

Wage Formation in Sweden 2013

A summary of Lönebildningsrapporten 2013 The National Institute of Economic Research (NIER) is a government agency accountable to the Ministry of Finance. The Institute prepares analyses and forecasts of the Swedish and international economy and conducts related research.

Wage Formation in Sweden is a summary of the Institute's annual report Lönebildningsrapporten (in Swedish), analysing the economic conditions for wage formation in Sweden.

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This year's collective bargaining process resulted in three-year central settlements that entail an average annual increase in labour costs of 2.3 per cent. Given the weak economic climate and outlook, this was in line with historical patterns. The prolonged economic downturn is leading to longer periods of unemployment and less efficient matching. There are also worrying signs that wage formation is taking little account of the long-term unemployed. If unemployment is to fall persistently towards 6 per cent, further action will be required to increase the chances of the long-term jobless finding work.

The wage share of output has fallen in many developed economies since the late 1970s, including Sweden. This is due mainly to developments within industries rather than changes in the structure of the business sector. Allowing for cyclical variations, however, the wage share in Sweden has been constant in the business sector as a whole since 1985 and in the manufacturing industry since 1997. The growth in wage dispersion of the 1980s and 1990s has come to an end in the past decade while the Industrial Cooperation and Negotiation Agreement between the social parties has been in force. The overall pay gap between men and women narrowed from 2005 to 2012. The largest decreases in the unexplained part of the gap were in central government and among non-salaried staff in the private sector.

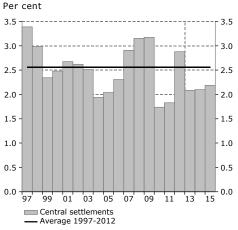
The NIER's annual report on wage formation in Sweden (*Löne-bildningsrapporten*, in Swedish) looks at wage formation from an economic perspective. The aim of the report is to assist the social parties and the National Mediation Office with high-quality analysis. The NIER expresses no opinion on how wages and salaries should develop.¹

The report begins with a chapter analysing the year's pay settlements from a macroeconomic perspective. This is followed by four thematic chapters looking at developments in wage share, wage dispersion, equilibrium unemployment and the gender pay gap in the light of economic theory and empirical evidence.

1 The year's pay settlements from a macroeconomic perspective

The collective bargaining process in 2013 resulted in three-year centrally agreed pay increases averaging 2.1 per cent per annum (see Diagram 1). The settlements also covered other cost increases, which varied between sectors. All in all, agreement was

Diagram 1 Centrally Negotiated Wage Increases, Business Sector

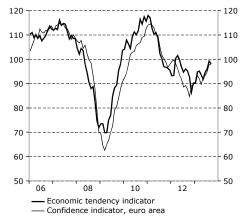


Sources: National Mediation Office and NIER.

¹ As explained in previous reports, labour costs rather than wages are the key factor in wage formation (see, for example, the special analysis in the 2010 Report on Wage Formation in Sweden). Labour costs include not only wages but also other costs to the employer, primarily social security contributions. However, the percentage increase in labour costs and wages will be the same over time. For the sake of simplicity, the terms "wages" and "pay" are used in this report except where the term "labour costs" is absolutely necessary.

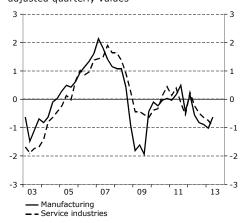
Diagram 2 Economic Tendency Indicator and Euro Area Manufacturing Confidence Indicator

Index mean=100, standard deviation =10, seasonally adjusted monthly values



Sources: European Commission and NIER.

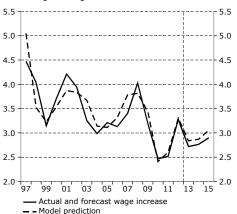
Diagram 3 Profitability Assessment Standardized deviation from mean, seasonally adjusted quarterly values



Source: NIER.

Diagram 4 Actual and Predicted Wage, **Business Sector**

Percentage change



Sources: National Mediation Office and NIER.

reached on an average annual increase in labour costs of 2.3 per cent. The negotiations fulfilled the intentions of the Industrial Cooperation and Negotiation Agreement, and the manufacturing settlements set the tone for both the business sector as a whole and the public sector.

