spending. Moreover, regarding the relationship between real factors and nominal wages, he noted that he had in mind not only the two-step approach pointed out by Tsutomu Watanabe but also the Phillips curve and argued that the supply-demand balance in the economy as a whole, which was determined by real factors, as well as expectations about that supply-demand balance, could also directly affect nominal variables.

Junko Koeda observed that, given the link between labor productivity and real wages, it was important to deepen our understanding of the impact of the aging of society on labor productivity and real wages through changes in the capital-labor ratio. Presenter Fukunaga agreed and noted that raising firms' growth expectations could also increase labor productivity by raising the capital-labor ratio through capital investment.

Hoshi asked discussant Kambayashi whether it would be possible to examine developments in average wages using the same approach as that used in productivity analyses, where changes in average productivity were decomposed into changes in the productivity of individual firms and changes in firms' weights. Tsutomu Watanabe also asked whether it would be possible to assign weights to wages based on economic theory, mentioning that weights for the consumer price index (CPI) were calculated based on the expenditure on individual goods and services. In response to these questions, Kambayashi replied that it would be necessary to pay attention to the variation in wages if productivity also varied considerably. Moreover, he noted that wages should be analyzed not as an average but as an index that was aggregated with some sort of economically meaningful weights. He went on to suggest that, from a cost perspective, unit labor costs could be weighted using productivity as weights based on a production function that assumed heterogeneous workers. Moreover, he noted that, from the side of households, that is, the recipients of wages, the utility per unit of wages should be considered, but to his knowledge there were no studies that consider wage indexes based on a utility function.

Kaizuka asked discussant Kambayashi for his assessment of the impact of the government's labor policies to date on wages and the labor market. Kambayashi replied that, with some exceptions, Japan's labor policies had essentially been formulated as an extension of issues already recognized by labor and management.

4. Session 2: "The Dual Labor Market and Nominal Wage Growth in Japan"

(1) Presentation

Setting out the motivations behind the research, presenter Takashi Nakazawa noted that it had been pointed out that although improvements in labor market conditions had been observed under quantitative and qualitative monetary easing (QQE), the growth in wages of full-time workers, who made up the majority of the labor force, had been remarkably sluggish.[2] He then stated that in response to empirical results obtained using macroeconomic data, he and his co-researchers conducted a more detailed analysis of the wages of full-time workers using microdata from the *Basic Survey on Wage Structure*. Moreover, he noted that the research paid particular attention to the "dual structure" of Japan's labor market highlighted in labor economics, distinguishing between an "internal labor market," in which labor reallocation took place within firms and wages followed the seniority-based system in the presence of long-term employment practices, and an "external labor market," in which employment adjustment occurred across firms and wages were mainly determined by supply and demand in the market.

He started by observing that the estimates using the aforementioned microdata and a finite mixture model, a type of model widely used in studies on dual labor markets, showed differences in worker characteristics and wage systems between the internal and external labor markets that were consistent with differences highlighted in previous studies. Next, he presented the distributions of nominal wage growth rates in the internal and external labor markets obtained by constructing a quasi-panel following the approach proposed by Kambayashi (2011).[3] Specifically, the quasi-panel was built by extracting

[2] See, e.g., Bank of Japan (2018) "(Box 1) The Recent Increase in Labor Supply and Wage Developments," *Outlook Report*, July 2018.

[3] Kambayashi, Ryo (2011) "Nominal Wage Rigidity in Japan (1993–2006) -- Quasi-Panel Approach --," *Keizai Kenkyu* (The Economic Review), Vol. 62(4), pp. 301–317 (in Japanese).

workers in the *Basic Survey on Wage Structure* that could be regarded as identical across survey years based on their characteristics, such as the establishment they worked for and their years of tenure. The distributions showed that since the introduction of QQE, the share of workers whose nominal wages exhibited positive growth rates had increased more in the external than in the internal labor market. Moreover, he presented an empirical analysis on the link between nominal wage growth rates in the internal and external labor markets and macroeconomic indicators. The analysis indicated that improvements in labor market conditions and the output gap had statistically significant positive effects on the nominal wage growth rates of full-time workers in the external labor market and in the labor market as a whole. He added that there were differences in the sensitivity of wage growth rates to supply and demand conditions between the internal and external labor markets, including the absence of such effects in the internal labor market since 2000. He further noted that no spillover effects from the previous year's inflation rate to the nominal wage growth rates were observed from 2000 onward, and that an increase in the potential growth rate had a statistically significant positive impact on nominal wage growth rates only in the internal labor market.

