What do the official wage statistics say about wage differentials between women and men in 2012?
The Swedish National Mediation Office (MI)

The Swedish National Mediation Office (MI) is an authority under the Swedish Ministry of Employment and has three main assignments:

- To promote a functioning wage structure.
- To be responsible for mediating labour disputes.
- To be the authority responsible for the official wage statistics.

The official wage statistics

The National Mediation Office (MI) is the authority responsible for the official wages statistics on wages and labour costs. However, statistics on unpaid wages falls outside of its area of responsibility.

The official wage statistics can roughly be separated into three parts: monthly cycle wage statistics, annual wage structure statistics, and EU statistics.

MI's analyses from a gender perspective

- Annual reports as of 2001
- Report on wage differentials 2005
- Nine perspectives on gender, anthology (published 2009)
  Focus on how gender-based division of labour affects wage differentials
- Report on wage differentials 2009 (published 2010)
  Focus on how change in the composition of the workforce affects wage differentials
- Report on wage differentials 2010 (published 2011)
  Focus on how different concepts of pay affect the image of wage differentials
- Voices about Wage Setting and Mediation (published 2011)
- Report on wage differentials 2011 (published 2012)
  Focus on wage differentials among recent graduates and wage differentials between men and women from an age perspective.
- Report on wage differentials 2012 (published 2013)
  Focus on over-qualification and gender differences

These publications can be downloaded from the National Mediation Office (MI) website: www.mi.se

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Preface

Gender equality and women's wages in relation to men's continues to be an important issue in the public debate – and in wage negotiations.

There has been much discussion regarding the role and commission of MI, from a gender perspective.

We therefore find it pressing to, yet again, publish a report on what the official wage statistics say regarding wage differentials between women and men. The report has been released annually since 2009; hence this is the fifth of its kind.

To study and analyse wages from a gender perspective is an important part of MI's commission. The analysis gives parties, politicians and the general public a factual basis and is intended to contribute to a constructive debate.

Through the years, MI has released several publications regarding the subject and it also forms a fundamental part of our annual reports.

MI is responsible for the official wage statistics. A part of these statistics are wage statistics that include information about wages, but also other information regarding the individual such as age, working hours, and occupation. By using wage statistics together with other statistics regarding the individual, such as the Statistics Sweden (SCB) education records, it is possible to compare employee working conditions.

This year's report, which is based on data collected in September and November of 2012, demonstrates that the unweighted wage differentials between women and men for the entire labour market was 13.9 per cent in 2012. Using standard weighing and taking occupation, sector, level of education, working hours and age into account, there is still an unexplained wage differential of 6.1 per cent. If a 'regression analysis' is applied instead, the significance of various factors can be shown, occupation being the most important. The method used depends on what you want to highlight. MI provides a basis, but does not encourage one method of calculation over another.

It is certain, however, that the wage differential between women and men has decreased in all sectors between 2005 and 2012, regardless of the method of measurement. The unweighted wage differentials have decreased by between 2.2 and 5.4 percentage points depending on the sector, and if you combine all sectors, the decrease is 2.4 percentage points.

The standard weighing differentials during the same period has decreased by between 0.2 and 1.8 percentage points, depending on the sector. For all sectors, the decrease is 0.7 percentage points.

John Ekberg is responsible for the report, and it can be downloaded from the MI website www.mi.se.

Stockholm 20th of June 2013

Claes Stråth
Director-General
Summary

Wage differentials between women and men continue to decrease if you look at the long term development.

When the wages of women and men were compared in 2012, women earned 86.1 per cent of men's wages on average. The unweighted wage differential between men and women is therefore 13.9 per cent. That is a decrease of 0.2 percentage points compared to the year before.

Differences in wages can depend on a number of different factors, such as occupation, work experience, education and in what part of the labourmarket the work is performed. Differences between women and men may also be due to discrimination, but to what extent is impossible to capture with statistical methods.

For an alternative view of the relationship between women and men's wages, you can analyse how the unweighted wage differential, 13.9 per cent, changes when consideration is given to how women and men differ with respect to the different factors that affect the salary. This can be achieved by using various statistical methods; in this report standard weighing and regression analysis are used.

If, using standard weighing, you take occupation, sector, education, age and working hours into account, the wage differential is 6.1 per cent. Standard weighing is a method that has been used by the MI for many years. Wage differentials both before and after standard weighing have decreased since 2005.

In order to carry out a more profound analysis of how much specific factors affect wage differentials between women and men, standard weighing is complemented by a so called regression analysis. If consideration is taken to the same factors as with standard weighing, but at a more detailed level, wage differentials are 5 per cent.

The methods give different results with regards to the development between 2011 and 2012. While the regressionanalysis indicates a continued decrease in wage differentials of 0.3 percentage points, standard weighing shows an increase in the gender pay gap by 0.2 percentage points. This increase is largely explained by the development of non-manual labourers in the private sector.

Unexplained wage differentials are not necessarily untoward

It is not possible to determine whether the differentials are untoward by looking at official statistics. The wage differentials that exist between women and men can be untoward. However, they can also be caused by the various factors that affect wages are, for other reasons, spread out differently between women and men, or that some of these factors are not included in the wage structure statistics.

The largest unweighted wage differential exists within the county councils, where the wage differential is 25 per cent. The smallest unweighted wage differential exists with the municipalities, where it is 6.2 per cent.