WORSENING ECONOMIC OUTLOOK AT THE START OF THE **BARGAINING PROCESS**

When analysing the pay increases agreed upon, it is important to put the bargaining process in its macroeconomic context. The economic outlook, which had been relatively bright in spring 2012, deteriorated rapidly during the summer and autumn of that year. The NIER's Economic Tendency Indicator, a general measure of sentiment in the Swedish economy, dropped around 15 points from April to November 2012 (see Diagram 2), and profitability expectations fell during the same period from just above average to significantly below average levels (see Diagram 3). Confidence indicators abroad also tumbled, and there were growing fears of economic decline, especially in Europe (see Diagram 2).

The deterioration in the economic outlook can also be illustrated by the NIER's revision of its unemployment projections: the jobless rate in 2013–15 was expected to average 7.2 per cent in March 2012, but was revised up to 8.2 per cent in December 2012. Besides a rapid decrease in profitability and a forecast increase in unemployment, productivity growth was low in 2012, and the NIER estimated during the course of the bargaining process that trend productivity growth in 2013-15 would average only around 1.5 per cent per annum.

CENTRAL SETTLEMENTS IN LINE WITH HISTORICAL CYCLICAL PATTERNS

Given this context, it is unsurprising that the centrally agreed pay increases for 2013–15 were below the average for 1997– 2012, during which period the Industrial Cooperation and Negotiation Agreement has been in force (see Diagram 1). The special analysis in Chapter 2 presents model estimations where both centrally agreed pay increases and final wage growth are explained by macroeconomic variables. In the first model, centrally agreed pay increases are explained using inflation, unemployment and the profit share of output. Based on the NIER's forecasts for these variables, the model predicts largely the same central pay increases in 2013-15 as were actually agreed on. The centrally agreed increases in 2013-15 are therefore in line with the historical pattern, given the economic outlook.

CENTRAL SETTLEMENTS EXPLAIN THE BULK OF FINAL WAGE GROWTH

The second model explains the final rate of wage growth using centrally agreed pay increases, unemployment and productivity growth. As can be seen from Diagram 4, the model is good at predicting final wage growth historically. The NIER's forecast for final wage growth in 2013-15 is an average of 2.8 per cent per annum, which is somewhat less than the model predicts.

BRIGHTER ECONOMIC OUTLOOK SPELLS HIGHER PROFIT SHARE

Since the central pay deals were negotiated in late 2012 and early 2013, the economic outlook has improved. Confidence indicators have risen both at home and abroad (see Diagram 2). The economic recovery will help lift corporate earnings in the coming years (see Diagram 5), thanks partly to a cyclical rise in productivity growth, as existing staff can be used more efficiently when demand picks up.

A special analysis in Chapter 3 compares movements in the wage share of output in the current business cycle with previous cycles. After the latest cyclical peak in the fourth quarter of 2007 (time t in Diagram 6), the wage share first rose rapidly before falling back and then beginning to climb again in the first quarter of 2011 (time t + 13 in Diagram 6). The unexpected economic downturns in the summer and autumn of both 2011 and 2012 contributed to an increase in labour hoarding. The wage share has therefore headed upwards again and is at high levels relative to a reasonable equilibrium level. The flipside of this is that the profit share of output is relatively low (see Diagram 5).

WEAK ECONOMY FOR SEVERAL YEARS TO COME

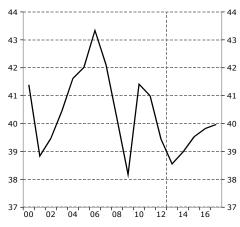
Slow global recovery by historical standards means that it will take several years for the Swedish economy to return to cyclical balance. Unemployment is predicted to remain above the NIER's estimate of the equilibrium level through to 2017, when the jobless rate will be around 6.5 per cent (see Diagram 7).

