Box 4

Assumptions concerning wage developments in Central Bank forecasts

In preparing its macroeconomic forecasts, the Central Bank uses figures from Statistics Iceland's production accounts for wages and related expenses. As there is some lag in the production accounts, estimates for the most recent period are based on assessments made by Bank staff concerning wage developments using various measures, including the Statistics Iceland wage index. Wage developments during the forecast horizon are estimated by Bank staff using expected costs due to general wage drift and wage agreements in centralised negotiations in the labour market as a whole. Experience has shown that there are two factors in particular that cause errors in the Bank's estimates of historical wage developments: on the one hand, revisions of Statistics Iceland's national accounts data, which have been revised both upwards and downwards, therefore resulting in errors in both directions, and on the other hand, underestimation of wage drift.

National accounts figures

In estimating total wage costs, the Bank uses Statistics Iceland data on developments in wage costs from the production accounts. As these figures reflect total wage costs including related expenses, wages excluding related expenses are computed by adjusting Statistics Iceland figures using the Bank's estimate of developments in related expenses (primarily employers' share of pension fund contributions and payroll taxes). To derive wages as a price per unit of labour, wages are converted to man-years using data on the number of employed persons and average hours, which are taken from the Statistics Iceland labour force survey. Because the Statistics Iceland production accounts are only available on an annual basis, the wage series is divided into quarters using statistical methods which ensure that annualised developments in wages are consistent with Statistics Iceland data, but that developments within the year will follow changes in the wage index as closely as possible.[1]

The Central Bank uses wage data from the Statistics Iceland production accounts rather than using the wage index directly in its assessments of domestic wage developments. This is because the wage index only shows changes in regular wages (base wages for daytime work, shift differential, surcharges, reimbursements of cost outlays, and incentive-based bonuses calculated and disbursed each payroll period) for employees who are in the same job within the same company and in the same sector, but it does not take account of important factors that also affect firms' wage costs (such as overtime, piecework payments, irregular bonuses, and various other irregular payments), plus changes in the composition of the labour force. As can be seen in Chart 1, these measures of domestic wage developments can differ somewhat, reflecting the fact that they measure different things.

One drawback in using the production accounts is that historical national accounts figures can change each time a new revision takes place, as the first figures are only preliminary, and the final numbers are often not available until a few years have passed. Statistics Iceland publishes new figures on wages and related expenses each March, with the publication of the first national accounts figures for the previous year. Last year, they were revised in September, however, when a relatively extensive change in national accounts standards was implemented, and this year as well, due to new data. Statistics Iceland's most recent revision shows that wages and related expenses were 1.6% higher in 2014 than previous figures had indicated (Chart 2).

1. The result is a wage series that can always be found in the Bank's QMM database, which is published with each *Monetary Bulletin*.

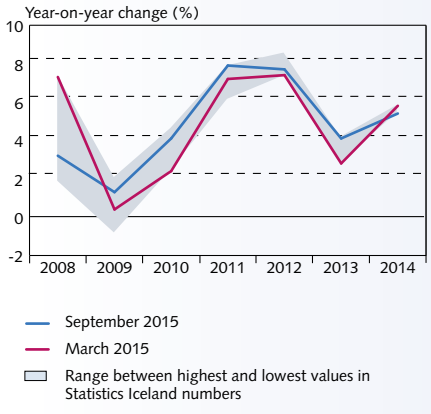
Chart 1

Various measures of wage developments

Sources: Statistics Iceland, Central Bank of Iceland.

Chart 2

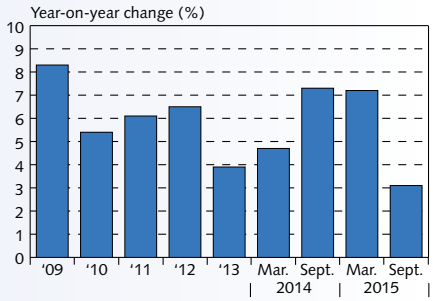
Wages per man-year



Sources: Statistics Iceland, Central Bank of Iceland.