After standard weighing, the county councils no longer have the largest wage differentials for 2012. The largest unexplained wage differential, of 9.6 per cent, is then found among non-manual labourers in the private sector. The corresponding wage differential within the county councils is 4.6 per cent. The municipalities have the smallest unexplained wage differential, with 0.7 per cent.

Wage differentials have decreased between 2005 and 2012

Both the unweighted and the standard weighted wage differentials have decreased between 2005 and 2012, but the difference between the various sectors is big.
The *unweighted wage differentials* have decreased with between 5.4 and 2.2 percentage points since 2005, depending on the sector. The largest decrease has happened within the government sector. For all sectors, the decrease is 2.4 percentage points.

The *standard weighing wage differentials* have decreased with between 1.9 and 0.2 percentage points since 2005, depending on the sector. The largest decrease is for people working in the private sector. For all sectors, the decrease is 0.7 percentage points.

**Occupation is the main reason for wage differentials between the sexes**  
The regression analysis demonstrates that the main reason behind wage differentials between women and men is that they work in different occupations and that these occupations are associated with different wages.
1. The wage difference between women and men

When women and men’s wages are compared without taking into consideration that they, to a large extent, work within different sectors and occupations, women earn on average, 86.1 per cent of that of men. The wage differential between women and men is thus 13.9 per cent.

Wage differences can depend on discrimination, but also on a number of different factors, e.g., occupation, work experience, education and what part of the labour market the work is performed in.

For an alternative view of the relationship between women and men’s wages, you can analyse how the unweighted wage differential, of 13.9 per cent, changes when consideration is given to how women and men differ with respect to the different factors that affect their salary. This can be achieved by using various statistical methods; in this report standard weighing and regression analysis are used.

If, using standard weighing, you take occupation, sector, education, age and working hours into account, the wage differential is instead 6.1 per cent. Standard weighing has been the method used by the MI for many years. It is with this number that comparisons to earlier year are made. Wagedifferentials both before and after standard weighing have decreased since 2005.

In order to achieve a more profound analysis of how specific factors affect wage differentials between women and men, the MI has carried out a complementary regression analysis since 2008. If consideration is given to the same factors as with standard weighing, but at a more detailed level, wage differentials are 5 per cent.

The fact that women and men work within different occupations is an important explanation for the wage-differentials between the sexes.

1.1 The official wage statistics and wage differentials.

MI is responsible for the content and scope of the official statistics. The statistics can roughly be divided into three parts: cycle wage statistics, wage structure statistics and EU statistics.

MI shall analyse wage developments from a gender perspective and has done so annually, since the first annual report was published in 2001. Wage differentials between women and men in Sweden have been analysed, in these reports, based on the official wage structure statistics that are best suited for the purpose.

1.1.1 Contents of the report

This report begins with an analysis of wage differentials between women and men in 2012, based on wage structure statistics. Both standard weighted and non-standard weighted (unweighted) wage differentials are presented and the different sectors of the labour market are analysed separately. Corresponding numbers for the period 2005-2012 are also presented. The wage differentials are also analysed with the help of an alternative method, regression analysis, in order to study what specific factors lay behind the size of the wage differentials.

To gain a better understanding of how differences in wages between women and men come into existence, so called over-qualifications are studied in the second part of the report to see how it affects the matching of women and men to the labour market, as well as how wages are affected when there is a mismatch.

1.1.2 Wage structure statistics

Wage structure statistics come from an annual survey which is based on individual information. The aim of the survey is to provide comparable information regarding the wage structure in the labour market. Using

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1 Section 4 1st Ordinance (2007:912) with instructions for MI.
the wage structure statistics, questions regarding salary level, salary structure and salary development can be analysed.

Wage structure statistics contain information about, e.g., wage, gender, age, working hours and occupation. Information regarding levels of education is matched with data from the Statistics Sweden (SCB) education records.

<table>
<thead>
<tr>
<th>Facts about wage structure statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>The wage and salary structure statistics come from an annual survey. The measurement period is a specific month - September for the private sector and November for the municipalities and county councils. The statistics are sensitive to contractually agreed-upon pay rises, as well as to whether the new wages have been paid at the time of measurement.</td>
</tr>
<tr>
<td>Wage structure statistics are published in May, the year following the measurements, and are divided up according to sector (private sector, municipalities, county councils and the government; the private sector is divided into manual-workers and non-manual workers). In June of the same year, a summary for the whole labour market is published and the hourly rate for workers has then been recalculated into monthly wages.</td>
</tr>
<tr>
<td>The MI conducts a total survey of municipalities, county councils and the government. For the private sector, wage structure statistics are based on a selected survey that encompasses around 50 per cent of the total number of private sector employees. All companies that have more than 500 employees take part each year. The selection, consisting of approximately 8,000 companies, organisations and foundations in 2012, is picked by random selection. Under normal circumstance around 45 per cent of the companies are exchanged each year. It is mainly small and medium sized companies that are exchanged, because companies with 500 or more employees are always included.</td>
</tr>
<tr>
<td>The selection is stratified after company size (7 sizes) and industry types (62 industry groups) into 434 different strata, where individual posts within the respective stratum are assigned respective stratum weighting. Using this weighting, calculations regarding the wage structure of Sweden as a whole can be done.</td>
</tr>
<tr>
<td>In the wage structure statistics for the entire labour market, the term 'monthly wages' is used. The measurement 'monthly wages' includes several different wage components where all wages are calculated as full time. In addition to fixed salary, fixed salary supplements as well as a large number of variable supplements are included. Management salary supplements are a good example of fixed salary supplement. Variable supplements are often related to the extension of working hours (e.g., unsocial hours allowance and shift allowance). Other variable supplements include supplements for additional risk, dirt and heat.</td>
</tr>
<tr>
<td>However, the wage structure statistics do not include any information regarding the affiliate agreements of the employees, or information regarding 'one-off' payments, bonuses or other irregular compensations.</td>
</tr>
</tbody>
</table>

