Gender Pay Gap in Estonia: Empirical Analysis

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1. Introduction

The gender pay gap – the difference between the average wages of men and women – in Estonia is the largest in Europe. According to Eurostat data[1] women in Estonia in 2007 earned on average only 69.7 percent of the men's wage, or in other words the size of the pay gap was 30.3%. This statistical indicator has created quite a lot of public discussion in Estonia about gender inequality in the labour market. Are Estonian employers on average really so discriminatory that they pay a female employee almost a third less for doing the same work as a male employee? Such a claim, however, actually cannot be inferred from the gender pay gap indicator.

The first thing that should be kept in mind whilst interpreting pay gap statistics is that it does not mean a difference in wages for the same job, or for work of equal value. A pay gap of 30.3% is simply the difference between women's and men's **average** wages. This does not derive only from the fact that women receive less pay for the same work, but also to a large degree from the fact that women and men do different work. For example, a large share of female employees are comprised of workers in the education and health care sectors, but this is not the case for men; amongst men, however, there are considerable numbers engaged in building, but there are few women to be found in this sector of activity. When women and men concentrate in the labour market in different activity sectors and occupations this can result in a gender pay gap even if everyone is paid the same for the same work.

Differences between female and male employees, however, are not limited to only their doing different work. Women take parental leave more frequently than men. Can women's lower wages be due to interruptions in their careers, which result in shorter working experience on average than for men? Or is it an advantage for men to be able to agree to an employer's request to do overtime if necessary, whereas women who

[1] Source: Eurostat's online database, March 2010. By the time this article was published (March 2011) Eurostat had adjusted its wage gap indicator slightly, with the new value for Estonia in the database being 30.9%. Since this article is based on a report of a longer study, the value of the indicator used here is the one that was valid at the time the report was written. The difference between the previous and new values of the indicator is not statistically relevant.

are more dedicated to their families are not? Or is the origin of pay gap actually due to women and men choosing different fields of study in vocational schools and higher education? All these issues play a certain role in the formation of wage differences.

Therefore, there are many possible reasons for the existence of a gender pay gap, and direct discrimination is only one of many. It should be asked, however, how big the share of one or the other reasons is in the formation of the pay gap: what percentage of the pay gap is due to concentration in various sectors of activity, to hours worked, to differences in levels of education and studied fields, etc. This article provides an overview of the study where the aim was to find an answer to this question. This answer is necessary not just for the interpretation of statistics, but also as background information in ensuring the formation of policies targeting more equal opportunities.

In this study the issue of the reasons for the gender pay gap is addressed by using regression analysis. This statistical method enables the computational assessment of the wage equation, or the correlation between the wage and the indicators impacting the wage. The advantage of regression analysis is the possibility to simultaneously assess the correlation of a number of factors with the wage: for example, the percentage increase in the wage that is ensured by acquiring higher education compared to secondary education, if all the other factors, such as occupation, working experience, remain the same. Amongst the other factors characterizing the wage, we analyze the impact of the gender variable in order to find out how large a share of the pay gap is due solely to the sex of the employee, not the sector of activity, education or other measurable indicators. It should be noted, however, that discrimination cannot be measured or analyzed as a factor explaining the wage. The analysis is based on individual-level statistical data (use of Statistics Estonia's Estonian Labour Force Survey data, 2000–2008), but it is not possible to systematically collect data on discrimination practices.

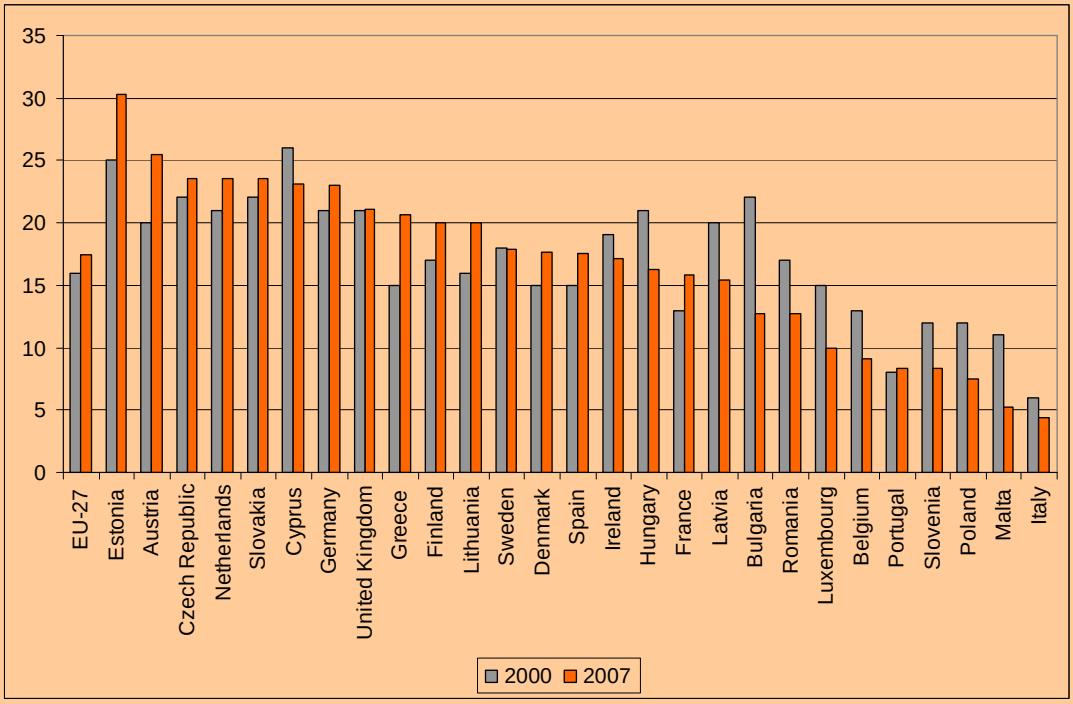
The gender pay gap in Estonia is the largest in Europe: the average wages of women and men differ by more than 30%

The structure of this article is as follows. In the first section we provide an overview of the development trends of the gender pay gap in Estonia and in the other EU member states. We then describe the methodology used in the study, and the consequent results on the size of the explained and unexplained pay gap. In the third section we examine segregation, or the concentration of women and men in difference sectors of activity and occupations, which is one of the fundamental factors impacting the pay gap. The fourth section looks at the correlation between level of education and the completed field of study with the pay gap, and in the fifth section there is an analysis on how career breaks associated with children impact the wages of women and men.
In the sixth section we compare the pay gap in types of enterprises of various sizes and forms of ownership. The seventh section analyzes the impact on the pay gap of some other factors, such as the hours worked and marital status.

1. Overview of pay gap development trends in Estonia and other EU member states

Of the EU member states, Estonia has the biggest difference between women's and men's wages. Figure 1.1 illustrates why this topic has become increasingly timely, taking particularly into account the events during recent years: **Estonia's general gender pay gap has increased in the period 2000–2007**.[2] In 2007, men in Estonia earned an average 30% more than women, whereas in the EU as a whole, the average gender pay gap was 15%. The smallest gender pay gap in EU countries was in Malta and Italy, where it was approximately 5%.

Figure 1.1. **General gender pay gap in EU member states, 2000 and 2007 (percent)**



Source: Eurostat (online database), European Commission 2009

The analysis in this article is based primarily on the data from the Estonian Labour Force Study (ELFS) for 2000–2008. Eurostat and European Commission data have been used for the international comparisons. The gender pay gap has been calculated using a formula that contains only full-time employees.[3] In order to ensure the comparability of data by year, the wage differences have been calculated on the basis of real wages (except for Figure 1.2, where the gender pay gap is based on differences in nominal wages). **During the period 2000–2008 the general gender pay gap, taking real wages as the basis, was an average of 28.6%.**

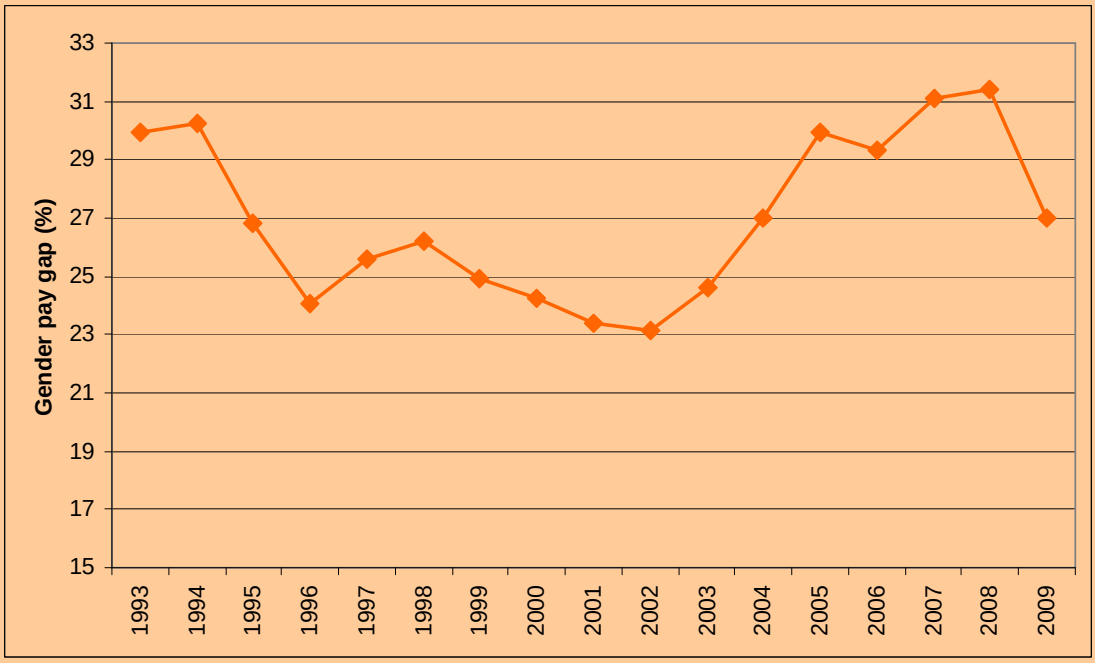
[2] The pay gap assessments published by the European Commission are based on Eurostat data. These in turn are based on the study on wage structure (hourly wage data for October collected in Estonia by Statistics Estonia) or member states' similar data.