2 The wage share in Sweden and abroad since 1970

How the value of output is distributed between workers and the owners of capital is a classic question in economics. The share attributable to workers is known as the wage share, or labour share, and consists of wages and all other labour costs incurred

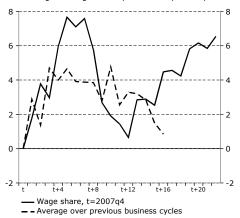
Diagram 5 Profit Share, Business Sector

Per cent of value added



Sources: Statistics Sweden and NIER.

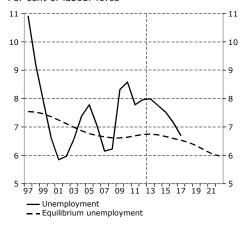
Diagram 6 Wage Share in Sweden Percentage change from previous cyclical peak



Note. Cyclical peaks dated according to OECD:s output gap.

Sources: OECD and NIER.

Diagram 7 Unemployment and Equilibrium Unemployment Per cent of labour force



Source: NIER.

by firms.2 What is left for the owners of capital is known as the profit share, or capital share, and is one of many measures of profitability in the business sector. The wage share is therefore another piece of the puzzle in both the NIER's and the social parties' analyses of wage formation.

The wage share has fallen back both at home and abroad since the late 1970s, and the past decade has seen research into the mechanisms behind this. It has also been debated in Sweden over the past year on television, in the press and in books. Chapter 3 presents trends in the wage share in Sweden and abroad since 1970.

WAGE SHARE HAS FALLEN SINCE THE 1970S

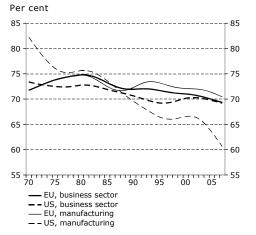
Although there are exceptions, the wage share has decreased in most developed economies since the late 1970s. This has happened in the business sector as a whole, but especially in the manufacturing industry. The decrease is due predominantly to changes within industries rather than a change in the structure of the business sector. However, there are major variations between countries and time periods. Diagram 8 shows, for example, that the wage share in the manufacturing industry has fallen further in the US than in the EU.3

A number of different factors have probably contributed to the decline in the wage share. Those most commonly cited in the literature include technological advances, increases in ICT capital,4 growing globalisation and the reduced power of the trade unions. However, it is difficult to ascertain the relative importance of the individual factors empirically due to a high degree of covariance.

TREND WAGE SHARE IN THE BUSINESS SECTOR **UNCHANGED SINCE THE MID-1980S**

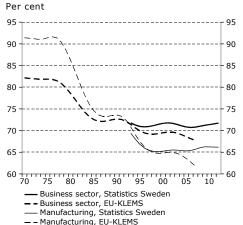
The downward trend in the wage share in Sweden is more pronounced than in some other countries (see Diagrams 8 and 9).5 That said, it should be noted that the wage share in Sweden in the mid-1970s was high relative to both the average for 1950-2012 and other countries, so a correction from these levels was unsurprising.

Diagram 8 Adjusted Wage Share, Trend, Business Sector and Manufacturing



Note. HP filter trend. $\lambda = 6.25$. Source: EU-KLEMS and NIER.

Diagram 9 Adjusted Wage Share, Trend, Business Sector and Manufacturing, Sweden



Note. HP filter trend, λ =6.25. Statistics Sweden series have been backcasted from 1993 to 1970 based on EU-KLEMS data before filtering.

Sources: EU-KLEMS, Statistics Sweden and NIER.

 $^{^{2}% \}left(1-1\right) =0$ The wage share is adjusted for the incomes of self-employed persons and excludes certain industries according to common practice in the academic literature, see, e.g., OECD Employment Outlook 2012. Employer social security contributions are the largest cost after wages. Strictly speaking, the correct term is "labour share", but the term "wage share" is used in this report.

 $^{^{3}}$ The EU aggregate used here consists of Austria, Belgium, Denmark, Finland, France, Germany, Italy, the Netherlands, Spain and the UK.

⁴ ICT stands for information and communication technology.

⁵ As discussed in Chapter 3, Statistics Sweden's series is preferred in the years for which it is available, namely 1993-2012.