It is important to note difference between wage and income. Wages are compensation for the work carried out during a month or an hour. Wages are presented as monthly wages in the wage structure statistics and part time work is recalculated into full time work, so that comparisons can be made. Income can, apart from wages, include e.g. transfers and capital gains. Income includes compensations that have been obtained during a given period of time, usually a year. The income is therefore affected by whether you work full or part time, whether you work over-time, and whether you are absent from work. When the wage differentials between women and men are analysed by using wage structure statistics, the monthly wage is the measurement used.

The measurement selected for the analysis affects the estimated wage differentials between women and men. Including different supplements, such as on-call availability and unsocial hour supplements, affects the size of the wage differentials. Bonuses and other irregular supplements are yet other examples that may
affect wage differentials.\(^2\) MI (2011b)\(^3\) conducted a special investigation in 2011 regarding wage supplements and how these affect wage differentials between women and men.

1.2 What can the analysis not take into consideration?

Wage structure statistics provide a wealth of information about the individual and about his/her work. But of course, more factors than those found in the wage structure statistics may affect an individual's salary. Different types of leadership is an example of a factor that may affect wages.

The wage structure statistics' occupational code is based on Swedish Standard Classification of Occupations (SSYK). In SSYK there is only one occupational area 1 (management work) that states whether the person has a managerial position.

Foremen, section leaders and similar roles are often placed in the same occupational group as their subordinates and, as such, there is no indication of their leadership in the statistics. If having this type of managerial role affects wages and the division of these positions is not equally distributed between the sexes, insufficient information regarding managers may give misleading results when analysing wage differentials between women and men.

\(^2\) See Granqvist (2009) for a study on wage benefits, bonuses and wage differentials between male and female academics.

\(^3\) MI (2011b) "What do the official wage statistics say about wage differentials between women and men in 2010".
The wage structure statistics' occupational codes are built in accordance with the Swedish Standard Classification of Occupations (SSYK 96), which is based on the international occupational standard ISCO-88, which has been developed and published by the UN agency, International Labour Organization, ILO.

SSYK was primarily developed to classify people according to the work they perform. There are several institutions that use SSYK, such as social partners, Statistics Sweden (SCB), The Swedish Public Employment Service, and MI.

SSYK 96 is hierarchically structured with four levels. The one-digit level indicates occupational area, the two-digit level indicates the main group and the three-digit level, indicates occupational group. The four-digit level indicates occupation and is made up of 355 subgroups. The fourth level began being collected in 2004. Table A1 in appendix 1 demonstrates the number of classes for the different levels.

There is an imbalance within SSYK 96 with regard to the classification of occupations. An example of this imbalance is that there are 27 different codes for machine operators (within occupational group 8), compared to one code for assistant nurse (within occupational group 5). However, there are also female-dominated occupations that are divided between several different codes. An example of this is nurses. For nurses there are separate codes for acute, paediatric, district, surgical, geriatric and radiographic nurses. It should also be noted that there is only one occupational code for all doctors, regardless of level or specialisation.

SSYK 96 therefore tends to have a more detailed classification with more specific occupational titles for male-dominated occupations than for female-dominated ones. This imbalance can affect the estimated wage differentials between women and men.

SCB has developed an update of SSYK based on the international classification of occupations ISCO-08. The new classification SSYK 12 has led to a decreasing imbalance between male and female-dominated occupations. It is currently hard to set an exact date for when this new classification within the wage structure statistics will be implemented. But hopefully the collection will take place during the autumn of 2014, concerning 2014 and published in 2015.

1.2.1 Not everything is measurable

There are also wage-affecting factors that cannot be observed because they do not form part of the official statistics (e.g., the degree of difficulty of the work) and/or because they are hard to measure (e.g., social abilities). The lack of information regarding these factors as well as the insufficient information regarding female-dominated occupations within SSYK (see fact box above) can of course affect the estimated wage differentials.

1.2.2 Statistical method

The size of the estimated wage differential thus depends on the variables that have been included. The remaining wage differential once these variables have been considered, i.e., the 'unexplained wage differential', is the wage differential that cannot be explained by the available factors.

MI uses two statistical methods: standard weighing and regression analysis, to observe factors that affect the estimation of wage differentials between women and men.

**Standard weighing and regression analysis**

Differences in wages can depend on a number of different factors. Examples of such factors include occupation, education and labour market sector. If women and men are unevenly distributed in terms of these factors, it can be difficult to distinguish between the importance of gender and the importance of these other factors when explaining wage differentials. Table A2 in appendix 2 demonstrates how the individuals within the wage structure statistics are divided in terms of various factors. The table shows, for example, that women are more highly educated than men, that women and men work within different occupations, that women are a little bit
older, and that it is more common for women to work part time. For an alternative view of the relationship between women and men’s wages, you can take these differences into consideration. Two ways of doing this is through so called standard weighing and regression analysis.