Next, he outlined a macroeconomic model with two wage Phillips curves corresponding to the internal and external labor markets that incorporated the empirical result that the nominal wage growth rates in the internal labor market were less sensitive to supply and demand conditions than those in the external labor market. He then explained the results obtained when using the model to examine the policy implications of incorporating the policy response to nominal wage growth rates into the Taylor rule for adjusting interest rates in response to the inflation rate and the output gap. He highlighted that, compared to the standard Taylor rule, which does not take nominal wages into account, incorporating the nominal wage growth rate in the external labor market or in the labor market as a whole into the Taylor rule led to a smaller loss for the central bank calculated from changes in the inflation rate and the output gap. He also highlighted that incorporating only the nominal wage growth rate of the internal labor market, in contrast, tended to worsen the central bank's loss due to excessive monetary easing. Moreover, he explained the results of an analysis using the same model regarding the central bank's loss and "indexation," which reflects price developments in nominal wages, and pointed out that introducing indexation was appropriate from the perspective of minimizing the central bank's loss when the nominal wage growth rate was low and the inflation rate remained at around 2 percent. However, he observed that it should also be noted that when the inflation rate was near zero or substantially above 2 percent, indexation could lead to instability, such as persistent low inflation or a situation in which wages and prices spiral ever higher.

(2) Comments from the discussant

Discussant Tsutomu Watanabe argued that the fundamental difference between the internal and external labor markets was the duration of labor contracts. Considering that contracts in the former market were mainly long-term contracts while those in the latter were mainly spot ones, he suggested that it might be better to add years of tenure, which were not directly used for the identification of workers in the study, as an identification criterion. Moreover, he pointed out that, in the estimation results of the study, the validity of the identification results was somewhat questionable, since wages of workers in the external labor market with spot contracts also depended on the years of tenure, and that the robustness of the results should be checked by conducting the identification using multiple methods.

Next, he observed that the distributions of nominal wage growth rates in the internal and external labor markets obtained in the study were interesting from a macroeconomic perspective. He then pointed out that these distributions, especially that in the internal labor market, included the effect of scheduled annual increases in nominal wages under the seniority-based system, and that this effect had to be removed to assess nominal wage rigidity. Moreover, he noted that since only workers that appeared in the data for two or more consecutive years were included in the quasi-panel of nominal wage growth rates, it was necessary to check for biases in the estimation results, especially for workers in the external labor market, who were likely to have shorter tenure. Further, as a future research topic, he suggested that it would be useful to compare nominal wage rigidity and output price rigidity at the firm level and examine the causal link between the two.

Finally, with regard to the analysis using the macroeconomic model, he pointed out that the dispersion of wages might be greater in the internal labor market, where nominal wage rigidity was likely higher, than in the external labor market. He then asked whether, if this was the case, it might be desirable to stabilize nominal wage growth in the more rigid internal labor market, contrary to the results of the study presented, since macroeconomic theory suggested that wage dispersion led to an economic welfare loss.

(3) General discussion

With respect to the comment by discussant Tsutomu Watanabe that years of tenure should be included among the identification criteria for the internal and external labor markets, presenter Nakazawa raised the concern that too many identification criteria in the estimation could make the estimation results unstable. Moreover, regarding the comment on the distributions of nominal wage growth rates, he responded that, as a result of robustness checks, he did not believe that considering only workers who appeared in the data for two or more consecutive years in the calculation of nominal wage growth rates led to a significant bias in the results. Regarding the need to exclude the effect of scheduled annual increases in nominal wages under the seniority-based system from the wage growth rate, he acknowledged that not doing so made it difficult to examine nominal wage rigidity and stated that he would consider this as an issue to be addressed in the future. Finally, regarding the comment on wage dispersion, he noted that one could think of various different hypotheses to explain the empirical result that nominal wage growth rates in the external labor market were more sensitive to supply and demand conditions than those in the internal labor market; further, he highlighted that the present empirical analysis did not provide an answer as to whether nominal wages in the internal labor market were more rigid than those in the external labor market. On this point, co-presenter Takushi Kurozumi pointed out that since wages in the internal labor market in Japan were set by cross-referencing among firms during the annual spring labor-management wage negotiations, the wage dispersion in the internal labor market might be low.