Unlike in many other countries, the decrease in the business sector took place during a short period of years through to the mid-1980s (see Diagram 11 and footnote 5). The wage share has since been largely unchanged, allowing for cyclical variations. The wage share in the manufacturing industry, on the other hand, continued to shrink during the early 1990s crisis but has been more or less unchanged since 1997 (see the narrow solid line in Diagram 9 and footnote 5).

All in all, we find that, excluding cyclical variations, the wage share in both the business sector as a whole and the manufacturing industry in particular has been constant since 1997. This is an important reason why the NIER is not forecasting any appreciable trend in the wage share going forward.

3 Wage dispersion and unemployment

Chapter 4 analyses income dispersion levels and changes in Sweden and a number of OECD countries from 1980 to 2010. It also uses wage structure data from the Swedish National Mediation Office to shed light on developments in wage dispersion in Sweden in different sectors and the pay gap between men and women from 2003 to 2012.6

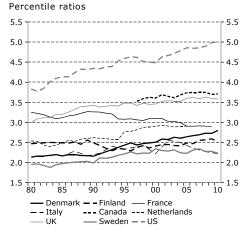
INCOME DISPERSION IN SWEDEN HAS GROWN BUT IS STILL RELATIVELY LOW

Income dispersion has increased in many developed markets over the past 30 years. Diagram 10 shows that in the US those in the 90th percentile had five times the income of those in the 10th percentile in 2010.7 The corresponding figure for Sweden is 2.3. In Sweden, those in the 50th percentile had an income around 1.4 times that of those in the 10th percentile in 2010 (see Diagram 11). As can be seen from the diagrams, Sweden has had the lowest income dispersion of the countries analysed over the past 30 years, although there has been a relatively large increase in dispersion in the lower part of the income distribution. Income dispersion in Sweden grew from 1980 to 1995, with the biggest increase in the early 1990s, but has been largely constant since 1995.

WAGE DISPERSION UNCHANGED SINCE THE YEAR 2000

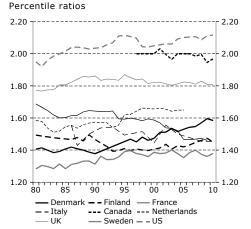
The analysis above ties in well with the years for which data are available for wage dispersion in Sweden (as opposed to income

Diagram 10 Income Dispersion in Selected Countries, P90/P10



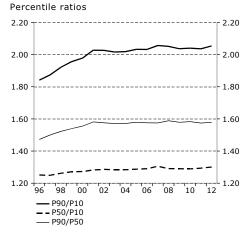
Source: OECD.

Diagram 11 Income Dispersion in Selected Countries, P50/P10



Source: OECD.

Diagram 12 Wage Dispersion in Sweden



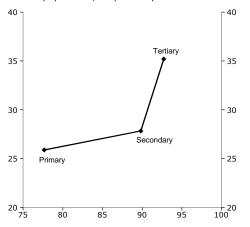
Sources: Statistics Sweden and NIER.

⁶ Income dispersion and wage dispersion measure slightly different things, as capital income and transfer payments are included in income but not in wages.

 $^{^{7}}$ The wage distribution is divided into 100 groups of equal size (percentiles) according to salary. The 100th percentile (P100) is the 1 per cent of people in Sweden with the highest incomes in 2010, while the first percentile (P1) is the 1 per cent with the lowest incomes.

Diagram 13 Earnings and Employment Rates for Various Educational Backgrounds, Men

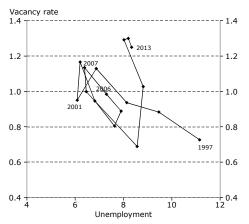
Median earnings, SEK per month before tax, and employment rate age group 30–54 years, per cent of population, respectively



Source: Statistics Sweden.

Diagram 14 Beveridge Curve, 1997-2013

Per cent of labour force



Sources: Statistics Sweden and NIER.

dispersion). Diagram 12 shows movements in wage dispersion from 1996 to 2012. It was largely unchanged in all parts of the distribution from 2000 to 2012 but increased somewhat from 1996 to 2000 in the upper part of the distribution (P90/P50). In the lower part of the distribution (P50/P10), wage dispersion was largely unchanged throughout the period.

