

## ■ The interplay between wage formation, monetary policy and inflation

**There is an interdependence between monetary policy and wage setting. The development of wages is a factor that affects inflation and is thereby important to monetary policy. At the same time, monetary policy plays a central role in wage setting in that it anchors inflation expectations around two per cent and thus facilitates wage negotiations. It is also important that inflation expectations remain anchored to the target for monetary policy to work as effectively as possible. One of the reasons behind the Riksbank's more expansionary monetary policy recently is precisely to ensure that long-term inflation expectations remain anchored at 2 per cent. The aim of this article is to explain how the Riksbank views the interplay between the labour market, wage development, inflation and monetary policy and to explain the Riksbank's wage forecast in more detail. The analysis shows that nominal wage development in 2013 was more or less normal in relation to unemployment, productivity and expected inflation. Inflation is expected to increase and unemployment to fall in the years immediately ahead, which will contribute to a gradual increase in the rate of wage increases in the economy. The very low repo rate will also contribute to this. The profit share is expected to increase somewhat when productivity increases faster than real wages.**

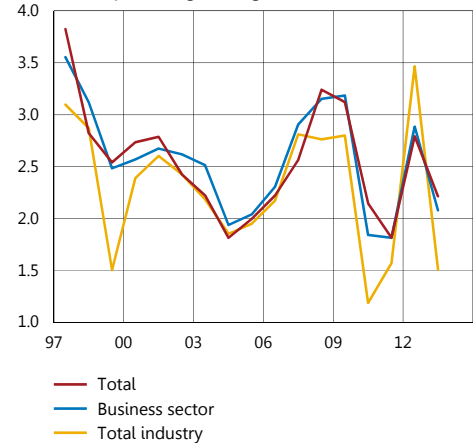
### Wage formation in Sweden

Expected inflation, expected productivity growth and ambitions regarding employment are important factors that govern wage formation in an economy with a floating exchange rate. Employers and employees reach agreement on the nominal wages that should apply in the period ahead on the basis of their perceptions of these conditions.<sup>19</sup> In practice, international competitiveness is also taken into account in the decisions on wages as wage formation, even in a small open economy with a floating exchange rate, cannot be seen in isolation from the development of costs abroad.

Since the Industrial Agreement was first signed in 1997, wage formation in Sweden has been marked by a high degree of compliance between different contractual areas. Trade unions and employers in large segments of the manufacturing sector set the norm by reaching agreement on a level for the percentage increases in the wage agreements. Other contractual areas then sign agreements with largely the same percentage wage increases (see Figure A16).

The difference between the agreed and final wage increases is usually referred to as wage drift. Among other things, wage drift captures the fact that local negotiations may result in wages that increase more rapidly than in the central agreements. The extent of wage drift also varies over time (see Figure A17).<sup>20</sup>

**Figure A16. Negotiated nominal wage rates**  
Annual percentage change



Source: National Mediation Office

<sup>19</sup> See for example N. Gottfries, *Fungerar den svenska lönebildningen? (Does Swedish wage formation work?)*, Appendix 5 to *The Long-Term Survey of the Swedish Economy 2011* and *The Wage Formation Report, 2013*, the National Institute of Economic Research.

<sup>20</sup> The Riksbank uses the compilation of agreed wage increases drawn up by the National Mediation Office. Last year, the National Mediation Office changed the calculation method so that agreements that do not specify a percentage for wage increases are no longer included in the compilation. These were previously included as zero agreements. The new method means in general that the rate of agreed wage increases has

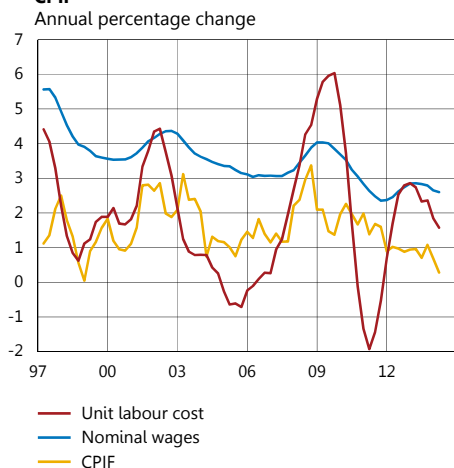
**Figure A17. Actual and negotiated wages**  
Annual percentage change



Note. Wages according to short-term wage statistics. Preliminary outcomes for the last 12 months. Agreements that do not specify a percentage have not been included in the series for agreed wage increases since January 2009.