From the floor, Kawaguchi suggested adding information on whether workers were regular or non-regular employees to the criteria for identifying workers in the internal and external labor markets; in addition, he noted that nominal wage growth rates in the internal labor market might also be sensitive to supply and demand conditions if wages including bonuses were used in the study. Ayako Kondo pointed out that the process of extracting the same workers across survey years could lead to biases in the estimation results due to different probabilities of correctly extracting the same workers in the internal and external labor markets, so that the distributions of the calculated nominal wage growth rates should be interpreted with caution. In addition, she argued that the estimation results showed that wages in the external labor market also rose to a considerable degree with years of tenure, so that the picture of the external labor market painted by the estimation might be somewhat closer to the internal labor market than labor economists generally think. Mototsugu Shintani and Etsuro Shioji noted that since wages are generally thought to change most when workers switch jobs, the study, which did not allow for the calculation of wage growth rates of those who changed jobs, might contain biases such as overestimating the rigidity of nominal wages in the external labor market. Shintani highlighted another potential source of bias that workers who actually fell into the internal labor market were classified as falling into the external labor market due to the setting of the threshold value in the estimated finite mixture model. Co-presenter Kurozumi responded that they were aware of the various biases in the finite mixture model estimation and that further analysis was needed. Moreover, he agreed with Kondo's point regarding the identification of the internal and external labor markets and added that the external labor market in their study included a considerable number of regular workers, mainly in small and medium-sized firms, and that, in this regard, the picture painted of the external labor market differed somewhat from that in previous studies.

Regarding the analysis of monetary policy rules using a macroeconomic model, Ueda asked three questions: Were the parameters of the monetary policy rules optimized for each rule? Were the shares of workers in the internal and external labor markets endogenized? And what was the mechanism through which the output gap improved in the model? Presenter Nakazawa replied that the parameters of the policy rules were not optimized and that the shares of workers in the internal and external labor markets were exogenously given; moreover, a decline in the real interest rate led to the improvement in the output gap. With regard to the analysis using a macroeconomic model on the introduction of indexation of wages to prices, Shioji pointed out that the conclusion on whether such an introduction was effective or not could change depending on whether the shock in the model was a supply or demand shock, and that it was necessary to consider these shocks separately.

5. Panel Discussion

Moderator: Kazuo Ueda (Kyoritsu Women's University)
Panelists: Takeo Hoshi (University of Tokyo)
Daiji Kawaguchi (University of Tokyo)
Koji Nakamura (Bank of Japan)

5.1 Panel presentations

(1) Takeo Hoshi (University of Tokyo)

Panelist Hoshi, based on his own research (Hoshi and Kashyap, 2021),[4] began by citing the slow increase in hourly wages due to the dual structure of the labor market consisting of regular and non-regular employees as a reason why inflation did not rise despite the BOJ's continued QQE. Reviewing labor market developments since 1990, he pointed out that firms' view that they had an excess number of regular employees prevented regular employees' wages from rising while the growing share of low-wage

[4] Hoshi, Takeo and Anil K. Kashyap (2021) "The Great Disconnect: The Decoupling of Wage and Price Inflation in Japan," in Takeo Hoshi and Phillip Y. Lipscy (eds.) *The Political Economy of the Abe Government and Abenomics Reforms*, Cambridge University Press, pp. 170–199.

non-regular employees kept average wages from rising.

Next, he expressed the view that the labor market situation had changed since around the late 2010s. He stated that firms' view that they had an excess number of regular employees had gradually dissipated and that the share of non-regular employees had peaked, making it more likely for average wages to rise as the economy recovered. In fact, looking at developments in average wages, he pointed out that hourly wages had been rising since the late 2010s for both regular and non-regular employees and expressed his hope that wages would rise in the future as the economy recovered.