[3] In 2000–2008, an average of 11% women and 5% men worked part-time in Estonia (Krillo and Masso 2009).

Although this article is looking mainly at the period 2000–2008, the overview provided in Figure 1.2 of the trend in the gender pay gap covers a longer period: we demonstrate how the wage difference between women and men has changed over the period 1993–2009. In the 1980s the gender pay difference in Estonia was approximately 40% (Noorkõiv *et al.* 1997). The pay difference decreased during the transition period that began in the following decade, being reduced to 24% by 2000. This trend is not exceptional: the gender pay difference was relatively large in the 1980s not only in Estonia but also in the other socialist countries of the time. During the economic transition period this was reduced (Rõõm and Kallaste 2004). But what is exceptional is the fact that in 2000–2007 the gender pay gap in Estonia has increased measurably. Whereas in 2000 the pay difference was 24%, in 2007 it reached 31%. In the majority of Central and Eastern European member states of the EU the gender pay difference has decreased over the 2000–2007 period (see Figure 1.1).[4]

As of the start of the financial and economic crisis in 2008, the gender pay gap had reduced in Estonia: in 2009 men's wages were 27% higher than women's wages. The reduction in the gap was largely due to the fact that men worked more, compared to women, in activities that contracted more during the economic crisis (e.g. construction). On the basis of the data shown in Figure 1.2, it is apparent that the difference in women's and men's wages did also increase during the previous economic boom in 1995–1997. The trends in Estonia's gender pay gap, therefore, have been procyclic, or have changed in the same direction as has the economic cycle.

Figure 1.2. **Gender pay gap trends, 1993–2009**



Source: Estonian Labour Force Surveys, authors' calculations

[4] The Estonian gender pay gap, calculated on the basis of the ELFS, was in 2007 almost one percentage point greater than the indicator published by the European Commission, which is based on the wage structure survey.

2. Explained and unexplained gender pay gap: overview of methodology, trends

The methodology described below, which is based on regression analysis, makes it possible to estimate how much of the gender pay gap can be explained by factors that can be measured through the differences between women and men (explained pay gap) and how much is not explained by these factors (unexplained pay gap).[5]

General gender pay gap = unexplained pay gap + explained pay gap

Gender pay gap comprises explained and unexplained parts

In the regression analysis on the reasons for the gender pay gap we use the so-called Mincer-type wage equation, where the dependent variable is the logarithm of the actual net wage of the employee and the independent variables are the factors impacting the wage. The wage equations contain as explanatory variables, in addition to the binary variable signifying sex, the following employee characteristics: level of education, field of study, age, ethnicity, being married or cohabiting, number of children (aged 0–3, 4–7 and 8–18), hours worked (average number of hours worked per week), occupation, being a trade union member (yes/no) and the number of subordinates (persons not working as managers have a zero number of subordinates). The wage equations also contain variables describing the employee's occupation: the form of ownership of the organization, size (number of employees), sector of activity and location (county). An overview of the estimates from the regression coefficients can be seen in this article's Annex 1, Table A1.1 (Annex 3.1 in the report for the second stage of the gender pay gap study).

In a Mincer-type regression the estimate for a regression coefficient demonstrates for a particular variable approximately by what percent the wage would change on average if the applicable variable increases by one unit. In the case of dummy variables, the result for a regression coefficient shows how much the wage would be higher if the value of the relevant indicator is true. For example, in the case of the variable 'male' signifying sex, where the value is equal to one (i.e. is true) in the case of a man, and equal to zero (i.e. it is false) in the case of a woman, the estimate for the regression coefficient shows how much more, on average, men earn than women. Let us assume that the regression equation, the basis for this estimate, also contains other variables besides the dummy variable signifying sex, e.g. the employee's education, age and the type of organization. In this case, the estimate for the regression coefficient shows how much more the man earns compared to a woman who has similar results for all the factors that have been taken into account in the regression, e.g. how much more men with the same level of education, of the same age, working

[5] The gender pay gap is usually expressed as a percentage of the average wage of men. For example, if men's average wage is 10 000 kroons and women's 7000 kroons then the gender pay gap is 100 x (10 000 – 7000) / 10 000 = 30% of men's average wage. If 1000 kroons of the 3000 kroon difference in average wages is due to the differences between women and men in the characteristics that impact pay, then we say that the explained pay difference is 10% and the unexplained pay difference is 20% of men's average wage.

in similar organizations, earn more on average than women. In the case of a wage equation, the estimate for a regression coefficient of a variable signifying sex also shows the unexplained pay gap, or that part of the gender pay gap that cannot be explained with the help of the variables contained in the regression.

One reason for the unexplained gender pay gap may be discrimination against women in the labour market, but it may also be due to variables that impact women's and men's wages differently and that have been left out of the regression equation. For example, an analysis based on US data has indicated that a large part of the pay gap is caused by gender differences in the continuity of work experience, but it is not possible to take these into account in the present study (O'Neill and O'Neill 2005).[6]

On the other hand it is also possible that the explained wage difference could partially be caused by discrimination. For example, women and men may make different choices associated with education or work because of social norms that are based on discriminating between the sexes. In addition to the aforementioned reason, labour market choices may also be limited for women due to employer discrimination, etc.

It is therefore not possible to draw conclusions on the basis of the following regression analysis regarding the extent to which gender pay differences are caused in Estonia by discrimination. The objective of the analysis is to demonstrate the extent to which a particular coefficient impacts the gender pay gap, and how these effects have changed over time.

An overview of the share of explained and unexplained pay gap in wages is presented in Figure 2.1. The general gender pay gap in 2000–2008 was an average of 28.7%.[7] In addition, the share of explained pay gap in average wage was 4.4% and the share of the unexplained pay gap was 24.3%, which means that the factors considered in the regression do not explain the predominant share (85%) of the general pay gap.[8]

In addition to the relevant data regarding the average for the 2000–2008 period, Figure 2.1 also shows the shares of the explained and unexplained pay gaps for 3-year periods (2000–2002, 2003–2005 and 2006–2008). These relative figures demonstrate that **during the period not only the general gender pay gap increased but also the unexplained pay gap**: in 2000–2002 the unexplained pay gap formed 20% of the wages, but in 2006–2008, 29%.

On the basis of Figure 2.1, it can be seen that although in 2000–2008 the share of the explained pay gap increased in wages, the general pay gap increased faster, resulting

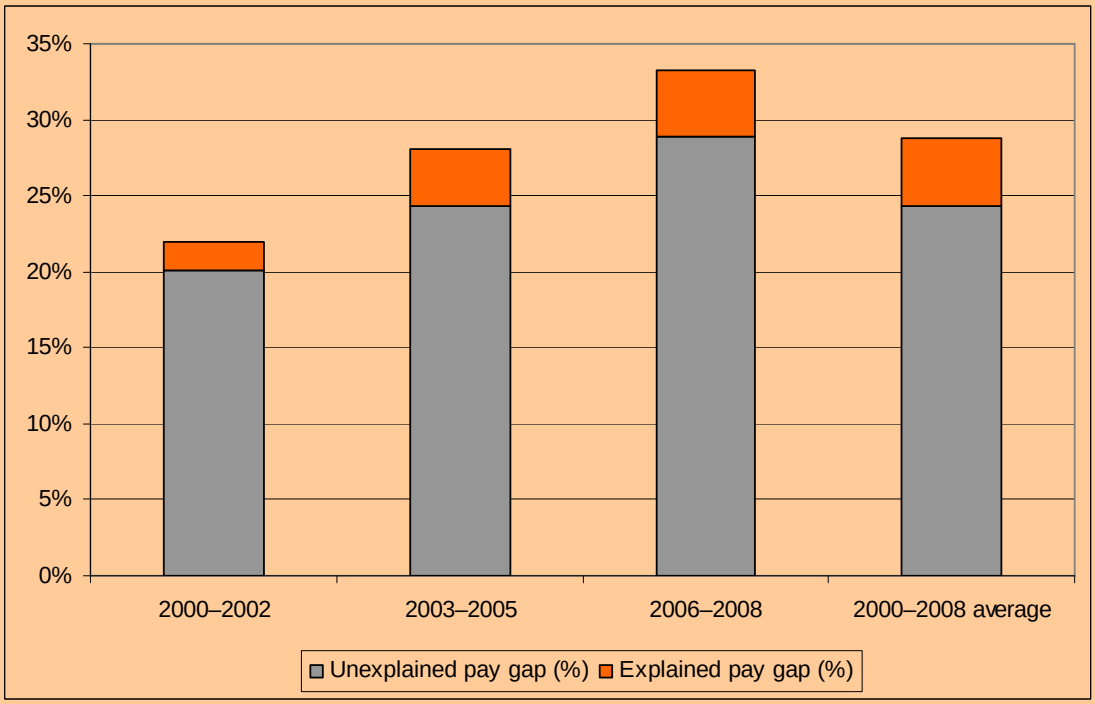
[6] A study where in addition to the number of years worked, the continuity of work experience, and its correlation with the age of the employee is also considered, presumes the use of panel data that covers a long period. There is no such database on Estonian employees.

[7] The general gender wage difference, in this case, has been derived on the basis of a regression, where only a dummy variable signifying sex has been added as an explanatory variable. The value of the general pay gap, calculated in this manner, is approximately equal to the gender pay gap calculated in the previous section on the basis of the average wages of women and men. (The coefficient expresses the variance of the wage logarithm, which is approximately equal to the percentage variance.)

[8] $85\% \approx 24.3 / 28.7 \times 100\%$.

also in an increase in the unexplained pay gap. The increase in the share of the explained pay gap was mainly due to the fact that taking into account the occupation and sector of activity made it possible to explain the wage difference in 2006–2008 to a greater degree than in 2000–2002. The impact of other factors on the wage difference was low, both at the start of the relevant period, as well as at the end (see Tables A2.1 and A2.2 in Annex 2 of this article, and Tables 3.2 and 3.3 in the report for the second stage of the gender pay gap study). Gender segregation, therefore, had a greater impact on the wage difference at the end of the relevant period than at the beginning. A more comprehensive overview of segregation has been carried out in the next section.