The standard weighing used by MI means that the wages for different groups are estimated through multiplying the number of employees (women and men) with the average wage of both men and women. The groups are created by combining four groups based on age, two categories of education, two groups based on working hours, two groups based on sector and one within every occupation (SSYK on the four-digit level is made up of 355 occupations). The different wages are then summed up. By dividing the wage amount for women with the wage amount for men, you the get the standard weighted wage differential.

An alternative to the standard weighing is regression analysis. Regression analysis of surveyed and registered data is the most common empirical method within labourmarket research to investigate the different outcomes of individuals and groups. By using regression analysis, the connection between one factor (e.g., gender) and an outcome variable (e.g., wage) can be investigated, while at the same time considering other factors (e.g., occupation, sector, education). Data material can be analysed in a more effective and profound way using regression analysis, than with standard weighing. A greater number of observations can be included and the same individuals can be analysed in the different steps.

When wages are analysed using regression analysis, a model that includes different factors affecting wages, such as gender, is established. Coefficients are the calculated, which demonstrate how much of an effect the various factors (explanatory variables) have on the wages. To avoid the significance of gender being determined by women and men working within different sectors or occupations with different wage levels, these additional explanatory variables are included in the model. By including these, you can estimate the size of the wage differential between women and men, given the level of the other variables. The choice of explanatory variables is motivated by economic theory and by the fact that they have been used in previous studies.

A detailed description of how a regression analysis is used in this report can be found in appendix 4.
1.2.3 Unexplained is not the same is untoward.

It is not possible to use standard weighing or regression analysis to answer whether there are untoward reasons for the wage differentials between women and men.

The reason for this is the following. An untoward wage differential is defined as a difference in outcome that is only determined by gender. In other words, an untoward wage differential between the sexes occurs if a wage differential remains once all systematic differences in characteristics between the sexes have been considered. In practice, this is almost impossible to do.

Some factors that affect wage, e.g., wealth of ideas, commitment and the ability to cooperate etc. are hard, if at all possible, to measure and quantify. What is more, the setting of wages is often based on information that is missing in the statistics, e.g., requirements in the form of merits, competence, motivation and other qualities that employees or job seekers may have.

Because of this, it is hard to determine whether the difference in outcome between women and men depends on relevant character differences which cannot be observed in the statistics but are obvious factors when wages are set – or on discrimination. Standard weighing and regression analysis can therefore only show a correlation between gender and wage outcomes, once a number of observable character differences have been considered. On the other hand, what cannot be demonstrated is a casual correlation, i.e., the analysis cannot prove that the remaining wage differential, the so called unexplained wage differential, between the sexes, is only determined by gender.

1.2.4 Wage discrimination in accordance with the Swedish Discrimination Act concerns equal work within the same work place

As it cannot be proven that the remaining wage differential is due to gender, it is not possible to answer whether wage discrimination is occurring, in accordance with the Discrimination Act. Discrimination exists if an employer treats an employee unfairly by treating him or her worse than someone who is in a comparable situation, and the unfair treatment is due to the person's gender. So, this is a question of the circumstances with each individual employer.

To give different wages to men and women who perform the same, or similar job and work for the same employer, is considered unlawful unfair treatment. However, from the official wage structure statistics it cannot be determined whether an occupation or job is equal to another occupation or job.

1.2.5 Other explanations behind wage differentials

In the public debate also concerns other forms of discrimination than those stated in the Discrimination Act. An example of this is often referred to as statistic discrimination, occupational distribution discrimination, and value discrimination.

Statistic Discrimination means that when an employer does not have full access to information, a rough estimate is used regarding how a group (e.g., women) is supposed to behave. An expectancy of more absences due to sick children may be a factor considered by the employer. To compensate for these types of higher costs, the employer offers a lower wage or alternative responsibilities.

Occupational distribution discrimination concerns women, who despite having similar qualifications to men, don't have access to higher positions or the possibilities to work within certain occupations. This type of discrimination leads to a segregated labour market, both vertically (different positions) and horizontally.

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4 Nor can qualitative methods such as interviews with employees or employers establish, with all certainty, whether discrimination has occurred. An individual can feel that he or she has been discriminated against without this being the case. Equally, an individual can suffer discrimination without knowing it has happened. In turn, employers seldom voluntarily admit that discrimination occurs in the work place.

5 A causal correlation (causation) exists when an individual's gender determines their wage. That a correlation between gender and wage exists does not necessarily imply that gender determines wage. This correlation may instead be due to other factors, which the analysis has not considered.
(different occupations). *Value discrimination* means that work performed by women is less valued than work performed by men. This discrimination is primarily geared towards occupations, not against individual employees.

Wage structure statistics cannot reveal anything about the prevalence or the size of occupational distribution or value discrimination. The wage differentials that exist between women and men in wage structure statistics can be due to a number of different types of discrimination. However, it can also be that men and women, for other reasons than discrimination, are represented differently in terms of different factors or that some factors are not included in the wage structure statistics. It should also be noted that there is no single, clear-cut and widely accepted answer to why wage differentials between women and men exist. The problem is complex and the current circumstances are a result of a number of interacting historical, social, political and economic factors. In addition, the conditions for wage formation have differed and still differ significantly between labour market sectors, and this aspect cannot be overlooked.\(^6\)

### 1.3 How big is the wage differential between the sexes?

**Table 1.1** shows that the highest average wage for men can be found amongst those who work within the county councils, while manual labourers within the private sector have the lowest average wage. Female manual labourers within the private sector also have the lowest average wage, while the highest average wage for women can be found amongst the non-manual labourers in the private sector.