He further noted that it was important to see whether the link between wages and prices, which had weakened since Japan's financial crisis in the late 1990s, would recover, and expressed his view that this would have a major impact on price developments in Japan going forward.

(2) Daiji Kawaguchi (University of Tokyo)

Panelist Kawaguchi highlighted the difficulty of grasping wage developments based on the average growth rate of workers' wages, given the major changes in the composition of workers, and suggested that it might be desirable to grasp wage developments based on the wage growth rate for individual workers. He also noted that, in Japan, there was no large-scale panel data accurately capturing wages, and referred to research he was involved in that was currently underway at the University of Tokyo's Center for Research and Education in Program Evaluation using tax data provided by local governments.

He noted that the tax data in one municipality showed that average wage income was increasing and that such wage increases were detected even when controlling for age effects. This result could be regarded as capturing the impact of scheduled annual increases in nominal wages under the seniority-based system. However, when the impact of changes in the composition of workers was excluded, wages were actually declining, and whether or not such changes were taken into account could significantly alter one's view of wage developments. While adding the caveat that this example covered only one municipality, so that the result could not be generalized, he emphasized the need to continue efforts to develop data sets that made it possible to capture the wage growth rates for individual workers and clarify wage developments.

(3) Koji Nakamura (Bank of Japan)

Panelist Nakamura pointed out that Hicks (1974)[5] once argued that, in the labor market

[5] Hicks, John R. (1974) *The Crisis in Keynesian Economics*, Basic Books.

for regular employment, "fairness" between labor and management played an important role in wage formation under long-term employment practices, and highlighted that since the deflationary period, this "fairness" had been one of the reasons why wages had not increased in Japan despite the labor shortage. In other words, wages did not rise as a result of the "fairness" of prioritizing stable employment over higher wages in labor-management negotiations. However, signs of change could be seen in the recent rise in workers' demands for higher wages in response to cost-push inflation. Moreover, labor market conditions also meant that wage increases could be expected. However, there was a high degree of uncertainty as to whether the impact of labor shortages would extend to wages of middle-aged and older regular workers and public sector workers.

Next, with regard to indexation of wages to prices, he suggested that this might be close to the concept of "fairness" from the perspective of maintaining living standards, in the sense that increases in nominal wages compensated for increases in the cost of living due to price hikes. Moreover, he expressed the view that, based on labor-management negotiations and government efforts, there was currently a growing consensus that nominal wages should rise in line with inflation.

Finally, he pointed out that, from a monetary policy perspective, it was necessary to ascertain under which circumstances achieving the price stability target of 2 percent in a sustainable and stable manner, accompanied by improvements in the economy and wage increases, could be foreseen, since currently nominal wages were not rising sufficiently and inflation was mainly due to cost-push factors. He then noted that it was difficult to judge current wage developments since measures of average wages based on existing economic indicators were affected by changes in the composition of workers and other factors. It was therefore important to grasp the current situation by utilizing various wage and employment-related indicators and anecdotal information, given the rapid structural changes in the labor market.

5.2 Panelists' views on wage and price developments

Following the panelists' presentations, moderator Ueda presented two issues for discussion: (i) what were the key factors in considering nominal wage developments, and (ii) whether inflation caused by cost-push factors would lead to higher wages and in turn make stable 2 percent inflation achievable. Each of the panelists presented his views on these two issues.

(1) Takeo Hoshi (University of Tokyo)

With regard to issue (i), panelist Hoshi expressed the view that the changes in Japan's employment system already mentioned had made it more likely that wages would change in line with labor market conditions and that attention should also be paid to the fact that in a growing number of cases people's wages increased when they changed jobs. Moreover, even at firms that still felt they had an excess number of regular employees particularly in the middle-aged and older age brackets, this excess might eventually be eliminated with the retirement of this generation.

Regarding issue (ii), he thought that developments in inflation expectations were important and pointed out that it was important for inflation of 2 percent to become the new social norm as a result of the current increase in inflation. The key to this was monetary policy, and even though CPI inflation was currently above 3 percent, if there was a phase in which inflation declined going forward, monetary policy should be conducted in such a way that it did not fall below 2 percent in order for inflation expectations of 2 percent to take root.