Figure 2.1. **Proportion of explained and unexplained pay gap, 2000–2002, 2003–2005 and 2006–2008, and for the whole period on average**



Source: Estonian Labour Force Surveys, authors' calculations

3. Segregation in Estonia

Vertical and horizontal segregation

Part of the gender pay gap derives from the concentration of Estonia's female and male employees in different sectors (e.g. the proportion of men is greater in construction, of women in health care) and occupations (e.g. there are more managers amongst the men and more clerks amongst the women). Concentration into different occupations is called horizontal segregation, and into different occupational levels is called vertical segregation. **Estonia holds first place in Europe for both horizontal and vertical segregation**. Figures 3.1 and 3.2 provide an overview of the sectoral and occupational segregation in EU countries, based on the segregation indices used by the European Commission (EC). These vary from one to one hundred and the highest value of the index denotes the most extensive gender segregation. Both the occupational and the sectoral based segregation are amongst the highest in the EU, according to EC data.[9]

Segregation, or the concentration of women and men in different work, is high in Estonia

One possible reason for the above average gender segregation of the Estonian labour market is the apparently contradictory high employment rate for women. The female employment rate in our labour market is one of the highest compared to other EU member states, similarly to the other Baltic States and the Nordic countries. In the case of the latter countries, one of the reasons mentioned for the high level of segregation is the relatively large share of such sectors where women predominate, e.g. education, health care and other social services.

Compared to the Mediterranean countries, more women with (young) children go to work in Northern Europe, which in turn requires child care services. It can be presumed that the share of the sectors in the economy associated with education and social services is also large in Estonia, which would in turn increase segregation.[10]

[9] The EC evaluates segregation according to the following method: a calculation is made of the share of women and men who are employed in each occupation/sector, and the differences between women and men in these employment rates are added. The result is normalized, and expressed as a percentage of total employment (ISCO classification).

[10] E.g. the share of those employed in education (the activity sector definition also contains kindergartens and child-minding) in Estonia is one of Europe's largest (9.1%), and it is larger only in Lithuania (9.8%).

Figure 3.1. **Gender segregation according to sector of activity (segregation index) in EU countries, 2007 (percent)**

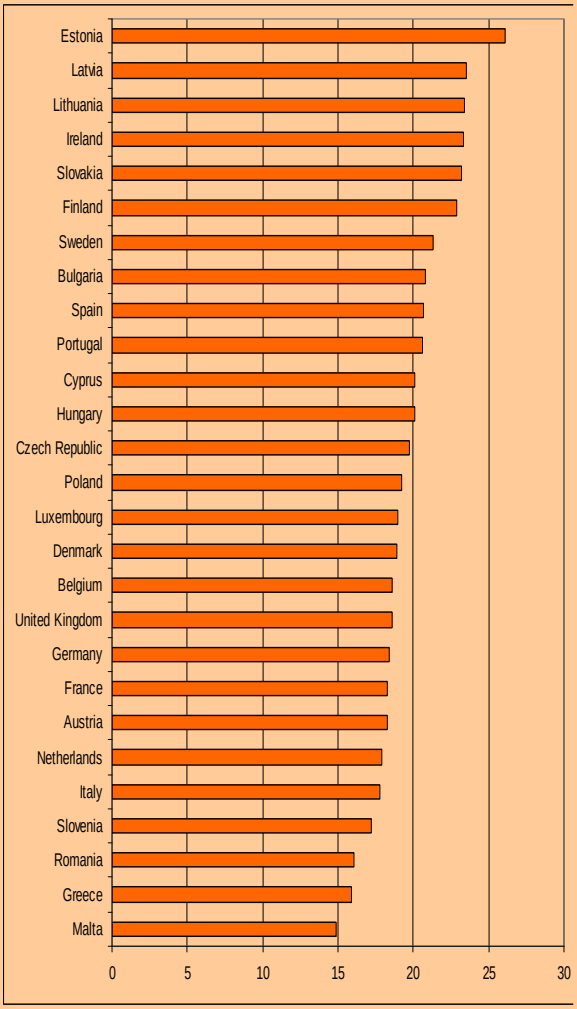
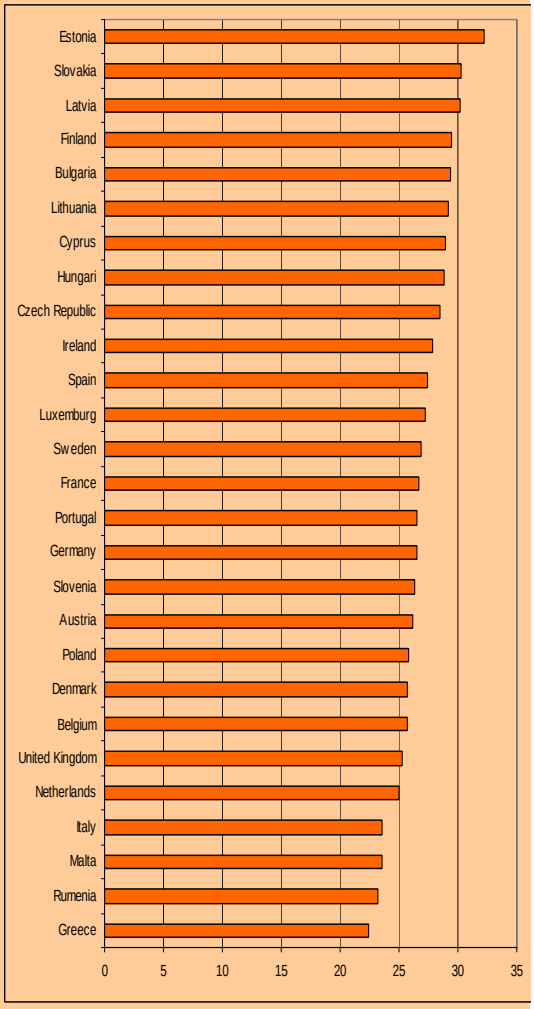


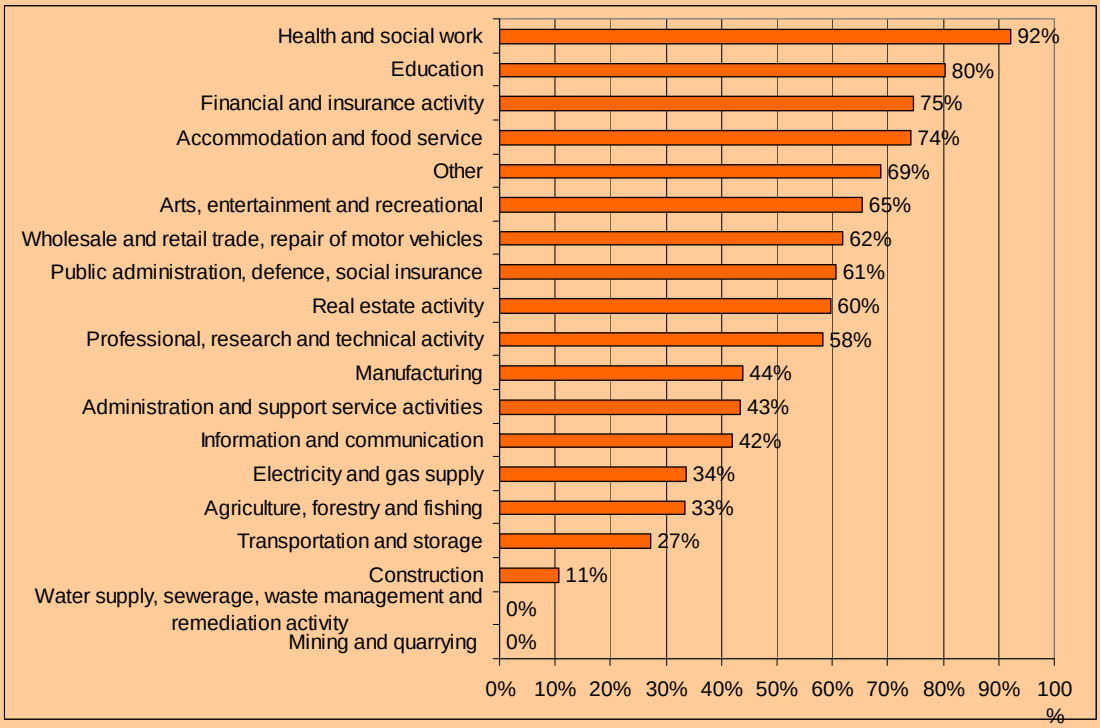
Figure 3.2. **Gender segregation according to occupation (segregation index) in EU countries, 2007 (percent)**



Source: European Commission 2009

What are the activity sectors and occupations where Estonian female and male employees are concentrated? Figure 3.3 provides an overview of the gender balance of Estonian employment according to sector of activity. Women dominate in sectors such as health care and social work, education, financial and insurance activity, and accommodation and food services. Men on the other hand predominate in construction, transportation and storage, agriculture, forestry and fishing.