#### 1.3.1 Unweighted wage differentials between women and men

The table shows the average wages\(^7\) for women and men, the women's wages are written in per cent of the male wages (the unweighted wage differential), as well as the standard weighted wage differential, which considers that women and men are not equally represented when it comes to factors such as occupation, education, age, working hours and sector.

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\(^6\) A longer discussion regarding discrimination and different reasons behind the wage differentials can be found in section 7.8 MI's (2010a) annual report *Wage Bargaining and Wage Formation 2009*.

\(^7\) The average wage (the median wage) is the sum of a group's wages, divided by the number of people in the group.
Table 1.1. The average wages for women written in per cent of men’s wages 2012

<table>
<thead>
<tr>
<th>Sector</th>
<th>Women</th>
<th>Men</th>
<th>Total</th>
<th>Women's wages in per cent of men's wages</th>
<th>Women's wages in per cent of men's wages after standard weighing</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Sectors</td>
<td>27,600</td>
<td>32,100</td>
<td>29,800</td>
<td>86.1</td>
<td>93.9</td>
</tr>
<tr>
<td>Private Sector</td>
<td>28,300</td>
<td>32,200</td>
<td>30,700</td>
<td>87.8</td>
<td>93.6</td>
</tr>
<tr>
<td>Manual Labourer</td>
<td>23,500</td>
<td>25,900</td>
<td>25,100</td>
<td>90.9</td>
<td>96.3</td>
</tr>
<tr>
<td>Non-manual Labourer</td>
<td>31,500</td>
<td>39,300</td>
<td>35,800</td>
<td>80.1</td>
<td>90.4</td>
</tr>
<tr>
<td>Public Sector</td>
<td>26,900</td>
<td>31,300</td>
<td>28,000</td>
<td>85.9</td>
<td>96.9</td>
</tr>
<tr>
<td>Municipalities</td>
<td>25,200</td>
<td>26,900</td>
<td>25,500</td>
<td>93.8</td>
<td>99.3</td>
</tr>
<tr>
<td>County Councils</td>
<td>29,900</td>
<td>39,800</td>
<td>31,900</td>
<td>75.0</td>
<td>95.4</td>
</tr>
<tr>
<td>The State</td>
<td>31,000</td>
<td>34,000</td>
<td>32,500</td>
<td>91.1</td>
<td>94.7</td>
</tr>
</tbody>
</table>

Source: MI and SCB

As is presented in the table, women earned on average 86.1 per cent of the men's wages in 2012, that is to say that the wage differentials between women and men was 13.9 per cent (100-86.1). There is great variation between different sectors. The largest unweighted wage differential was found within the county councils, where the wage differential was 25 per cent. Within the county councils, women and men are unevenly spread out over the occupations. Out of the many women who work in this sector, many are found in nursing, while a large part of the men are doctors. Non-manual labourers within the private sector had the second to largest wage differential: 19.9 per cent. The smallest wage differential exists within the municipalities, where it is 6.2 per cent. The second to smallest wage differential – 8.9 per cent – is within the government sector. For manual labourers within the private sector, the wage differential was 9.1 per cent.

1.3.2 The differential after standard weighing

The weighted standard used in table 1.1 takes into account that women and men work within different occupations and sectors, have different levels of educations, different working hours and different ages (the weighted standard method is more thoroughly described in the fact box in section 1.2). After standard weighing the wage differential is smaller. The remaining wage differential, the so called unexplained wage differential, is 6.1 per cent for the entire labour market in 2012.

After standard weighing, the county councils no longer have the largest wage differentials in 2012. The largest unexplained wage differential, of 9.6 per cent, is instead to be found among private sector workers. The county councils wage differential is 4.6 per cent after standard weighing (compared to a wage differential of 25 per cent if weighted standard is not used.

The municipalities have the smallest unexplained wage differential, with 0.7 per cent. Manual labourers within the private sectors have a 3.7 per cent wage differential. Within the state, the unexplained wage differential is 5.3 per cent.

1.4 Wage differentials between women and men 2005–2012

Table 1.2 shows the unweighted wage differentials between women and men during the period of 2005 until 2012. Between 2011 and 2012 the unweighted wage differential between women and men decreased by 0.2 percentage points.

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8 The monthly wages are rounded up to the nearest hundred.

9 In the wage structure statistics, all wages are rounded up to full-time wages. The variable 'working hours' is considered in standard weighing and regression analysis since part time employees can have a different salary than full time employees, even when calculated per hour.
Between 2005 and 2012 the change stands at 2.4 percentage points, but the change in wage differentials varies between the different sectors. Within the county councils the wage differentials decrease with 1 percentage unit. An explanation for the big change is that outliers for unsocial hours and on-call availability allowances are no longer presented in the report, but an even more important explanation is probably that the change is promoted by structural reasons such as the decreased number of assistant nurses and medical secretaries. These groups mainly consist of women.

