

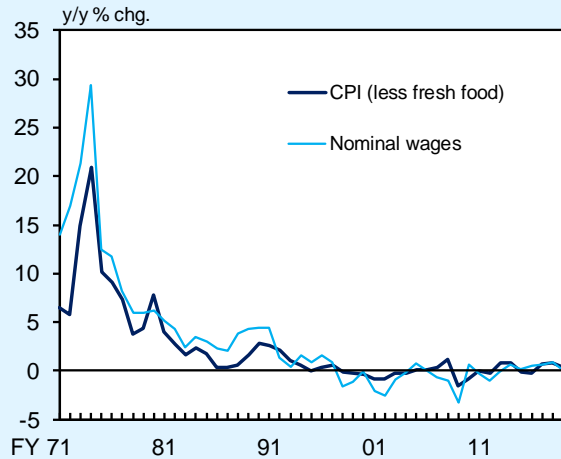
(Box 2) Linkage between Wages and Prices: Past Experience and Future Issues

The growth rates of wages and prices have declined since the 2000s in Japan, with both hovering at around 0 percent (Chart B2-1).²⁰ Under these circumstances, wages have not shown a statistically significant response to a rise in prices, and vice versa (Chart B2-2). In a situation where the mindset and behavior based on the assumption that wages and prices will not increase easily have been entrenched in society, it seems that the shocks that brought about a rise in wages or prices have been perceived as temporary ones, inhibiting the mechanism whereby wages and prices interact and gradually push each other up.

That said, there have been signs recently of change in the relationship between wages and prices. As shown in Box 1, moves to reflect the recent price rises in wages have been clearly observed in the annual spring labor-management wage negotiations this year. Estimating a simple base pay function using long-term time-series data as a benchmark for capturing the effects of price rises on wages shows that the actual base pay increase this year is far larger than the estimated value (Chart B2-3). This suggests that, at least this year, firms have been more likely to reflect price rises in wages than in the past. In

²⁰ At the Bank's workshop on "Issues Surrounding Price Developments during the COVID-19 Pandemic" held in March 2022, it was suggested that the interaction between wages and prices has been weak in Japan in recent years. For a summary of the workshop, see the Bank's research paper "Characteristics of Price Developments in Japan: Summary of the First Workshop on 'Issues Surrounding Price Developments during the COVID-19 Pandemic,'" released in May 2022.

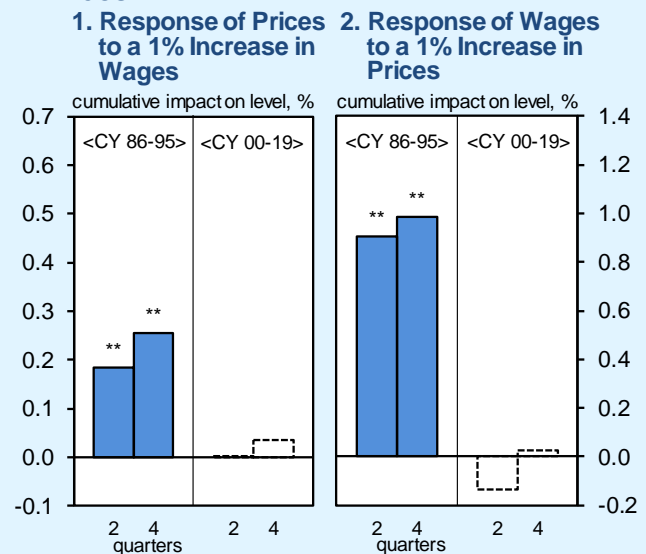
Chart B2-1: Developments in Wages and Prices



Sources: Ministry of Internal Affairs and Communications; Ministry of Health, Labour and Welfare.

Note: The CPI figures are staff estimates and exclude the effects of the consumption tax hikes and policies concerning the provision of free education. Figures for nominal wages are for establishments with 30 or more employees up through fiscal 1990, and with 5 or more employees from fiscal 1991 onward.

Chart B2-2: Linkage between Wages and Prices



Sources: Ministry of Internal Affairs and Communications; Ministry of Health, Labour and Welfare; OECD; Bank of Japan.

Note: Cumulative impulse responses of the CPI (less fresh food) and hourly contractual cash earnings (adjusted for productivity) are estimated by local projection. The output gap and import prices are employed as control variables. ** indicates that the results are statistically significant at the 5 percent level, while the broken lines indicate that the results are not statistically significant.

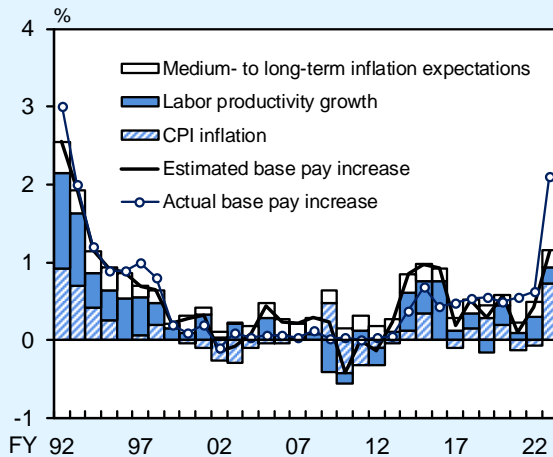
addition, moves to raise prices to pass on wage increases have started to be seen in some services and other industries.