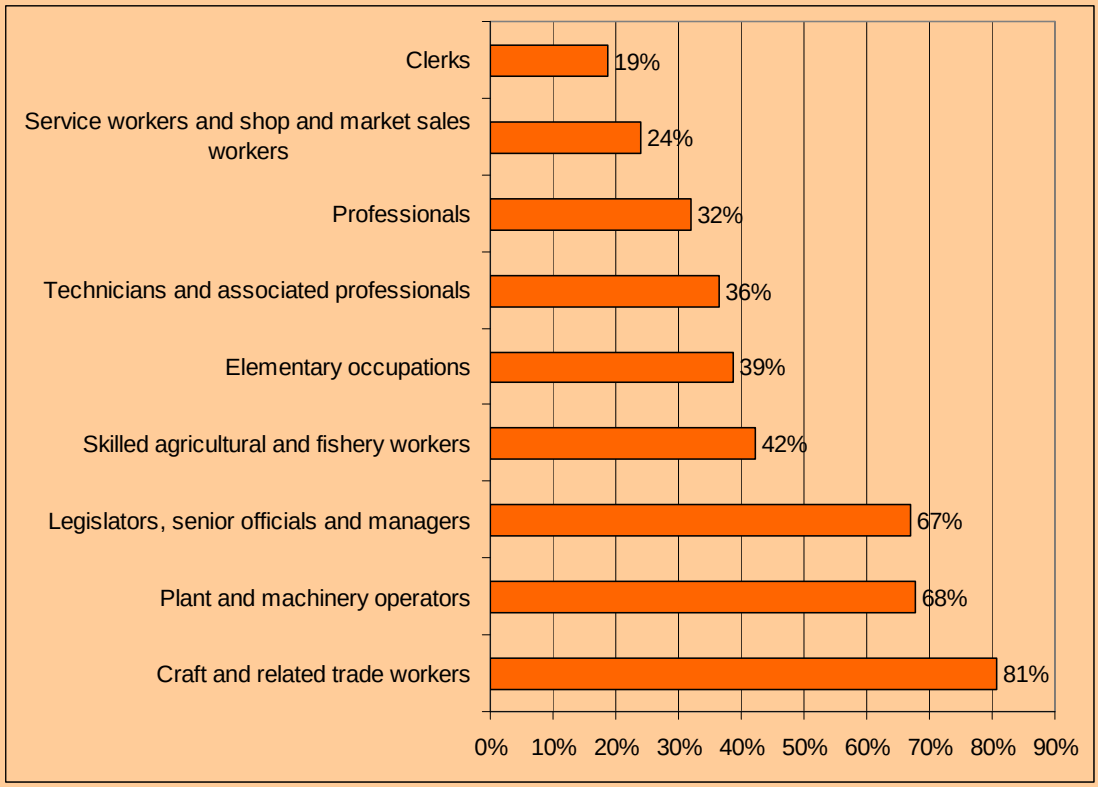
Figure 3.3. **Proportion of female employees in sectors of activity, 2009**



Source: Estonian Labour Force Survey 2009, authors' calculations

Women and men are also not distributed equally across occupational levels. For example, men predominate amongst managers, making up two thirds. One the other hand, the share of men is also large in some lower occupational levels, such as craft and related trade workers, and plant and machinery operators. More women can be found amongst service workers and shop and market sales workers, and clerks (see Figure 3.4).

Figure 3.4. **Proportion of male employees according to occupational level, 2007**



Source: Statistics Estonia, authors' calculations

Only a small part of the gender pay gap has been explained

How large a part of the total gender pay gap is due to the fact that women and men are concentrated in different sectors and occupations? In order to answer this question a regression analysis has been carried out. Firstly, the unexplained pay gap was found by a regression equation, where all the explanatory variables used in the analysis were added, in addition to sex.[11] Then the regression equation was run, leaving out firstly the occupation of the employee and then the variable describing the activity of the enterprise, in order to see how leaving out this variable would impact the size of the unexplained pay gap.

The results demonstrate that when the variable describing the occupation of the employee is left out of the regression, the unexplained wage difference increases almost 10% (2.7 percentage points) and, on adding the variable describing the activity sector of the enterprise, approximately 11% (3 percentage points). This means that taking into account both the occupation and sector reduces the wage difference, which

[11] An overview of the variables included in the regression is provided in Annex 1 of this article, in Table A1.1.

demonstrates that men work more on average in such sectors and/or occupations that are better-paid.
The part that can be explained by both the sector and the occupation has increased in the 2000–2008 period. Whereas in 2000–2002 leaving out the sectoral variable increased the gender pay gap by 7.5%, in 2006–2008 the relevant indicator was already 11.4%. The impact of the occupational variable on the pay gap also increased from 6% to 9%. This indicates that one reason for the increase in the gender pay gap in this period is the increase in segregation. Segregation has a particularly strong impact on the pay gap amongst persons with primary or basic education: in this group leaving out the occupational variable increased the pay gap by 18%, and leaving out the sectoral variable 19%.

It should be kept in mind, however, that the sectoral and occupational descriptions used in the above calculations are rather general: on the basis of the Estonian Labour Force Survey data, it is possible to differentiate only 9 occupations and 15 sectors of activity. A more detailed description of sectors and occupations would probably enable an even more extensive explanation of the pay gap.

An equal distribution of women and men in work would reduce the pay gap by a third, but women and men working in the same occupation also do not get paid the same

Although a further breakdown of the occupations or sectors is not possible for the data that was used in the regression, more detailed data on occupations does exist (179 occupations in the four-level 'Classification for Occupations 1999' used by Statistics Estonia) in Statistics Estonia's hourly wage data collection. On the basis of this collection (2006 data) we will attempt to answer the question: how big would the gender pay gap be if there was no occupational segregation at all, i.e. if the pay gap were due solely to the different wage paid to women and men in the same occupation. Calculations show that **if there were equal numbers of female and male employees in all occupations, or if there was no segregation at all, the average gender pay gap would decrease by 32%**.

It can also be seen from the hourly wage data that women and men earn different wages even within the same occupation (the gender pay gap in the same occupation is on average 13%). Equalizing women's wages with the average hourly wage for men in the applicable occupation reduces the average gender pay gap by half: if women earned the same hourly wage as men working in the same occupation, the gender pay gap would be 13.6%.

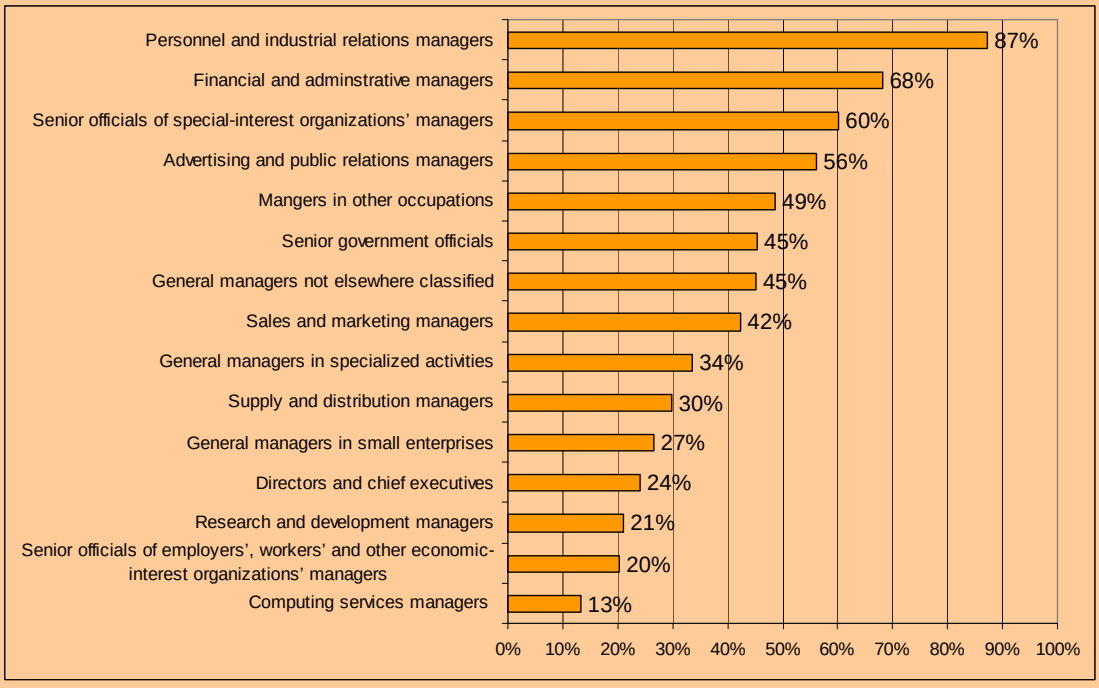
We therefore see that the concentration of women and men in different sectors and occupations measurably impacts the gender pay gap in Estonia but is far from explaining the entire pay gap.

Glass ceiling

One of the forms of vertical gender segregation is the so-called glass ceiling effect. This glass ceiling term denotes artificial, invisible barriers that prevent women from rising to senior positions in their careers. This term does not mean a situation where progression is hindered by the person's own limited capability for working in a senior position, but artificially-created obstacles for women as a group (Morrison *et al.* 1987). The existence of a glass ceiling results in a situation where the share of women in senior positions or better-paid jobs is lower. A manifestation of the glass ceiling is also a greater difference between the wages of highly-paid women and highly-paid men (a gender pay gap in the upper part of the wage differential).

Women form one third of managers and senior officials in Estonia. A closer examination of this category (see Figure 3.5) shows that the proportion of women in the category is lower than the average for top managers (directors and chief executives, managers in small enterprises), being only approximately one quarter. The share of women amongst non-top managers is greater than the average and the scene more varied: there are occupations that are strongly dominated by both men (e.g. computing services managers, research and development managers) and women (e.g. personnel, and financial and administrative managers), as well as jobs that were relatively balanced, such as government officials, officials in civil organizations, sales and marketing, and advertising and public relations managers.

Figure 3.5. **Proportion of women amongst managers, 2007**



Source: Statistics Estonia, authors' calculations

The difference between female and male managers is relatively large (depending on the database used, from 19–29%, i.e. on whether to use data from the Estonian Labour Force Survey, or the hourly wage data, provided by Statistics Estonia), and the gender pay gap increases as the number of the manager's subordinates increases: it is 40% for managers with more than 50 subordinates. Estimates using regression analysis demonstrate that the pay gap is not due to, for example, the fact that female and male managers work in different sectors of activity, because even with taking into account all the possible explanatory factors, the unexplained wage difference between female and male managers is similar to the Estonian average.

The existence of the glass ceiling in the Estonian labour market was also studied, based on data from the Estonian Labour Force Surveys, for all the wage differences that are apparent in the various parts of the wage differential. Evidence of the glass ceiling effect can be seen when the gender pay gap is much larger in the upper part of the wage differential than in the middle or lower part. Such a situation can develop, for example, if women are forced to reduce their wage claims if they aim to rise to more senior positions. The results show that the wage gap in Estonia is larger in the upper part of the wage differential than in the lower. In other words, the difference between wages is greater amongst highly-paid men and highly-paid women than female and male employees earning the average wage (Anspal et al. 2010). In using the quantitative regression method it was found that, amongst the highly-paid, the share of the unexplained pay gap was also around the same magnitude as in the case of the difference between the average wages. The results, therefore, indicate the possibility that the glass ceiling effect also occurs in Estonia.