(2) Daiji Kawaguchi (University of Tokyo)

With regard to issue (i), panelist Kawaguchi predicted that the labor market for non-regular workers would continue to be tight and that the wages of such workers would rise. On the other hand, with regard to the labor market for regular workers, some studies[6] showed that the wage returns to firm-specific human capital acquired through long-term employment continued to decline, so that the environment in which wages of regular employees were unlikely to rise would probably persist. Given these developments in the labor markets for regular and non-regular workers, he predicted that when calculating average wages, wage increases overall would continue to be sluggish reflecting wage developments for regular workers, who made up a large share of workers overall. Thus, since wage developments differed considerably by type of employment, careful consideration should be given to which wage index to refer to when making policy judgments.

With regard to issue (ii), he argued that in the United States wages were prone to increase in response to inflation, since the labor market continued to be tight as workers that had left the labor market during the economic downturn caused by the pandemic had not returned due to the income effects of subsidies, etc. In contrast, since in Japan such labor supply constraints were less severe than in the United States, the upward pressure on wages from supply factors was relatively small, and it was possible that the negative

[6] See, e.g., Kimura, Taro, Yoshiyuki Kurachi, and Tomohiro Sugo (2022) "Decreasing Wage Returns to Human Capital: Analysis of Wage and Job Experience Using Micro Data of Workers," *Journal of the Japanese and International Economies*, Vol. 66, 101217.

impact of the reduction in demand for goods due to higher prices on the demand for labor could dominate, so that it was not necessarily clear that inflation would lead to higher wages.

(3) Koji Nakamura (Bank of Japan)

With regard to issue (i), panelist Nakamura expressed the view that there were still many managers that recognized that the wage level of regular workers, especially middle-aged and older workers, who account for a large proportion of the labor force, was high compared to their productivity, and that as a result of wage adjustments for such workers, pressure for wage restraint on the whole could continue for some time.

Regarding issue (ii), he pointed out that the rate of wage increases in next year's annual spring labor-management wage negotiations could exceed this year's rate, as labor market conditions improved and moves to reflect the rate of inflation in wage negotiations spread. He added that whether 2 percent inflation would take root as the new social norm depended on whether inflation continued to run at 2 percent accompanied by nominal wage increases once cost-push pressures on prices disappeared – something that was difficult to predict at the moment.

5.3 Discussion

Following the panelists' presentations and their views on wage and price developments, floor participants joined in the discussion.

(On the relationship between wages and firms' marginal costs)

Kosuke Aoki asked whether the impact of changes in wages on firms' marginal costs should be examined in terms of changes in the overall average wage or in terms of changes in wages for the same workers. Panelist Kawaguchi responded that one should probably look at changes in wages for the same workers in order to examine changes in costs while keeping the quality of labor as constant as possible. Panelist Hoshi, on the other hand, stated that what was important for firms' management was payments to workers overall and changes in average wages should be examined. Shioji pointed out that since marginal costs were the costs that firms needed to pay for an increase or decrease in labor, wages of non-regular employees and overtime wages of regular employees could be regarded as marginal costs, since they represented the adjustment valves for labor input. Panelist Nakamura noted that what constituted marginal costs differed depending on firms' profit structure and the characteristics of their employees, so that it was necessary to examine marginal costs from multiple perspectives.

(On changes in the working environment and wages)

Tsutomu Watanabe asked whether there was a phenomenon in which "real wages" in terms of labor quality increased because of adjustments in the working environment and the quality of work, even if nominal wages remained unchanged, as was the case with so-called "stealth price hikes," in which prices were raised in real terms by lowering product quality without changing the price. Panelist Kawaguchi responded that, looking at wage developments during the period when Saturday became a holiday, working hours became shorter, but there was no major change in monthly wages, suggesting that there was an increase in wages in real terms because of the decrease in working hours. Moreover, he expressed the view that "real wages" had been rising when non-monetary improvements in working conditions, such as the recent enhancement of maternity and parental leave programs and the spread of working from home, were considered. He added, however, that for the efficient allocation of resources in the labor market, not only adjustments of "real wages" but also adjustments of nominal wages were necessary.