This condensed wage structure in the lower part of the wage distribution is confirmed by Diagram 13. Among men, the pay gap between those with and without upper secondary education is limited. A similar picture is seen among women. However, the gap has widened somewhat since 2008.8

The slight increase in wage dispersion can be explained primarily by developments among women in all sectors except local government.

4 Equilibrium unemployment and its explanatory factors

Analysis of equilibrium unemployment in the coming years is important for both stabilisation policy and structural policy. It also plays a key role in an assessment of the scope for permanent unfunded fiscal measures. Chapter 5 presents the NIER's analysis.

STRUCTURAL FACTORS CHANGE WITH TIME, SO EQUILIBRIUM UNEMPLOYMENT WILL VARY

The NIER's analysis is based on a number of structural factors shown to impact on equilibrium unemployment by a well-established theoretical framework. Key factors are efficiency in matching job seekers with vacancies, the rate of structural change, variations in the size and composition of the labour force, the rules on unemployment insurance, and the social parties' wage formation behaviour. As these factors have varied historically and are expected to continue to do so, equilibrium unemployment will also vary over time.

Chapter 5 uses the relationship between vacancies and unemployment, known as the Beveridge curve, as a starting point for an analysis of how these structural factors affect equilibrium unemployment. The observed relationship between vacancies and unemployment in 1997–2013 can be seen in Diagram 14.

The NIER believes that unemployment was most recently around equilibrium in 2006–07. A key question for economic policy is therefore whether the outward shift to the current situation is down to cyclical or structural factors. The NIER believes that this shift is partly cyclical – the pattern in the diagram

 $^{^{8}}$ See the 2010 Report on Wage Formation in Sweden.

resembles a counter-clockwise loop, which is common over the course of a business cycle. In addition, two main structural factors are believed to have affected the relationship between vacancies and joblessness: a deterioration in matching efficiency and an increased economic incentive to work.

DETERIORATION IN MATCHING EFFICIENCY

There are a number of signs that the composition of both the labour force and the unemployed has changed since 2006, contributing to a deterioration in matching efficiency. Part of this is probably because a larger proportion than normal of new entrants into the labour force in recent years have not had the skills firms require. In addition, the prolonged economic downturn has contributed to increased long-term unemployment, and firms' interest in taking on those who have been out of work for long periods is relatively limited.

Diagrams 15–17 present indicators supporting this picture. Vulnerable groups' share of unemployment has increased sharply (see Diagram 15), the average period of unemployment is almost up at the levels of the early 1990s crisis (see Diagram 16), and it is taking a long time to fill vacancies despite the high level of joblessness (see Diagram 17). Chapter 5 presents two model estimates of matching efficiency, or how easy it is to match vacancies at firms with job seekers. These estimates confirm the problems with matching in the labour market. Diagram 18 shows that the probability of a jobless person finding work ("job-finding rate") has been relatively low in terms of the number of vacancies per job seeker ("labour market situation") over the past two years (black dots in the diagram). This is supported by the estimated matching efficiency presented in Diagram 19. Although a new estimation (dashed line) in this year's report suggests that matching efficiency is not quite as low as previously estimated (solid line), the message from Diagram 19 is the same.

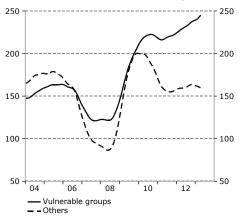
INCREASED INCENTIVE TO WORK CONTRIBUTES TO LOWER PRE-TAX WAGES

The social parties seem to have taken account of the increased economic incentive to work in their wage-setting in line with the theoretical framework. Empirical results based on micro data indicate that the earned-income tax credit and reduced unemployment insurance benefits have contributed to lower wage growth among those whose incentive to work has increased the most. This seems to apply particularly to those who change job.

It is important to note, however, that empirical results at an aggregated level in Sweden indicate that long-term unemployment does not have the same moderating effect on wages as shortterm unemployment. This is problematic, because the long-term

Diagram 15 People Registered at the **Public Employment Service**

Thousands, estimated trends, monthly values



Note. The term vulnerable groups here denotes people with primary education only, people aged 55-64 years, people born outside of Europe and disabled people.