4. Level of education and acquired field

One of the main factors that have historically determined the difference between women's and men's incomes is the gap in educational levels: in the majority of countries in the world, up to the second half of the previous century, the length of education for men was longer than that for women. Over recent decades the impact of this factor has been reduced, and in the developed countries (including the post-socialist countries) this trend has even turned around: there are more women than men amongst those acquiring higher education. The reduction of the gender difference in educational levels has been one of the reasons why the gender pay gap has been reduced in many countries over recent decades. Gender differences in educational levels have also been reduced in Estonia, and now there are markedly more female students than male students studying in higher education institutions. For example, in 2007 the share of women in Estonia amongst higher education graduates was 69% (European Commission 2010).

In addition to the length of education, differences in educational choices also have an impact on the gender pay gap (educational segregation). Relevant studies based on other countries' data have also shown that male wages exceed women's wages partially because men tend to study fields which would later ensure a higher income (e.g. fields associated with information technology, Anspal *et al.* 2009). The situation in Estonia regarding subject field segregation is exceptional: in those fields where the

wage of the graduate is higher than average, the proportion of women is greater than of men. Additionally, amongst Estonian employees, the women have a higher average level of education than do the men. **If differences in education were the only factor impacting the pay gap, women's wages in Estonia, therefore, should be higher than men's wages.**

As noted above, the women participating in employment in Estonia are more highly educated, on the average, than men. In the Estonian labour market in 2000–2008 an average of half the employees were women and half were men, but the share of men amongst those with a lower level of education was greater. Men formed around 63% of those employees with basic education or less than basic education, around half of the employees with secondary education, and around 41% of employees with higher education.

The difference between the education levels of women and men has increased in the 2000–2008 period: compared to the 2000–2002 period, the proportion of men amongst employees with higher education reduced in 2006–2008 from 43% to 40%, and increased from 62% to 66% amongst employees with basic or lower education. Taking into account the trends in the gender structure of education, the gender pay gap should have been reduced, but the actual trend was the opposite: in this period, the gender pay gap increased.

Women's educational level is higher on average than men's. Also, the gender pay gap is not due to women's educational choices

Table 4.1 provides an overview of the share of male employees who studied various fields, and the relative wage level for graduates of the relevant field, compared to the wages of employees who do not have specific education. On the basis of the data in the table, we can conclude that there were more women than men studying in those fields where the wages of graduates were higher than the average (e.g. mathematics and statistics, life and physical sciences, health and welfare). The same also generally applies if the periods 2000–2003 and 2004–2008 are considered separately, which permits a somewhat more precise division of the subject fields (see Tables A3.1 and A3.2 in Annex 3 of this article, and Tables 1.A and 1.B in Annex 1 of the report for the second stage of the gender pay gap study).

Table 4.1. **Gender pay gap and proportion of men amongst wage-earners, according to field of study, 2000–2008**

Field of study	Pay gap (%)	Proportion of men (%)	Relative wage (men)*	Relative wage (women)*
General education	34.3	51.1	100.0	100.0
Teacher training and education	32.4	8.6	132.2	136.1
Humanities and arts	19.7	26.5	126.7	155.0
Social sciences, business and law	44.7	15.2	166.9	140.6
Life and physical sciences	33.4	42.2	160.9	163.2
Mathematics and statistics	30.5	40.8	162.0	171.6
Engineering, manufacturing and building	36.0	70.7	112.2	109.4
Agriculture, forestry and fishery, veterinary	21.8	54.1	91.4	108.7
Health and welfare	36.7	6.5	149.8	144.4
Services	40.6	55.4	113.4	102.6

* The average wage level for graduates of the relevant subject field compared to the wage level of those who had acquired general education (%).

Source: Estonian Labour Force Surveys, authors' calculations

The results of the regression analysis also agree with the above, showing that **taking into account the subject field choices increases the share of the unexplained pay gap in Estonia** (see Tables A2.1 and A2.2 in Annex 2 of this article, and Tables 3.2 and 3.3 in the report for the second stage of the gender pay gap study). This result contradicts other countries' results: taking into account subject field segregation in the regression generally helps to reduce the share of the unexplained pay gap (for example, see Machin and Puhani 2003, Napari 2006).

5. Family factors and length of working experience

In addition to educational differences, the gender pay gap is also influenced by the differences in working experience for women and men. Since it is predominantly women who due to family obligations (raising children, etc) are for a certain period inactive in the labour market, their average length of working experience is shorter than for men. Studies carried out on this topic have demonstrated that it is in particular career breaks at the beginning of the career that are one of the main reasons determining wage differences between women and men. For example, the study by Erosa *et al.* (2005), based on US data, ascertained that at the age of 20–40, the gender

pay gap doubles since it is at this age that mostly men's wages rise, since women interrupt their work in order to raise children.

It is not possible in Estonia to directly evaluate the impact on the gender pay gap of career breaks associated with raising children since this analysis should be based on panel data covering a long period, but no such database exists in Estonia. It can be analyzed indirectly, however, estimating Mincer-type wage regressions separately for women and men: in this way it is possible to estimate whether the children that are born into the family impact (with the other factors added to the regression remaining the same) the wages of women and men differently.

The gender pay gap is partially determined by the fact that having children keeps women away from the labour market more than it does for men

Mincer-type regression estimates that have been obtained on the basis of sampling that includes women and men, are shown in Table A1.2 of Annex 1 (third and fourth columns) (see also Annex 3.2 in the report for the second stage of the pay gap study). The regressions contain a variable that describes the number of children under the age of 18. The estimate from this variable's coefficient is statistically relevant for women, with a 99% probability, and demonstrates that **women with children earn on average 1.2% less than women with no children (per child). This difference is not statistically relevant for men.** In the case of such an analysis, however, it should be considered that a large proportion of mothers with young children do not work (i.e. they stay at home with the children). This means that it is probable that it is primarily the mothers, whose potential wage would be the lowest if they worked, who are absent from the labour market the longest due to child raising. Due to this so-called choice shift the actual (negative) impact of children on women's wages would probably be greater than the estimate based on the regression actually shows.

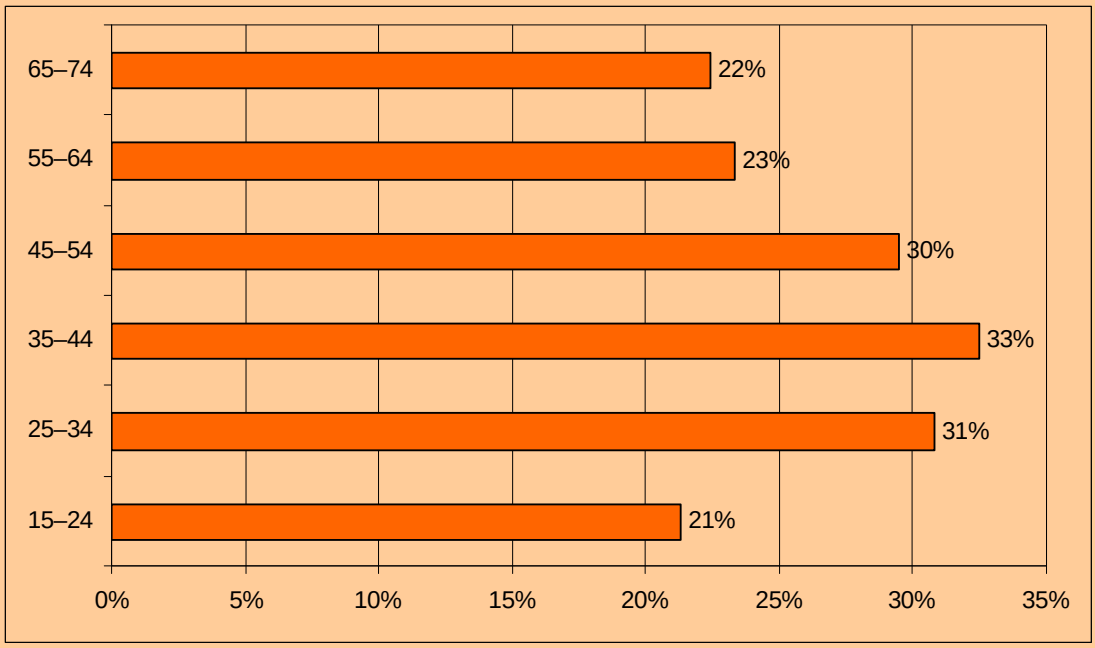
In addition to differences in length of working experience, potential family obligations may increase the pay gap between women and men also due to statistical discrimination.[12] Indeed, the wages of women of child-bearing age may be lower than that of men because employers presume that during a certain period women will not participate in the labour market due to having children. This means potential costs to employers (seeking and training substitute employees), so they compensate for this during wage negotiations by offering women in this age group lower pay, on average, than they would to men. In addition to the direct negative impact of statistical discrimination, this can also have an indirect effect on women's wages since women

[12] Statistical discrimination manifests itself if it is presumed that persons applying for work have the so-called typical features and characteristics to their sex. In the given case employers do not know whether the woman/man will take parental leave in the future or not, so they look at likelihood.

would also have fewer opportunities to receive specific training and to move up the career ladder.

Differences between women's and men's wages in various age groups also indicate that statistical discrimination is one of the reasons for the gender pay gap in Estonia. An overview of these data is provided by Figure 5.1. The wage difference between women and men is the greatest in the 25–54 age group (for ages 25–34 it is 31%, for ages 35–44 33% and for ages 45–54 30%). The wage difference for other age groups is almost 10 percentage points smaller, in the range of 21–23%. This shows that the **pay gap is the largest in the age group where starting a family and raising children is the most likely**.