Revisions of historical data are either upwards or downwards and do not display any clear pattern. For example, 2008 figures changed most radically when revised last September. The first figures for 2008 were published in March 2009 and showed an 8.3% year-on-year rise in wages and related expenses (Chart 3). In the more than six years that have passed since then, the estimates for 2008 have changed each time new data figures are published – often quite markedly. According to the most recent figures for 2008, wages and related expenses rose 3.1% year-on-year, or 5.2 percentage points less than in the first figures and 4.1 percentage points less than was estimated in March 2015. The difference between the figures used in the forecast published before the national accounts update and the most recent update is therefore the chief cause of the error in wage estimates for the current year.

Chart 3
Year-2008 wages and related expenses, by year of publication



Sources: Statistics Iceland, Central Bank of Iceland.

Wage estimates during the forecast horizon

In order to estimate wage developments in the recent past and during the forecast horizon, an assessment is made of contractual pay increases in the public and private sectors, pay rises in connection with contract implementation, and wage drift. The estimate of the cost effects of negotiated pay increases is based on the contracting parties' cost assessments, which can be said to provide a floor for the estimate. An assessment is then made of how the negotiated pay rises will emerge in connection with contract implementation in firms and institutions, through discussions with firms and institutions, as well as labour unions. For example, in the last wage settlements, it was agreed that the pay rises each employee had received since February 2014 would be deducted from this year's increase in base wages. It is likely, however, that some employers will implement the wage agreements differently. If, for example, an employee received a pay rise during the period because he or she took on increased work, it is likely that few employers would deduct such a pay rise from the employee's calculated wage increase.

In addition, an assessment is made of estimated wage drift during the forecast horizon. There is no single definition of exactly what is meant by the term *wage drift*. According to the Icelandic encyclopaedic dictionary, wage drift is defined as "an increase in wages in excess of contractual provisions, caused by overpayments." According to this definition, the phenomenon in the aforementioned example concerning the cost of contract implementation would be an example of wage drift. The Central Bank's assessment of wage drift during the forecast horizon also considers a variety of other factors that could affect wage developments, apart from contractual pay rises and contract implementation costs. Factors such as bonuses and other irregular payments are important here, but what is most important is whether there is a slack or tension in the labour market and, if so, how much.[2]

Differing results depending on the assumptions used

In order to explain further the process used in assessing wage developments, it is possible to examine the effect various assumptions have on pay increases between the annual averages for 2014 and 2015. The point of departure is the Bank's assessment of wage rises this year. In the forecast published with this issue of *Monetary Bulletin*, it is assumed that wages will rise by 10.4% between yearly averages. This is the same increase as was contained in the forecast published in August, even though it is now assumed that wages will

2. The Central Bank has tended to underestimate wage drift, which has caused errors in its forecasts.

rise more this year than was projected in August, as new Statistics Iceland numbers show that wages were higher on average, in 2014 than earlier figures had indicated. If Statistics Iceland figures as they were prior to September revision were used, however, the increase between yearly averages would be 10.9%, or 0.5 percentage points more than in the August forecast. If developments in the wage index in 2014 were used and not national accounts figures, the 2015 increase between yearly averages would be 10.1%.

Until 2014, it was virtually the rule that wage increases took effect in the month during which the contract was signed. In the wage settlements since then, however, pay rises have taken effect much earlier. They do not appear in the Statistics Iceland wage index, however, until the wage settlement has been approved and wage payments are made in accordance with it. When wage increases during the year are assessed, however, it is more exact to base the assessment on the date the increases take effect, not the date they appear in the wage index. This is done in the Bank's assessment. If the date the pay rises appear in the wage index were used, the increase between yearly averages would be 9% instead of 10.4%, but the increase between yearly averages in 2016 would be greater, or 11.1% instead of the 9.1% assumed in the current forecast.

Finally, it should be noted that in assessing pay increases during the year, it is not enough to consider the negotiated percentage pay rises in the new contracts; it is also necessary to keep in mind that wages have already risen somewhat during the year, whether due to implementation of previous wage agreements or to wage drift. For instance, the wage index had already risen 2.2% during the year (from December 2014 through May 2015) by June, when the first effects of the new wage settlements emerged in the wage index, and by 4.6% in comparison with the average for 2014.