Source: Swedish Public Employment Service.

Diagram 16 Average Unemployment Duration

Weeks, seasonally adjusted quarterly values



Sources: Statistics Sweden and NIER.

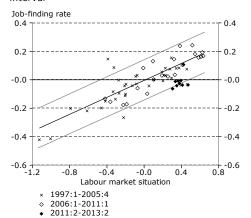
Diagram 17 Vacancy Filling-Time, **Private Sector**

Average vacancy filling-time, months, seasonally adjusted quarterly values



Sources: Statistics Sweden and NIER.

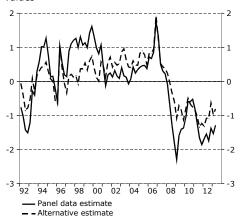
Diagram 18 Job-Finding Rate and Labour Market Situation, 1997–2013 Average relationship and 90 per cent confidence interval



Note. The job-finding rate for 1997q1–2005q2 is linked by NIER.

Sources: Swedish Public Employment Service, Statistics Sweden and NIER.

Diagram 19 Matching Efficiency
Standardized deviations from average, quarterly values



Source: NIER

jobless rate is high and is expected to remain so for several years to come. This is contributing to higher equilibrium unemployment.

EQUILIBRIUM UNEMPLOYMENT UNCHANGED FROM 2006 TO 2015 AND THEN PROBABLY FALLING

The aforementioned factors – a deterioration in matching efficiency and the effects on wage formation of an increased incentive to work – are serving, respectively, to raise and lower equilibrium unemployment. On balance, the two factors are expected to largely cancel each other out, with the result that equilibrium unemployment will remain unchanged at around 6.5–7 per cent from 2006 to 2015 (see Diagram 7).

After 2015, there are a number of factors that indicate that equilibrium unemployment may fall. First, growth in the labour force will slow significantly for demographic reasons. Second, the social parties are expected to take increasing account of the earned-income tax credit and changes to unemployment insurance. Third, the government is expected to continue to take action to improve the employability of the long-term jobless, which will increase matching efficiency.

NATURE OF THE LABOUR MARKET MAKES CONTINUED POLITICAL ACTION NECESSARY TO PERSISTENTLY REDUCE UNEMPLOYMENT

Further political action is therefore considered necessary if unemployment is to fall back persistently. The reasons can be found in the aforementioned combination of factors characterising the Swedish labour market and can be summarised as follows.

The economy will remain weak for a number of years, which will probably mean that long-term unemployment remains high and that vulnerable groups' share of unemployment will rise from today's already high levels. Increased wage dispersion between skill groups could increase the probability of finding work in these groups. However, wage dispersion has been largely unchanged over the past decade, including in the lower part of the wage distribution. Wage growth has also been largely the same in different industries during the era of the Industrial Cooperation and Negotiation Agreement. Furthermore, long-term unemployment does not appear to have a moderating effect on wages at an aggregated level. A high proportion of long-term jobless may therefore necessitate tighter monetary policy going forward than would be the case with a lower proportion.

All in all, this means that further political action is needed to enhance the employability of those who have the greatest diffi-

⁹ See the 2012 Report on Wage Formation in Sweden.

culty finding work. The way the labour market functions today, these problems will not automatically resolve themselves when the economy picks up. Such action might include training initiatives and financial assistance for employers who take on the long-term jobless.

5 The gender pay gap

This year's report analyses the pay gap between men and women in both the private and public sectors. The analysis covers both the gap in 2012 and the change from 2005 to 2012.

GENDER-SEGREGATED LABOUR MARKET EXPLAINS MOST OF THE PAY GAP

As can be seen from Table 1, (full-time equivalent) average pay is higher for men than for women in both the private and public sectors. The difference can be divided into an explained part and an unexplained part. The explained part is due to different distributions of various wage-influencing factors for men and women. It is primarily differences in distribution between professions and sectors that explain the differences in pay: men and women have different jobs and work in different sectors. In other words, gender segregation in the labour market explains much of the pay gap.