(On the impact of changes in women's labor supply)

Kondo observed that, in the past, the pattern for female regular workers had been to leave the labor market after giving birth and return to work as a non-regular worker a short time later. However, going forward, it was expected that more women would continue to work as regular workers after childbirth, and she asked about the impact of the change in the balance between regular and non-regular workers. Panelist Hoshi pointed out that this was important in that a decrease in the number of non-regular workers could further narrow the wage gap between regular and non-regular workers. Meanwhile, panelist Kawaguchi referred to the results of one of his studies (Kawaguchi and Toriyabe, 2018),[7] which showed that women in Japan had few opportunities to utilize their high labor skills in the workplace. He stated that if in the future women had more opportunities to work as regular workers, which required high skills, this would lead to an increase in the labor supply in terms of quality by making more effective use of women's abilities.

(On the role of public information on wage increases)

Jouchi Nakajima asked for opinions on the importance of public information with a strong message in propagating wage increases, such as information on wage hikes for government employees and at parent companies, as well as government requests for wage

[7] Kawaguchi, Daiji and Takahiro Toriyabe (2018) "Parental Leaves and Female Skill Utilization: Evidence from PIAAC," RIETI Discussion Paper Series, 18-E-003.

hikes, given that workers cannot obtain complete information on wage developments. While acknowledging the role of public information, panelist Hoshi argued that it might be more important for employees working for firms that did not raise wages to change jobs to firms that did, and for wage hikes to spread through a chain reaction where firms had to raise wages to secure workers. Meanwhile, in relation to wage increases for government employees, panelist Kawaguchi pointed out that in the welfare and long-term care sectors, where prices were set by the government, it was important to have systems and policies that increased workers' wages directly rather than through increases in service prices, such as the prices for long-term care services.

(On the indexation of wages to prices)

Shioji asked about the indexation of wages to prices. Specifically, he suggested that, as pointed out by panelist Kawaguchi, if the total supply capacity of the economy decreased at the same time as there was cost-push inflation that needed to be brought under control through lower wages, the introduction of indexation might not be effective. Panelist Nakamura observed that although there was currently cost-push inflation, unlike before the global financial crisis, when there was similar inflation, there had been no decline in aggregate demand due to cost-push inflation, since consumption was being supported by pent-up demand resulting from the economic downturn caused by the pandemic and savings accumulated during the pandemic, thus creating the momentum for wage increases.

(On wage-price spirals and adaptive inflation expectations formation)

Koeda asked for views on the IMF's October World Economic Outlook (WEO),[8] which examined the risk that wage-price spirals could make it impossible to anchor inflation and showed that adaptive inflation expectations formation could require stronger monetary policy tightening sooner. Panelist Hoshi concurred with the WEO analysis mentioned by Koeda and expressed the view that in Japan, where the degree of adaptive expectations formation was strong, strong monetary policy tightening would be needed if inflation accompanied by wage increases became too high.

5.4 Moderator's summary

Finally, moderator Ueda expressed the view that future developments in aggregate demand were critical to achieving the price stability target of 2 percent. Moreover, he noted that it was difficult to predict the pace at which wages might rise in the future, since

[8] International Monetary Fund (2022) *World Economic Outlook, October 2022*.

this would depend on a variety of factors, such as developments in inflation expectations, the extent to which inflation in the previous fiscal year came to be reflected in the results of the annual spring labor-management wage negotiations, and structural changes in the labor market. Summing up, he noted that the BOJ would need to continue to carefully monitor wage and price developments.

6. Closing Remarks

In closing, Uchida reviewed the workshop and thanked participants for the wide-ranging discussions on the wage formation mechanism in Japan. He then highlighted several points of particular interest related to the topic of the workshop.

First, he noted that today's discussions had raised several issues to keep in mind regarding the rate of wage increases consistent with the price stability target of 2 percent and how to capture this rate in actual statistics and other sources. As pointed out by Kawaguchi, Nakamura, and others, it was difficult to accurately capture wage developments by referring only to existing economic indicators, partly because the structure of the labor market was changing significantly. Moreover, as highlighted by Kambayashi, further discussion was needed on whether it was appropriate to refer to average wages, given the growing dispersion in wages. Further, he noted that while per capita wage growth had been sluggish, hourly wages had been rising, as mentioned by Kambayashi, Hoshi, and Kawaguchi, and given that employers' share of social insurance premiums had also increased, it was necessary to take into account the fact that the fruits of labor productivity growth at the macroeconomic level were distributed to society in forms other than wages, such as a decrease in working hours and through the pension system.