Figure 5.1. **Gender pay gap grouped by age, 2000–2008**



Source: Estonian Labour Force Surveys, authors' calculations

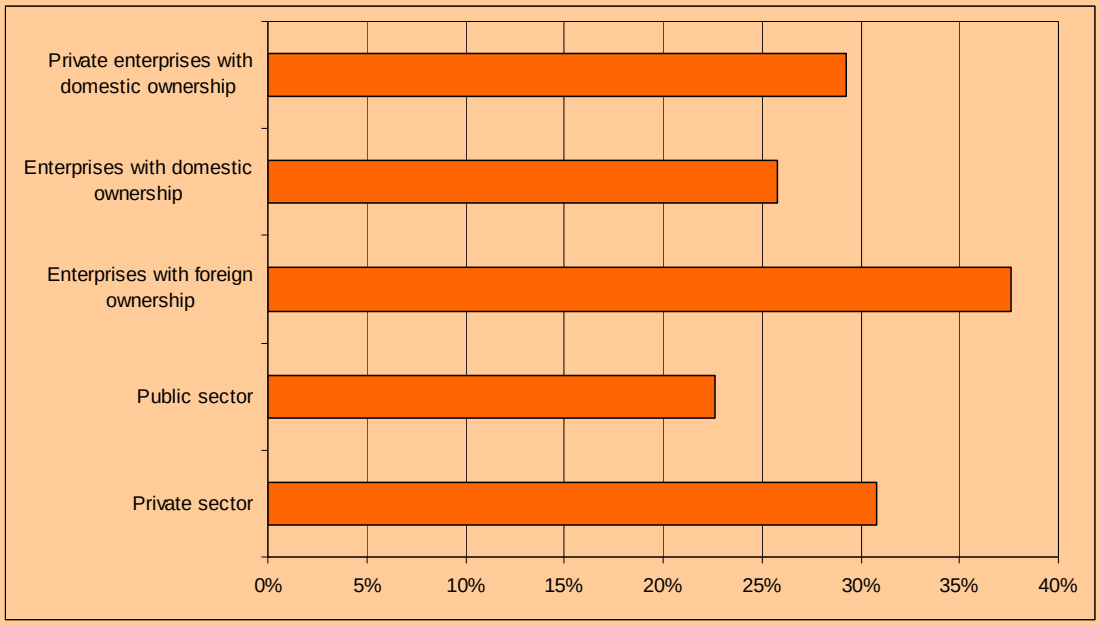
6. Pay gap depending on the type of enterprise

Form of ownership of the enterprise

On the basis of ELFS data, it can be seen that the gender pay gap is dependent on the form of ownership of the enterprise: in 2000–2008 it was on average lower in the public sector than in the private sector (23% and 31%, respectively, see Figure 6.1). The private sector can in turn be differentiated according to foreign-owned and domestic-owned enterprises: the gender pay gap is markedly greater for the former (38%, whereas in domestic-owned enterprises it is 29%). **Pay differences in Estonia, therefore, are greatest in the private sector, and particularly in foreign-owned enterprises.**

On the basis of regression analysis it can also be seen that in the case of the unexplained pay gap the same correlations with the form of ownership of the enterprise apply as in the case of the general pay gap. The share of the unexplained pay gap in men's wages forms 18% in the public sector, in domestic-owned companies in the private sector it is 23%, and in foreign-owned enterprises it is 31% (see Table A2.5 in Annex 2 of this article, and Tables 3.6 and 3.7 in the report for the second stage of the gender pay gap study).

Figure 6.1. **Gender pay gap according to type of ownership of enterprise, 2000–2008**



Source: Estonian Labour Force Surveys, authors' calculations

The larger wage difference for companies in the private sector, and particularly those that are foreign-owned, can be partially explained by the generally more unequal distribution of wages. According to ELFS data, the dispersion of wages[13] in the private sector is almost twice as great as in the public sector, and in foreign-owned enterprises approximately 2.5 times greater than domestic-owned companies.

The probable reason for the public sector having a smaller gender pay gap than the private sector is the different wage system. In the public sector there are generally more clearly formulated rules for the setting of wages than in private enterprises. This also means that the wage system is based more on the measurable characteristics of the employees (such as length of working experience and educational level), which means it is less likely that persons working in the same job with the same qualifications earn different wages. Wage differences in the public sector, compared

[13] The wider the dispersion of wages, the more unequally the wages are divided.

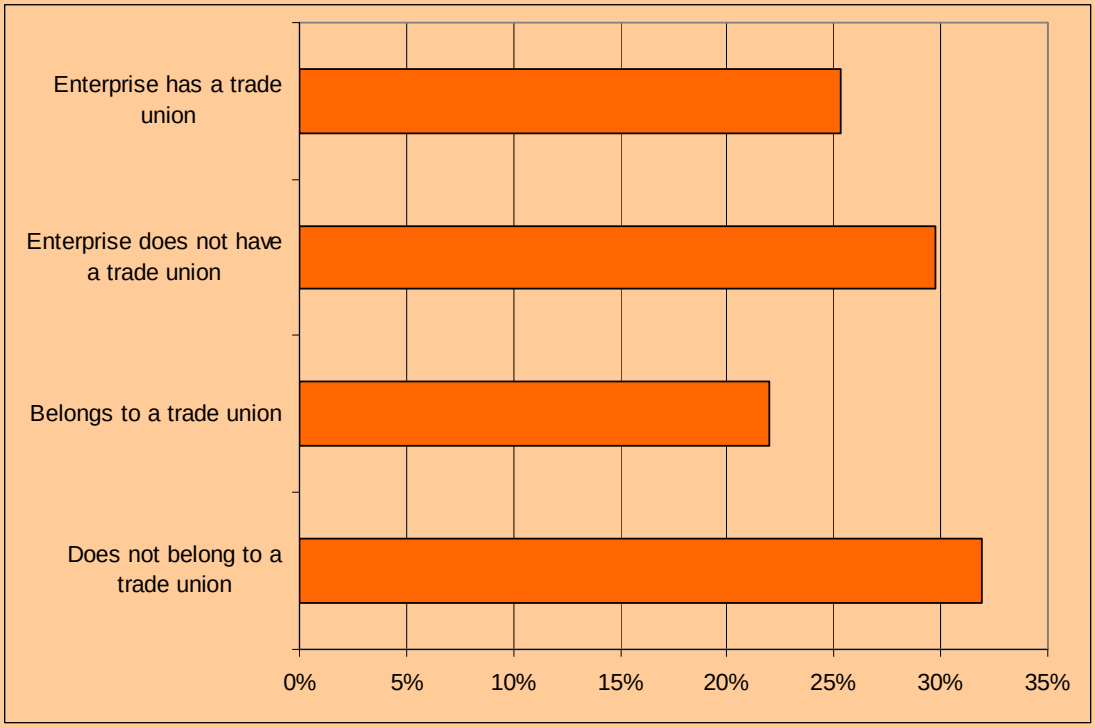
to the private sector, are smaller not only in Estonia but also in the EU as a whole (European Commission 2009).

The question as to why the wage difference in foreign-owned enterprises is so much greater than in domestic-owned companies remains unanswered in this study. In the case of all forms of ownership the share of the explained pay gap in the general pay gap is relatively similar, but taking into account the sector of activity of the foreign-owned enterprises and the employee's occupation has markedly less impact on the gender pay gap than in the public sector or a domestic-owned private enterprise (See Table A2.5 in Annex 2 of this article, and Tables 3.6 and 3.7 in the report for the second stage of the pay gap study). On the basis of this it can be concluded that the level of segregation in foreign-owned enterprises is lower than in domestic-owned enterprises. On the other hand, segregation is positively correlated to the pay gap (i.e. greater segregation is associated with a greater pay gap). It is therefore incomprehensible why the pay gap is greater in foreign-owned companies. This topic deserves further analysis.

Trade unions

The data in Figure 6.2 show that the **gender pay gap is smaller in Estonia for employees who are members of a trade union**: in their case the wage difference is 22%, whereas for employees who are not members of a trade union, it is 32%. The main reasons for the gender pay gap being smaller amongst trade union members coincide with the reasons that determine the smaller wage difference in the public sector. Firstly, similarly to the public sector, the wages for trade union members are also more equally distributed than for other employees (on the basis of ELFS data, the dispersion of wages is narrower). Secondly, earlier relevant studies have shown that the smaller gender pay gap can be explained by differences in the wages system (Anspal *et al.* 2009). But it is also possible that the smaller pay gap for trade union members is less associated with the wages system than with how large the gender pay gap is in those sectors of activity and occupations where trade union members work.

Figure 6.2. **Gender pay gap according to employee membership in a trade union, 2000–2008**



Source: Estonian Labour Force Surveys, authors' calculations

The fact that belonging to a trade union reduces the wage difference has also been shown by studies conducted in other countries. The gender pay gap amongst trade union members is smaller primarily because they are generally covered by collective wage agreements. Collective wages bargaining reduces the general wage dispersion, also resulting in a smaller gender pay gap. Secondly, a wage system that is based on collective agreements is more regimented, with formal rules reducing the subjectivity in setting wages, resulting in reduced wage differences. It has also been noted that with collective wage agreements the wages system and the rules for wage formation are more transparent, which reduces the possibility for discrimination, and as a result of which the gender pay gap may decrease (Anspal *et al.* 2009).

However, on the basis of the regression analysis it can be seen that the unexplained wage difference does not particularly depend on whether the employee belongs to a trade union. If all the factors impacting wages are taken into account, the unexplained wage difference of trade union members is even somewhat greater than for employees not belonging to a trade union (26% and 24%, respectively). The smaller difference in the general gender pay gap for persons belonging to a trade union is due primarily to the fact that membership in a trade union in Estonia is greater mostly in those sectors of activity and occupations where the male-female wage difference is smaller.

Size of the enterprise

It can be seen from the regression analysis, in addition to the above, that the **unexplained pay gap increases with the size of the enterprise**. The smaller the enterprise, the larger the part of the wage difference that can be explained with the help of the variables added to the regression. In the case of the group of smallest companies (1–10 employees), the coefficients added to the regression explain about 26% of the pay gap, whereas in the case of the largest enterprises (200 or more employees) the gender pay gap hardly changes when these coefficients are taken into account (the unexplained wage difference is the same as the general pay gap). This difference is primarily due to the fact that the differences in occupations between women and men explain a larger part of the pay gap for small companies than they do for large enterprises. In a company with 1–10 employees the unexplained pay difference decreases by 18% when the employee's occupation is taken into account, but only 7% in enterprises with 50 or more employees (see Tables A2.5 and A2.6 in Annex 2 of this article, and Tables 3.6 and 3.7 in the report for the second stage of the gender pay gap study). Consequently, the size of the enterprise is negatively correlated with the unexplained pay gap, primarily because there is stronger vertical segregation in small enterprises.