The greatest change is within the government sector, where women’s wages have got closer to men’s wages by 5.4 percentage points between 2005 and 2012. The second largest decrease is within the county councils, where wage differentials have decreased by 3.6 percentage points. Within the municipalities the wage differentials decreased by 2.2 percentage points. For manual labourers and non-manual labourers within the private sector, the decrease was 2.6 and 2.8 percentage points.

Table 1.2. The average wages for women as a percentage of men’s wages (unweighted) 2005-2012

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>All Sectors</td>
<td>83.7</td>
<td>84.2</td>
<td>83.7</td>
<td>84.2</td>
<td>85.2</td>
<td>85.7</td>
<td>85.9</td>
<td>86.1</td>
<td>2.4</td>
</tr>
<tr>
<td>Private Sector</td>
<td>85.3</td>
<td>85.9</td>
<td>86.0</td>
<td>85.9</td>
<td>86.6</td>
<td>87.2</td>
<td>87.2</td>
<td>87.8</td>
<td>2.5</td>
</tr>
<tr>
<td>Manual Labourer</td>
<td>88.3</td>
<td>88.8</td>
<td>89.7</td>
<td>89.1</td>
<td>90.0</td>
<td>90.0</td>
<td>90.1</td>
<td>90.9</td>
<td>2.6</td>
</tr>
<tr>
<td>Non-manual Labourer</td>
<td>77.3</td>
<td>78.1</td>
<td>77.9</td>
<td>78.1</td>
<td>79.2</td>
<td>79.2</td>
<td>79.4</td>
<td>80.1</td>
<td>2.8</td>
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<tr>
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<td>83.0</td>
<td>84.1</td>
<td>84.9</td>
<td>85.4</td>
<td>85.9</td>
<td>85.9</td>
<td>2.5</td>
</tr>
<tr>
<td>Municipalities</td>
<td>91.6</td>
<td>91.6</td>
<td>91.0</td>
<td>92.3</td>
<td>93.4</td>
<td>93.9</td>
<td>93.9</td>
<td>93.8</td>
<td>2.2</td>
</tr>
<tr>
<td>County Councils</td>
<td>71.4</td>
<td>72.0</td>
<td>72.4</td>
<td>72.7</td>
<td>73.1</td>
<td>73.5</td>
<td>74.0</td>
<td>75.0</td>
<td>3.6</td>
</tr>
<tr>
<td>The State</td>
<td>85.7</td>
<td>87.2</td>
<td>87.3</td>
<td>87.6</td>
<td>88.7</td>
<td>89.3</td>
<td>90.6</td>
<td>91.1</td>
<td>5.4</td>
</tr>
</tbody>
</table>

Source: MI and SCB

Table 1.3 shows the unweighted wage differentials between women and men during the period, after standard weighing. The wage differentials after standard weighing (that is to say when considerations have been made for differences in occupation, sector, education, age and whether the person works part time) increased by 0.2 percentage points between 2011 and 2012. This indicates that the decrease in wage differentials is probably due to a change in the labour composition between women and men.

Table 1.3. Average wages for women as a percentage of men’s wages after weighted standard 2005-2012

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>All Sectors</td>
<td>93.2</td>
<td>93.4</td>
<td>93.5</td>
<td>93.4</td>
<td>94.0</td>
<td>94.1</td>
<td>94.1</td>
<td>93.9</td>
<td>0.7</td>
</tr>
<tr>
<td>Private Sector</td>
<td>91.7</td>
<td>91.9</td>
<td>92.2</td>
<td>92.1</td>
<td>92.7</td>
<td>92.7</td>
<td>92.8</td>
<td>92.6</td>
<td>0.9</td>
</tr>
<tr>
<td>Manual Labourer</td>
<td>94.4</td>
<td>94.9</td>
<td>94.8</td>
<td>95.4</td>
<td>95.5</td>
<td>96.0</td>
<td>96.2</td>
<td>96.3</td>
<td>1.9</td>
</tr>
<tr>
<td>Non-manual Labourer</td>
<td>90.2</td>
<td>90.3</td>
<td>90.5</td>
<td>90.0</td>
<td>90.9</td>
<td>90.7</td>
<td>90.8</td>
<td>90.4</td>
<td>0.2</td>
</tr>
<tr>
<td>Public Sector</td>
<td>96.5</td>
<td>96.6</td>
<td>96.6</td>
<td>96.6</td>
<td>97.0</td>
<td>97.1</td>
<td>97.0</td>
<td>96.9</td>
<td>0.4</td>
</tr>
<tr>
<td>Municipalities</td>
<td>99.1</td>
<td>99.0</td>
<td>98.8</td>
<td>99.2</td>
<td>99.4</td>
<td>99.4</td>
<td>99.4</td>
<td>99.3</td>
<td>0.2</td>
</tr>
<tr>
<td>County Councils</td>
<td>94.7</td>
<td>94.8</td>
<td>95.2</td>
<td>94.6</td>
<td>95.3</td>
<td>95.2</td>
<td>95.4</td>
<td>95.4</td>
<td>0.7</td>
</tr>
<tr>
<td>The State</td>
<td>92.9</td>
<td>93.5</td>
<td>93.7</td>
<td>93.8</td>
<td>94.2</td>
<td>94.4</td>
<td>94.7</td>
<td>94.7</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Source: MI and SCB

Wage differentials have decreased between 2005 and 2012 after standard weighing. Manual labourers within the private sector have the smallest decrease of the weighted standard wage differential, where the unexplained wage differential has decreased with 1.9 percentage points. Within the government sector,

---

10 Note that the pace of change within the private sector can differ from the rate of increase of other included categories. This is explained by the different changes in wage rates for men and women in each category and how the proportion of men and women has changed over the years in each category. The same explanation applies to the differences between the other mergers (public sector and all others sectors) of specific sectors.