Next, regarding how to change the social norm regarding wages observed in Japan's labor market, he stated that an important issue to be discussed was how to take inflation into account in the setting of wages. He pointed out that while in wage negotiations in Japan in the past emphasis had been placed on firms' performance and productivity, and price developments had not necessarily been reflected in wages in the face of low inflation, during the current phase there had been moves to reflect the rate of inflation. For this to lead to continued wage increases, developments in inflation expectations were important, as pointed out by Hoshi.

Finally, he concluded the workshop by stating that, with regard to the future conduct of monetary policy, not only was it necessary to achieve the price stability target in a sustainable and stable manner accompanied by wage increases through continued accommodative monetary policy, there also remained many issues to be addressed both from a theoretical and a practical perspective, including gaining an accurate understanding of the possibility that the structures that had prevented wages from rising were changing, as pointed out in today's discussion.

(Appendix 1)

The Wage Formation Mechanism in Japan
The Third Workshop on "Issues Surrounding Price Developments during the COVID-19 Pandemic"

Conference Date: Friday, November 25, 2022

Venue: Conference Room A, Bank of Japan

Program			
13:15-13:20	Opening Remarks	Masaaki Kaizuka	Bank of Japan
Session 1	**Issues Regarding Wage Developments in Japan**		
13:20-14:20	Presenters	Ichiro Fukunaga	Bank of Japan
		Yoshihiko Hogen	Bank of Japan
	Discussant	Ryo Kambayashi	Hitotsubashi University
14:20-14:35	Coffee Break		
Session 2	**The Dual Labor Market and Nominal Wage Growth in Japan**		
14:35-15:35	Presenters	Takashi Nakazawa	Bank of Japan
		Takushi Kurozumi	Bank of Japan
	Discussant	Tsutomu Watanabe	University of Tokyo
15:35-15:50	Coffee Break		
Session 3	**Panel Discussion**		
15:50-17:45	Moderator	Kazuo Ueda	Kyoritsu Women's University
	Panelists	Takeo Hoshi	University of Tokyo
		Daiji Kawaguchi	University of Tokyo
		Koji Nakamura	Bank of Japan
17:45-18:00	Closing Remarks	Shinichi Uchida	Bank of Japan
	Overall Moderator	Motoharu Nakashima	Bank of Japan

* Sessions 1 and 2 consist of approximately 30 minutes of presentation, approximately 10 minutes of comment by a discussant, and approximately 20 minutes of floor discussion (including responses from presenters).

(Appendix 2)

List of External Participants and Speakers from the Bank of Japan, etc.
(in alphabetical order, titles omitted, affiliations current at the time of the workshop)

Name	Affiliation
Masayoshi Amamiya	Bank of Japan
Kosuke Aoki	University of Tokyo
Ichiro Fukunaga	Bank of Japan
Yoshihiko Hogen	Bank of Japan
Takeo Hoshi	University of Tokyo
Ryo Jinnai	Hitotsubashi University
Masaaki Kaizuka	Bank of Japan
Ryo Kambayashi	Hitotsubashi University
Daiji Kawaguchi	University of Tokyo
Junko Koeda	Waseda University
Ayako Kondo	University of Tokyo
Haruhiko Kuroda	Bank of Japan
Takushi Kurozumi	Bank of Japan
Jouchi Nakajima	Hitotsubashi University
Koji Nakamura	Bank of Japan
Motoharu Nakashima	Bank of Japan
Taisuke Nakata	University of Tokyo
Takashi Nakazawa	Bank of Japan
Mototsugu Shintani	University of Tokyo
Etsuro Shioji	Hitotsubashi University
Shinichi Uchida	Bank of Japan
Kazuo Ueda	Kyoritsu Women's University
Masazumi Wakatabe	Bank of Japan
Tsutomu Watanabe	University of Tokyo
Yasutora Watanabe	University of Tokyo