7. Other factors

Ethnicity

The gender pay gap is somewhat greater for Estonian residents of non-Estonian ethnicity than for ethnic Estonians (30% and 28%, respectively). The size of the unexplained wage difference is of the same magnitude for ethnic Estonians and non-ethnic Estonians (24% and 25%, respectively). The difference is mainly due to the fact that in the case of non-ethnic Estonians it is possible to explain the major part of the wage difference with the aid of variables describing occupation and the sector of activity for the enterprise, or in other words, segregation plays a somewhat larger role in their case in the formation of the pay gap.

Being married or cohabiting

For people in couples relationships (married or cohabiting) the wage difference is markedly greater than for singles (31% and 19%, respectively). This difference is due to differences between men rather than women: men in couples relationships earn on average 17% more than single men, in the case of women the wage difference is 2%. Running the regression equation separately for men and women demonstrates that even if differences in education, ages, etc are taken into account, men in couples relationships earn approximately 11% more than singles. In the case of women, this difference is significantly smaller, when the other factors remain the same, at around 2%.

Hours worked

Earlier empirical studies have shown that one of the reasons for the existence of the gender pay gap is the so-called intra-family specialization (Becker 1985): women contribute more in household (unpaid) work and men spend more time in (paid) work outside the home. It can be seen from Estonian data that if part-time work is not considered, the number of hours worked does not vary much: men work on average 1.4 hours per week longer than women, i.e. men's number of hours worked is around 3% longer. When part-time work is also considered, men work on average 2.7 hours (7%) longer than women. The result from the regression (which covers only full-time employees) demonstrates that taking into account the number of hours worked reduces the unexplained gender pay gap by very little (0.3 percentage points, see Table A2).

Role of the construction boom

Due to the boom in the real estate sector, wages in the Estonian construction sector in 2000–2008 increased more rapidly than in other sectors, and the wage rise in the building industry in 2007 was particularly rapid, reaching 29%. Employees in this activity sector, however, comprise 90% men. Has our increase in gender pay differences over recent years been caused by the construction boom, and if so, to what degree? In order to analyze this question we calculated the size of gender wage differences for 2000–2008, leaving the construction sector out of the equation. On the basis of these calculations, it can be seen that the **sudden jump in wages for the construction sector did not pay a particularly marked role in the increase of gender pay differences in 2000–2008**. When the construction sector was added to the equation, the general wage difference increased in this period from 25% to 31%. If the construction sector was left out, the wage difference in all other sectors of activity increased on average from 25% to 29%. Therefore, the gender pay gap also increased independently of events in the construction sector.

8. Conclusions

The study, which was the basis for this article, looked at the extent of the pay gap through various segments of the labour market, and an analysis was made of the degree to which it was possible to explain the gap between men's and women's wages by the sex differences existing in the characteristics that impact wages. The results demonstrate that amongst the measurable variables impacting the pay gap there is no one dominating factor that could be considered the main reason for the large gender pay gap in Estonia. The pay gap, rather, is formed due to the joint impact of many factors. It also became apparent that the largest part of the female and male wage differences cannot be explained by measurable factors. In other words, women's and men's wages differ by more than could be presumed in the case of factors that influence wages on the basis of sex differences, such as education, occupation and sector of activity. Regression analysis showed that the unexplained wage difference forms approximately 85% of the general gender pay gap. In the period 2000–2008 both the general and the unexplained pay gap increased.

Without taking into account other characteristics, the pay gap is smaller for people with higher education, for ethnic Estonians rather than people of other ethnicities, single people rather than those married or cohabiting, childless persons rather than parents, and for those in the public sector rather than in the private sector. As for age groups, the pay gap is largest for people aged 25–45, when starting a family and raising children is most likely.

In foreign-owned enterprises the female-male wage difference is greater than in domestic-owned organizations. Although the recent construction boom brought about an increase in wages and employment for the construction sector, and there are mostly men working in this sector, the increase in the gender pay gap has not primarily been due to the development in this sector of activity – the pay gap also increased at a comparable rate in the other activity sectors.

Adding variables to the regression that describe the occupation and sector of activity help to reduce the unexplained pay gap, thus taking into account women's and men's horizontal and vertical segregation in the labour market. Adding the variable that describes the field of study into the wage equation, however, does not reduce but increases the unexplained wage difference since women, more frequently than men, have acquired fields where the applicable study ensures a higher than average wage. Other variables such as age, hours worked, the enterprise's form of ownership and number of employees, have less impact on the size of the unexplained pay gap.

The size of the enterprise, on the basis of the regression analysis, is positively correlated with the gender pay gap: organizations with more employees have a higher than average pay gap than smaller ones. This is partially due to the fact that in the case of small companies, the concentration of women and men in different occupations explains a larger share of the pay gap than it does for large enterprises.

The gender pay gap is smaller amongst members of trade unions but this is mainly due to the fact that in sectors of activity where there are more collective wage agreements the pay gap is smaller than the average. The regression analysis shows that when the other explanatory factors are taken into account this difference disappears – the unexplained pay gap is even somewhat larger amongst trade union members than for persons not belonging to trade unions.

The unexplained pay gap was also separately analyzed for enterprises with different forms of ownership, differentiating between three types of enterprises: public sector companies, foreign-owned enterprises, and domestic-owned private sector enterprises. Both the general and the unexplained wage difference is the largest for foreign-owned enterprises and the smallest for public sector companies. Regression analysis demonstrates that in public sector enterprises the variables describing gender segregation (sector of activity and occupation) have a greater explanatory effect than in private enterprises, and for the latter, these variables in turn describe wage differences to a greater degree in domestic-owned enterprises. Therefore, segregation has a bigger role in the creation of the pay gap in domestic-owned enterprises (and particularly in public sector institutions) than in foreign-owned enterprises.

International comparison shows that the level of segregation in Estonia is the greatest in Europe. One possible reason for the greater than average gender segregation is the high level of activity for women in the labour market, which results in the need for child care services, and therefore the large share held in the economy by the educational and social service sectors with their predominately female employees.

By using Statistics Estonia's 2006 data on women's and men's hourly wages, and looking at the detailed occupations, calculations were made to find the average pay gap if the occupations were distributed equally for women and men. The result was that with the same number of women as men working in every occupation, the gender pay gap would be reduced by almost one third.

Under examination was also the size of the gender pay gap in the various parts of the wages differential, comparing the wages of women and men on low, average and high pay. Amongst low-paid employees, both the unexplained and explained gender pay gap is the smallest, and amongst the highly-paid employees it is the largest. A relatively regular increase in inequality in moving towards the higher income quartiles can be seen in Estonia across the extent of the wage differential. The greater gender pay gap amongst the highly-paid may be due to the so-called glass ceiling effect, or the fact that for women reaching the senior positions is linked to invisible barriers, and to overcome these they reduce their wages demands. Although the share of women amongst managers in Estonia, in an international comparison, is not particularly small (approximately one third), but as regards wages, the female managers are left far behind by the male managers – the gender pay gap for persons working in senior positions is considerable. Regression analysis shows that this does not derive from differences between the enterprises where female and male managers work.

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Annex 1. Mincer-type wage regression

Table A1.1. **Regressions with a variable representing three groups of children (number of children aged 0–3, 3–7 and 7–18)**

	Total sample	Men	Women
Sex (man = 1)	0.2432***		
	(0.0000)		
Age	–0.0022***	–0.0042***	–0.0013**
	(0.0000)	(0.0000)	(0.0108)
Age squared	–0.0322***	–0.0315***	–0.0295***
	(0.0000)	(0.0000)	(0.0000)
Ethnic nationality (Estonian = 1)	0.1605***	0.1645***	0.1580***
	(0.0000)	(0.0000)	(0.0000)
Primary education	–0.1561***	–0.1584***	–0.1235*
	(0.0001)	(0.0020)	(0.0511)
Primary education together with vocational education, or basic education	–0.0887***	–0.0943***	–0.0821***
	(0.0000)	(0.0000)	(0.0001)
Basic education and vocational education	–0.1402**	–0.2363**	–0.0132
	(0.0185)	(0.0176)	(0.8320)
Secondary education, with vocational education	–0.0364	–0.1157	0.0286
	(0.5336)	(0.2407)	(0.6269)
Secondary education and vocational education	–0.0699	–0.1205	–0.0067
	(0,2338)	(0.2277)	(0.9079)
Secondary specialized vocational education or technical school education after basic education	–0.0155	–0.0877	0.0297
	(0.7890)	(0.3740)	(0.6064)
Secondary specialized vocational education or technical school education after secondary education	–0.0561	–0.1437	0.0086
	(0.3366)	(0.1517)	(0.8816)
Higher education (except Master's, PhD)	0.1605***	0.0512	0.2444***
	(0.0062)	(0.6086)	(0.0000)
Master's, PhD	0.3981***	0.3216***	0.4814***
	(0.0000)	(0.0042)	(0.0000)
Teacher training and education	0.0664	0.2073*	–0.0295
	(0.2612)	(0.0733)	(0.6100)
Humanities and arts	0.0279	0.0735	–0.0261
	(0.6511)	(0.5171)	(0.6675)
Social sciences, business and law	0.0997*	0.1846*	0.0370
	(0.0858)	(0.0733)	(0.5156)
Life and physical sciences	–0.0725	0.0462	–0.1529
	(0.3584)	(0.7153)	(0.1025)
Mathematics and statistics	0.1653**	0.2595**	0.0981
	(0.0117)	(0.0178)	(0.1628)
Engineering, manufacturing and building	0.0261	0.1023	–0.0341
	(0.6493)	(0.2912)	(0.5489)
Agriculture, forestry and fishery, veterinary	–0.0831	–0.0604	–0.0762
	(0.1567)	(0.5410)	(0.1965)
Health and welfare	0.1337**	0.2146	0.0752
	(0.0289)	(0.1329)	(0.2112)