Sources: National Mediation Office and the Riksbank

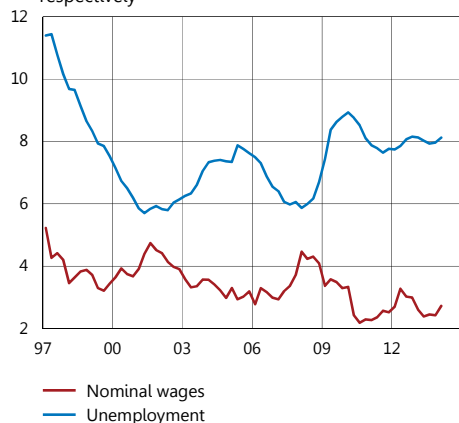
**Figure A18. Unit labour cost, nominal wages and CPIF**  
Annual percentage change



Note. Seasonally-adjusted data is shown for the CPIF and wages, while seasonally-adjusted and calendar-adjusted data is shown for unit labour costs. Unit labour costs and nominal wages are expressed as six-quarter moving averages.

Sources: National Mediation Office, Statistics Sweden and the Riksbank

**Figure A19. Unemployment and nominal wages**  
Annual percentage change and per cent of the labour force, aged 15–74, seasonally-adjusted data respectively



Sources: National Mediation Office and Statistics Sweden

A simple conceptual framework for wage formation can be described as follows. The social partners negotiate on nominal wages. Expected real wages are determined on the basis of the inflation rate expected by the wage negotiators. The development of employment is then determined by the relation between real wages and productivity. Given the negotiators' expectations regarding productivity, the negotiated level of nominal wages thereby reflects the prevailing ambitions regarding employment. If, for example, the social partners attach great importance to employment, collective bargaining results in nominal wage agreements that are lower than the expected rate of inflation and expected productivity growth. However, events may of course occur that result in inflation and productivity growth developing differently to what the social partners expected. In such cases, real wages and employment will also be different than expected. In the longer term, when unemployment is stable at a long-run sustainable rate, it can be assumed that real wages will increase in pace with productivity.

### Wage formation is important to inflation and monetary policy

There is an interdependence between monetary policy and wage setting. Historically, inflation in Sweden has covaried with the development of unit labour costs. Periods in which nominal wages have increased relatively quickly in relation to productivity have gone hand in hand with rising inflation (see Figure A18). As nominal wage increases are important to unit labour costs, which in turn affect inflation, they are also an important factor in the formulation of monetary policy. If a lower rate of wage increases than expected leads to lower cost pressures and lower inflation, monetary policy, all else being equal, will need to be more expansionary (see Chapter 2).

### And monetary policy is important to wage formation

Monetary policy is also important to wage formation as the wage formation process is facilitated when there is a certain degree of consensus about the future rate of inflation. Consensus about the future development of inflation makes things easier for the social partners and facilitates negotiations by forming a shared starting point. For this reason, it is also important that monetary policy is conducted in such a way that the inflation target is perceived as the nominal anchor for the development of prices. Although it is certainly the case that monetary policy cannot steer inflation with any high degree of precision, which may mean that inflation deviates from the target for relatively long periods of time, monetary policy is formulated so that inflation will return to the target in the long term.

### Wages covary with the situation on the labour market

The Riksbank continually monitors the development of wages and the discussions concerning collective bargaining. The wage forecasts are based on historical links between nominal wages, the labour market, productivity and inflation, but the results of collective bargaining, both in the case of the agreed wage increases and the structure of the agreements, are also of central importance.

been raised. The National Mediation Office's agreement series has been calculated back to 2009 using the new method. Calculations of wage drift are therefore not completely comparable for the periods before and after 2009.

There is a clear empirical link between nominal wage increases and the development of the labour market. When unemployment rises and spare capacity on the labour market increases, nominal hourly wages normally increase more slowly, and vice versa when unemployment falls (see Figure A19). This is partly due to the agreed wage increases, which have tended to be more restrained in periods of high unemployment.