11 See note 10 for an explanation of the differences in development between mergers of sectors and the development for specific sectors.
wage differentials have decreased with 1.8 percentage points and with 0.7 percentage points within the country councils. For manual labourers within the private sector, the decrease lies at 0.2 per cent. In the municipalities, where the wage differentials are the smallest, the decrease is 0.2 percentage points.

In conclusion the overall development shows small changes to wage differentials between women and men between 2011 and 2012. However, between the sectors the differences are bigger. Nevertheless, wage differentials have decreased between 2005 and 2012. This applies for both unweighted and weighted standard wage differentials, and for all sectors.\textsuperscript{12}

It is, however, important to remember that comparisons of the change in wage differentials over time have to be carried out prudently. In addition to the effects of changes as to the companies selected for the wage structure statistics and revisions of the control variables, the estimated wage differentials are also affected by the formation of collective agreements and whether the negotiated wage increases have been paid out at the time of measurement. One example is the government sector in 2011, where a number of authorities had not had time to implement their salary revisions before the measurement. Changes in the composition of the workforce are another factor that can affect the change in wage differentials over time.\textsuperscript{13}

1.5 A detailed analysis of wage differentials between women and men with regression analysis.

The purpose of this section is partly to investigate how wage differentials change when consideration is given to how women and men differ with regard to specific factors such as occupations, levels of education and choice of industries, and partly to analyse which factors are most important for the wage differentials. The method used in this section is called regression analysis (see fact box in section 1.2 for more information regarding regression analysis).

1.5.1 What affects the wage differentials between women and men?

In table\textsuperscript{1.4} the results from the regression analysis for the entire labourmarket are presented. The analysis is built on different steps, information about the employers qualities and the work per se, is progressivly added. In doing this, the significance of the specific and work related qualities is highlighted. Detailed information regarding the variables can be found in appendix 2.

\textsuperscript{12} Note that social partners may present other levels of wage differentials. This could depend on them choosing a different selection for their study, or having more detailed information. Please see Swedish Agency for Government Employers (2013)

\textsuperscript{13} For a more detailed discussion, see section 2.2 “What do the official wage statistics say regarding wage differentials between women and men in 2009?” MI (2010b)
Table 1.4 Wage differentials between women and men, the entire labour market 2012
the results were determined using regression analysis

<table>
<thead>
<tr>
<th>Model</th>
<th>Wage differential between women and men in per cent</th>
<th>Women's wages as a percentage of men's wages</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Sex</td>
<td>-11.5</td>
</tr>
<tr>
<td>(2)</td>
<td>(1) + age, level of education</td>
<td>-13.7</td>
</tr>
<tr>
<td>(3)</td>
<td>(2) + sector, industry, company size, extent of service.</td>
<td>-8.5</td>
</tr>
<tr>
<td>(4)</td>
<td>(3) + occupation</td>
<td>-5.0</td>
</tr>
<tr>
<td>(5)</td>
<td>Sex, age, level of education, occupation, extent of service, sector</td>
<td>-5.0</td>
</tr>
</tbody>
</table>

Source: The National Mediation Office

Row 1 presents the results from a base model, in which gender is the only factor influencing wages. The wage differential is then 11.5 per cent. This number works as a base value. Using this value, the results of including additional factors which affect wage differentials, can be compared.

Row 2 presents wage differentials between women and men when consideration has been given to an individual's age and level of education. The differential then increases to 13.7 per cent. This, among other things, is due to women on average having a higher level of education and being older than men. If this factor is not taken into account, the size of the wage differential will be underestimated.

Row 3 presents wage differentials where consideration has been given to age, level of education, and work-related factors such as sector, industry, company size and type of employment (full time, and short or long term part time) The estimated wage differential is then 8.5 per cent. A reason that wage differentials decrease in comparison to row 1 is that men, to a larger extent than women, work in sectors and industries that have higher average wages. When this fact is taken into account, the unexplained wage differential decreases.

Row 4 presents wage differentials when occupation is added to all the above-mentioned factors. Occupation explains a big part of the wage differentials between women and men. The wage differential that is left when occupation is included in the analysis is 5.0 per cent. The fact that the wage differentials are decreasing in comparison to the previous row indicates that women are overrepresented in low income jobs, while men are overrepresented among occupations that have high wages.

1.5.2 Regression analysis gives less wage differential
To be able to compare the regression analysis with the standard weighing, wage differentials are also presented when age, education, occupation, extent of service and sector have been considered. That is to say that this calculation takes into account the same factors as the standard weighing calculation in table 1.1.