In considering the outlook for prices, with economic activity continuing to improve, it is necessary to carefully examine whether the cycle in which prices and wages push each other up will continue and whether the linkage between them will increase to a sufficient degree.

In particular, close attention needs to be paid to whether moves to reflect price rises in wages, as observed in this year's annual spring labor-management wage negotiations, will continue. Labor shortages have been acute recently and are highly likely to become more structurally severe in the future.²¹ In addition, labor market mobility has been gradually increasing, as seen in the growth in the labor market for job changers. These changes in the labor market may make moves to reflect price developments in wages widespread, as firms push forward with efforts to recruit and retain employees.

It is also necessary to examine whether the effects of wages on prices, which have started to be seen recently, will spread. Services prices are key in this regard. The rate of change in services prices has remained at around 0 percent since the end of the 1990s because such prices have become stickier, as evidenced by the significant

Chart B2-3: Estimation of Base Pay Increases



Sources: Central Labour Relations Commission; Japanese Trade Union Confederation (Rengo); Ministry of Internal Affairs and Communications, etc.

Notes: 1. Figures for CPI inflation are for all items less fresh food, excluding the effects of the consumption tax hikes, etc. Figures for actual base pay increases from fiscal 1992 to 2013 are those published by the Central Labour Relations Commission, while those from fiscal 2014 to 2023 are figures released by Rengo (the figure for fiscal 2023 is from Rengo's fourth aggregation).

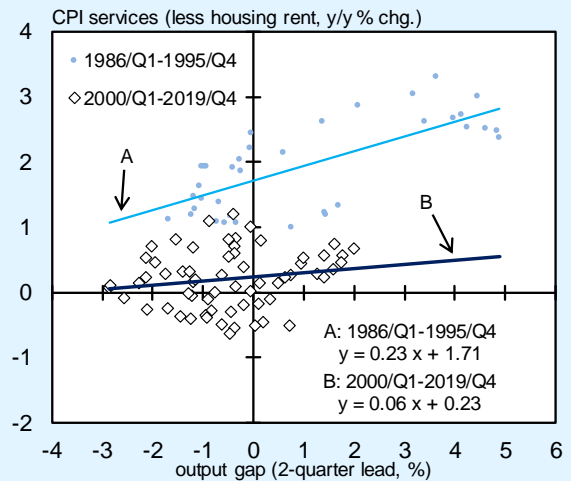
2. The wage growth function for the estimation of base pay increases is specified as shown below. Estimation period: FY 1992-2022. *** indicates that the coefficient estimates are statistically significant at the 1 percent level.

$$\begin{aligned} \text{Base pay increase} = & 0.32^{***} \times \text{CPI inflation (t-1)} \\ & + 0.24^{***} \times \text{Nominal labor productivity growth (t-1)} \\ & + 0.15^{***} \times \text{Medium- to long-term inflation expectations (t-1)} \end{aligned}$$

²¹ For details on the current situation of and outlook for labor market conditions, see Box 2 in the January 2023 Outlook Report.

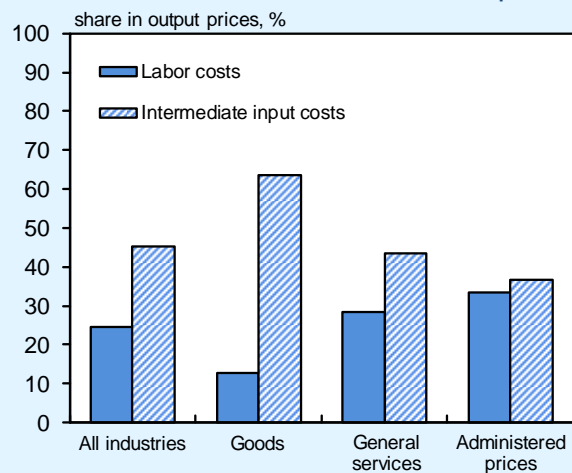
decline in their sensitivity to macroeconomic supply and demand conditions (Chart B2-4). Therefore, it is important to see whether services prices will rise in a sustainable manner. Calculating the cost structures of items that make up the CPI using the input-output tables shows that, while intermediate input costs account for a large share of costs in the case of goods, it is labor costs that account for a large share in the case of services and administered prices (Chart B2-5).²² With private consumption continuing to increase, supported by the improvement in incomes accompanied by wage increases, close attention needs to be paid to whether the upward pressure on costs stemming from such wage increases will be reflected in selling prices, especially in the services industry.

Chart B2-4: Output Gap and Services Inflation



Sources: Ministry of Internal Affairs and Communications; Bank of Japan.
 Notes: 1. Observations for the one-year periods following the consumption tax hikes and for the period of the Global Financial Crisis are excluded.
 2. Figures for the output gap are staff estimates.

Chart B2-5: Cost Structure of Output Prices



Source: Ministry of Internal Affairs and Communications.
 Notes: 1. Figures are based on the decomposition of output prices, which correspond to consumer prices, into intermediate input costs, labor costs, operating surplus, etc., using the 2015 Input-Output Tables for Japan.
 2. Figures for all industries, goods, and administered prices exclude fuel retailing, electricity, gas, etc. Those for general services exclude housing rent.

²² Intermediate input costs are calculated by aggregating the costs for the production of various consumer goods and services. For details, see Box 3 in the July 2022 Outlook Report and Box 3 in the April 2022 Outlook Report.