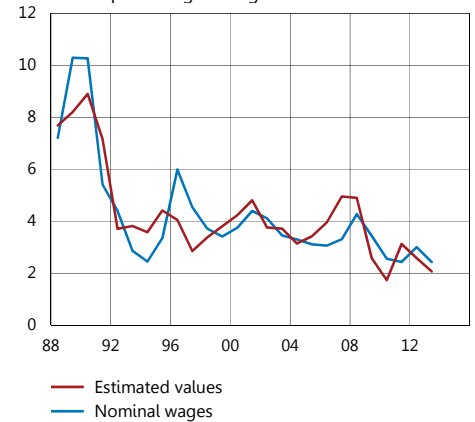
One way of illustrating how wage formation is affected by the labour market is to estimate so-called wage equations. In such estimates, the development of wages is explained in terms of the unemployment rate, expected inflation and productivity growth. The current assessment is that nominal wage development is more or less normal given the development of the explanatory variables (see Figure A20). The relatively low rate of increase in hourly wages in 2013 can thus largely be explained in terms of the unemployment rate, inflation expectations and productivity growth in the economy.<sup>21</sup>

As mentioned previously, nominal wages are set, given the expected inflation rate, with the aim of achieving a certain development of real wages. If productivity and real wages increase at the same rate, the so-called profit share will be constant.<sup>22</sup> However, the historical relation between real wages and productivity is relatively weak in the data (see Figure A21). The fact that productivity normally varies more than real wages means that the profit share also varies over an economic cycle (see Figure A22).<sup>23</sup>

In 2012 and 2013, real wages increased faster than productivity, which led to a fall in the profit share. One factor that has contributed to this is that the development of prices was weaker than expected (see the article "Why is inflation low?"). According to surveys, inflation has been lower than the social partners expected one or two years ago, which means that realised real wages have been higher than expected.

All in all, the development of nominal wages in recent years has been approximately in line with the development of the labour market. The fact that inflation has been lower than expected has contributed to real wages being unexpectedly high, which has had a restraining effect on the profit share.

**Figure A20. Actual and estimated nominal wages**  
Annual percentage change



Note. In the equation, the development of wages is explained in terms of the unemployment rate, expected inflation and productivity growth.

Sources: National Mediation Office and the Riksbank

**Figure A21. Real wages and productivity**  
Annual percentage change



Note. Real wages are nominal wages deflated by the CPIF.

Sources: National Mediation Office and the Riksbank

**Figure A22. Profit share**  
Per cent of value added



Note. The broken line represents the average for the period 1997–2013.

Sources: Statistics Sweden and the Riksbank

<sup>21</sup> These results are in line with a similar specification in the National Institute of Economic Research's wage formation report 2013. Inflation expectations are measured in the equation using the CPIF inflation rate in the preceding year.

<sup>22</sup> The profit share comprises the gross operating surplus as a proportion of total value added, that is that part of value added that does not consist of labour costs.

<sup>23</sup> For a further discussion of profit shares, see the scenario "The development of costs and inflation" in *Monetary Policy Report*, February 2014, Sveriges Riksbank. This describes two scenarios which both entail an initially low profit share rising. However, the development of wages and inflation, as well as monetary policy, are different in the two scenarios.

**Wages will increase faster going forward as economic activity strengthens**

The round of collective bargaining in 2013 resulted for the most part in three-year nominal wage agreements that will be valid until early 2016. According to the compilation of the National Mediation Office, agreed wages will increase by 2.2 per cent in 2014 and 2.3 per cent in 2015. However, an increasing proportion of the wage agreements are agreements in which no percentage for wage increases is specified. For 2015, almost 20 per cent of employees are covered by agreements that do not specify any percentage for nominal wage increases.

The agreed wage increases form a basis for the Riksbank's wage forecast. In addition, the Riksbank makes an assessment that is primarily based on how wages usually develop over an economic cycle. The very low repo rate is a factor in the assessment that unemployment will fall in the years ahead. Wages are therefore expected to increase somewhat more rapidly in relation to the agreements this year and next year than they did in 2013. Wages are expected to increase by 3.5 per cent in 2016, which is approximately in line with the historical average. The higher rate of wage increases is one explanation of why inflation will increase in the years ahead.

The forecast is that real wages will increase more rapidly than productivity this year too. There will thus be a further slight fall in the profit share. It is expected that the possibility of companies to pass on costs to prices will gradually increase as demand in the economy increases. This will contribute to higher inflation, which in combination with somewhat higher growth in productivity means that the profit share will increase in 2015 and 2016. However, the profit share will still be low in these years in relation to the historical norm, which may contribute to wage increases being more restrained. The development of wages in the period ahead is also uncertain for other reasons. Chapter 2 illustrates how alternative scenarios for the development of wages may affect inflation and monetary policy.

This article has highlighted the interplay between wage formation and monetary policy. The development of wages is a factor that affects inflation and is thereby important to monetary policy. At the same time, monetary policy plays a central role in wage setting in that it anchors inflation expectations around two per cent and thus facilitates wage negotiations. The Riksbank will continue to closely monitor wage formation and the negotiations on new wage agreements.