The result can be found on row 5. When considering these facts, the unexplained wage differential becomes 5.0 per cent. The equivalent result for the weighted standard is 6.1 per cent. Regression analysis thus gives a somewhat lower number than the standard weighing. The difference in results can depend on the methods of the regression analysis taking more detailed information into consideration than the

---

14 Corresponds to \((\exp(\beta) - 1) \times 100\). See Appendix 4.
15 Corresponds to \((\exp(\beta)) \times 100\). See Appendix 4.
16 As the regression analysis uses a logarithm of wages this value is not completely comparable with the unweighted wage differential in table 1.1.
 weighted standard deviation. For example, only four age categories are used in weighted standard deviation, while the regression analysis treats age as a continual variable, i.e., it uses the exact age of a person.

1.5.3 Variable wage differentials between the sectors?
When considering both factors related to the individual (age, level of education) and to work (sector, industry, company size, extent of service and occupation), the unexplained wage differential between women and men is 5.0 per cent in 2012 (see row 4 in table 1.4). This number is an average for the entire labour market.

Table 1.5 shows that the corresponding calculation is divided into different sectors for the period 2008-2012.

Table 1.5 shows that the unexplained wage differentials between men and women vary between sectors. The wage differentials from 2012 are the biggest for non-manual labourers in the private sector. There, women's wages are 8.6 per cent lower than the men's. For manual labourers, the wage differential is 2.3 per cent. The municipalities have the smallest difference, where women's wages are 0.6 per cent lower than the men's. For the state and the county councils, the number is 4.2 and 4.9 per cent.

Table 1.5 Wage differentials between men and women per sector 17 2008–2012

<table>
<thead>
<tr>
<th>Sector</th>
<th>Wage differentials between the sexes (in per cent) 2008</th>
<th>Wage differentials between the sexes (in per cent) 2009</th>
<th>Wage differentials between the sexes (in per cent) 2010</th>
<th>Wage differentials between the sexes (in per cent) 2011</th>
<th>Wage differentials between the sexes (in per cent) 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Sectors</td>
<td>-5.8</td>
<td>-5.5</td>
<td>-5.5</td>
<td>-5.3</td>
<td>-5.0</td>
</tr>
<tr>
<td>Private Sector</td>
<td>-6.9</td>
<td>-6.8</td>
<td>-6.9</td>
<td>-6.5</td>
<td>-6.1</td>
</tr>
<tr>
<td>Manual Labourer</td>
<td>-3.1</td>
<td>-3.4</td>
<td>-3.5</td>
<td>-3.0</td>
<td>-2.3</td>
</tr>
<tr>
<td>Non-manual Labourer</td>
<td>-9.3</td>
<td>-8.9</td>
<td>-8.9</td>
<td>-8.6</td>
<td>-8.6</td>
</tr>
<tr>
<td>Public Sector</td>
<td>-3.1</td>
<td>-2.9</td>
<td>-2.7</td>
<td>-2.7</td>
<td>-2.6</td>
</tr>
<tr>
<td>Municipalities</td>
<td>-0.9</td>
<td>-0.5</td>
<td>-0.4</td>
<td>-0.5</td>
<td>-0.6</td>
</tr>
<tr>
<td>County Councils</td>
<td>-5.7</td>
<td>-5.5</td>
<td>-5.3</td>
<td>-5.1</td>
<td>-4.9</td>
</tr>
<tr>
<td>The State</td>
<td>-5.0</td>
<td>-5.0</td>
<td>-4.7</td>
<td>-4.5</td>
<td>-4.2</td>
</tr>
</tbody>
</table>

Source: The National Mediation Office

The results are similar to those obtained by standard weighing in Table 1.1, where the unexplained wage differential has decreased over time. Even there, the non-manual labourers within the private sector had the biggest wage differentials and the municipalities had the lowest. The standard weighing wage differentials are in most cases somewhat bigger, and can depend on standard weighing not being able to take as detailed information as the regression analysis into consideration.

1.5.4 Occupation is the most important explanation behind wage differentials.
Of the various factors considered in the regression analysis, it is occupation that provides the single largest contribution to explaining the difference in pay between women and men.

A comparison between row 1 and 2 in table 1.4 clearly shows that systematic differences in educational level and age (where age is perceived as a measurement of experience) does not explain wage differentials. Instead, the differences increase with around 2.2 percentage points when consideration of age and level of

17 Corresponds to (exp(β1)-1)*100. The model that is taxed corresponds to row 4 in table 1.4, that is to say that consideration is made for age, level of education, industry, company size, extent of service and occupation.
education is taken; as women on average have a higher level of education than men (and are somewhat older).

That women and men work in different sectors (private and public) or in different industries does not provide much of an explanation with regard to wage differentials between women and men. Differences in age, level of education, sector, industry, company size and extent of service together, explain around 26 per cent of the average wage differential between the sexes.\textsuperscript{18}

When the estimation takes occupation into account, wage differentials decrease substantially. Together with the sector, industry company size and extent of service, the occupation explains more than half of the wage differentials between women and men (around 56.5 per cent, hence occupation accounts for around 30 percentage points).\textsuperscript{19} That women and men work in different occupations, and that these occupations are associated with different wage levels, is therefore an important explanation behind the difference in women and men's wages.\textsuperscript{20}

\textsuperscript{18} Estimated as 1-(8.8/11.6). See Table 1.4
\textsuperscript{19} Estimated as 1-(5.3/11.6). See Table 1.4
\textsuperscript{20} An analysis of the correlation between the number of women within an occupation and the average wage can be found in the report “What do the official wage statistics say regarding wage differentials between women and men in 2008?” The National Mediation Office (Mj)(2009b)