The unexplained part is the gap that remains after allowing for these wage-influencing factors. However, it is important not to equate unexplained pay differences with discrimination, because the unexplained part is entirely dependent on the explanatory factors used. Differences in factors that are not included due to a lack of data, or are not observable (such as selfconfidence and motivation), will end up in the unexplained part.

The explained pay gap is larger than the unexplained gap in the public sector, but the reverse is the case in the private sector (see Table 1). In the labour market as a whole, the explained gap dominates.

Table 1 Average pay for men and women and the total, explained and unexplained pay gap, 2012

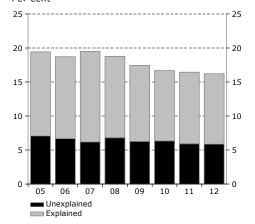
SEK and per cent

	Men	Women	Total	Explained	Unexpl.
Entire labour market	32 085	27 609	16.2	10.4	5.8
Private sector	32 236	28 292	13.9	5.7	8.2
Public sector	31 282	26 850	16.5	12.2	4.3

Sources: Statistics Sweden and NIER.

Diagram 20 Gender Pay Gap, Whole **Labour Market**

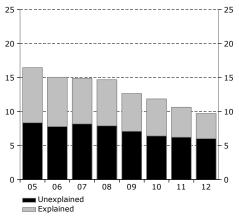
Per cent



Sources: Statistics Sweden and NIFR.

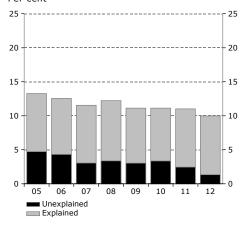
Diagram 21 Gender Pay Gap, Central Government

Per cent



Sources: Statistics Sweden and NIER.

Diagram 22 Gender Pay Gap, Private **Sector Non-salaried Staff**



Sources: Statistics Sweden and NIER.

GREATEST UNEXPLAINED PAY GAP AMONG PRIVATE-SECTOR SALARIED STAFF AND IN COUNTY COUNCILS

The overall gender pay gap in the private sector is 13.9 per cent (see Table 2). This is due primarily to a big difference among salaried staff – men's average pay is 24.9 per cent higher than women's in this category. Among non-salaried staff, the gap is 10 per cent. The bulk of the pay gap for non-salaried staff can be explained by the factors included, with only a 1.4 per cent gap remaining unexplained. The unexplained gap for salaried staff is much higher at 12.3 per cent, which is half of the total gap.

Table 2 Average pay for men and women in the private sector and the total, explained and unexplained pay gap, 2012

SEK and per cent

	Men	Women	Total	Explained	Unexpl.
Private sector	32 236	28 292	13.9	5.7	8.2
Salaried staff	39 290	31 457	24.9	12.6	12.3
Non-salaried staff	25 894	23 546	10.0	8.6	1.4

Sources: Statistics Sweden and NIER.

The larger overall pay gap between men and women in the public sector than in the private sector is due to a relatively big difference in county councils, which includes health care (see Table 3). The total gender pay gap of 33.1 per cent in county councils can be explained largely by men and women having different jobs. The unexplained gap is 7.2 per cent.

Table 3 Average pay for men and women in the public sector and the total, explained and unexplained pay gap, 2012 SEK and per cent

	Men	Women	Total	Explained	Unexpl.
Public sector	31 282	26 850	16.5	12.2	4.3
Central government	34 004	30 993	9.7	3.7	6.0
County councils	39 750	29 875	33.1	25.9	7.2
Municipalities	26 864	25 185	6.7	5.8	0.9

Sources: Statistics Sweden and NIER.

GENDER PAY GAP NARROWED IN ALL SECTORS FROM 2005 TO 2012

The pay gap between men and women changes relatively little from year to year, but a decrease in the gap can be seen over the longer term. From 2005 to 2012, the total pay gap narrowed in all of the sectors analysed. The change in the labour market as a whole is presented in Diagram 20. The total pay gap decreased by around 3 percentage points, and a small part of this (around 1 percentage point) was due to a reduction in the unexplained pay gap. Analysis of the component sectors shows that the unexplained gap has narrowed the most in central government and among non-salaried staff in the private sector (see Diagrams 21 and 22).