Services	0.0599	0.2008**	–0.0750
	(0.3034)	(0.0403)	(0.1969)
Marital status (married or cohabiting = 1)	0.0478***	0.1096***	0.0202**
	(0.0000)	(0.0000)	(0.0438)
Number of children (0–3 year olds)	0.0628***	0.0477**	0.0256
	(0.0004)	(0.0318)	(0.3626)
Number of children (3–7 year olds)	0.0022	0.0002	–0.0035
	(0.8495)	(0.9900)	(0.8144)
Number of children (7–18 year olds)	–0.0096*	–0.0076	–0.0146**
	(0.0532)	(0.3375)	(0.0197)
Harju, except for Tallinn	0.0832***	0.0883***	0.0744***
	(0.0000)	(0.0001)	(0.0000)
Hiiu	–0.2419***	–0.2206***	–0.2481***
	(0.0000)	(0.0000)	(0.0000)
Ida-Viru	–0.3063***	–0.3323***	–0.2847***
	(0.0000)	(0.0000)	(0.0000)
Jõgeva	–0.2388***	–0.2180***	–0.2468***
	(0.0000)	(0.0000)	(0.0000)
Järva	–0.1862***	–0.1912***	–0.1859***
	(0.0000)	(0.0000)	(0.0000)
Lääne	–0.1845***	–0.2011***	–0.1666***
	(0.0000)	(0.0000)	(0.0000)
Lääne-Viru	–0.2046***	–0.2232***	–0.1964***
	(0.0000)	(0.0000)	(0.0000)
Põlva	–0.2522***	–0.2848***	–0.2202***
	(0.0000)	(0.0000)	(0.0000)
Pärnu	–0.1448***	–0.1478***	–0.1396***
	(0.0000)	(0.0000)	(0.0000)
Rapla	–0.1946***	–0.2129***	–0.1727***
	(0.0000)	(0.0000)	(0.0000)
Saare	–0.2061***	–0.2179***	–0.1902***
	(0.0000)	(0.0000)	(0.0000)
Tartu	–0.1174***	–0.1084***	–0.1258***
	(0.0000)	(0.0000)	(0.0000)
Valga	–0.2990***	–0.3445***	–0.2517***
	(0.0000)	(0.0000)	(0.0000)
Viljandi	–0.2288***	–0.2456***	–0.2135***
	(0.0000)	(0.0000)	(0.0000)
Võru	–0.2462***	–0.2665***	–0.2223***
	(0.0000)	(0.0000)	(0.0000)
Public sector	–0.0389***	–0.0018	–0.0685***
	(0.0071)	(0.9393)	(0.0002)
Foreign-owned enterprise	0.1841***	0.2038***	0.1631***
	(0.0000)	(0.0000)	(0.0000)
11–19 employees	0.1213***	0.1261***	0.1194***
	(0.0000)	(0.0000)	(0.0000)
20–49 employees	0.1291***	0.1313***	0.1276***
	(0.0000)	(0.0000)	(0.0000)
50–99 employees	0.1853***	0.1972***	0.1757***
	(0.0000)	(0.0000)	(0.0000)
100–199 employees	0.2308***	0.2436***	0.2255***

	(0.0000)	(0.0000)	(0.0000)
200–499 employees	0.2190***	0.2532***	0.1952***
	(0.0000)	(0.0000)	(0.0000)
500–999 employees	0.2133***	0.2290***	0.2008***
	(0.0000)	(0.0000)	(0.0000)
Over 1000 employees	0.2558***	0.2618***	0.2543***
	(0.0000)	(0.0000)	(0.0000)
Professionals	0.0160	–0.0423	0.0411
	(0.4561)	(0.2031)	(0.1469)
Technicians and associated professionals	–0.0988***	–0.0685**	–0.1115***
	(0.0000)	(0.0476)	(0.0001)
Clerks	–0.2352***	–0.2392***	–0.2210***
	(0.0000)	(0.0000)	(0.0000)
Service workers and shop and market sales workers	–0.3201***	–0.3053***	–0.3119***
	(0.0000)	(0.0000)	(0.0000)
Skilled agricultural and fishery workers	–0.1141**	–0.1050	–0.1656***
	(0.0125)	(0.1183)	(0.0080)
Craft and related trade workers	–0.1926***	–0.1916***	–0.2368***
	(0.0000)	(0.0000)	(0.0000)
Plant and machinery operators	–0.2206***	–0.2195***	–0.2376***
	(0.0000)	(0.0000)	(0.0000)
Elementary occupations	–0.4343***	–0.4495***	–0.4343***
	(0.0000)	(0.0000)	(0.0000)
Military	–0.0704*	–0.0352	–0.0851
	(0.0882)	(0.4866)	(0.4067)
Fishery	–0.0598	–0.0403	–0.1796
	(0.4263)	(0.6259)	(0.3005)
Mining	0.3015***	0.3164***	0.1704**
	(0.0000)	(0.0000)	(0.0127)
Manufacturing	0.0881***	0.1089***	0.0386
	(0.0001)	(0,0002)	(0.2889)
Electricity, gas and water supply	0.2356***	0.2577***	0.0993*
	(0.0000)	(0.0000)	(0.0944)
Construction	0.2908***	0.3050***	0.1676***
	(0.0000)	(0.0000)	(0.0033)
Wholesale and retail trade; remediation activities	0.1345***	0.1832***	0.0481
	(0.0000)	(0.0000)	(0.1915)
Accommodation and food services	0.1098***	0.0326	0.0725*
	(0.0005)	(0.6110)	(0.0796)
Transportation, storage and communications	0.2188***	0.2315***	0.1474***
	(0.0000)	(0.0000)	(0.0002)
Financial activities	0.2609***	0.3277***	0.1973***
	(0.0000)	(0.0001)	(0.0002)
Real estate activities	0.0904***	0.0924**	0.0534
	(0.0018)	(0.0184)	(0.2092)
Public administration and defence	0.2188***	0.1300***	0.2247***
	(0.0000)	(0.0013)	(0.0000)
Education	0.0490*	–0.0622	0.0365
	(0.0800)	(0.1752)	(0.3484)

Health and social work	0.0658**	–0.0228	0.0388
	(0.0233)	(0.6912)	(0.3244)
Other	0.0807***	0.0753*	0.0395
	(0.0066)	(0.0867)	(0.3460)
1 subordinate	0.0362	0.0188	0.0385
	(0.2036)	(0.7051)	(0.2497)
2–5 subordinates	0.1189***	0.1149***	0.1259***
	(0.0000)	(0.0001)	(0.0000)
6–10 subordinates	0.1591***	0.1839***	0.1270***
	(0.0000)	(0.0000)	(0.0014)
11–20 subordinates	0.1579***	0.1745***	0.1372***
	(0.0000)	(0.0000)	(0.0002)
21–50 subordinates	0.2588***	0.3028***	0.2257***
	(0.0000)	(0.0000)	(0.0000)
Over 50 subordinates	0.3481***	0.4751***	0.2350***
	(0.0000)	(0.0000)	(0.0002)
Number of hours worked	0.0048***	0.0048***	0.0042***
	(0.0000)	(0.0004)	(0.0021)
Member of a trade union	–0.0304**	–0.0132	–0.0440***
	(0.0116)	(0.5397)	(0.0019)
Number in study	13027	6223	6804
R-squared	0.4346	0.3751	0.4540

Note: The table shows the results of a simple least squares regression. The dependent variable is a natural logarithm of the real wage. The robust p-values are shown under the regression coefficients (in brackets). *** indicates that the estimate for the coefficient of the applicable variable is relevant, with at least 99% probability, ** indicates relevance with at least 95% probability, * indicates relevance with at least 90% probability. The control groups are as follows: level of education = secondary education; acquired field of study = none; region = Tallinn; number of employees = 1–10; occupation = legislators, senior officials and managers; sector of activity = agriculture, hunting and forestry; number of subordinates = 0.

Table A1.2. **Regressions with a variable representing one group of children (number of children aged 0–18)**

	Total sample	Men	Women
Sex (man = 1)	0.2462***		
	(0.0000)		
Age	–0.0025***	–0.0045***	–0.0014***
	(0.0000)	(0.0000)	(0.0036)
Age squared	–0.0303***	–0.0298***	–0.0284***
	(0.0000)	(0.0000)	(0.0000)
Ethnic nationality (Estonian = 1)	0.1600***	0.1642***	0.1575***
	(0.0000)	(0.0000)	(0.0000)
Primary education	–0.1524***	–0.1567***	–0.1185*
	(0.0002)	(0.0021)	(0.0601)
Primary education together with vocational education, or basic education	–0.0884***	–0.0938***	–0.0816***
	(0.0000)	(0.0000)	(0.0001)
Basic education and vocational education	–0.1376**	–0.2317**	–0.0139
	(0.0214)	(0.0206)	(0.8226)
Secondary education together with vocational education	–0.0343	–0.1118	0.0269
	(0.5599)	(0.2594)	(0.6477)
Secondary education and vocational educations	–0.0681	–0.1171	–0.0078
	(0.2484)	(0.2436)	(0.8941)
Secondary specialized vocational education or technical school education after basic education	–0.0146	–0.0850	0.0283
	(0.8031)	(0.3915)	(0.6228)
Secondary specialized vocational education or technical school education after secondary education	–0.0534	–0.1395	0.0083
	(0.3631)	(0.1663)	(0.8849)
Higher education (except Master's, PhD)	0.1626***	0.0542	0.2440***
	(0.0058)	(0.5899)	(0.0000)
Master's, PhD	0.4015***	0.3267***	0.4816***
	(0.0000)	(0.0038)	(0.0000)
Teacher training and education	0.0650	0.2049*	–0.0284
	(0.2735)	(0.0777)	(0.6226)
Humanities and arts	0.0255	0.0712	–0.0254
	(0.6811)	(0.5313)	(0.6751)
Social sciences, business and law	0.0984*	0.1842*	0.0381
	(0.0914)	(0.0756)	(0.5026)
Life and physical sciences	–0.0728	0.0423	–0.1506
	(0.3572)	(0.7390)	(0.1071)
Mathematics and statistics	0.1623**	0.2545**	0.0987
	(0.0137)	(0.0204)	(0.1597)
Engineering, manufacturing and building	0.0242	0.0990	–0.0328
	(0.6744)	(0.3097)	(0.5636)
Agriculture, forestry and fishery, veterinary	–0.0835	–0.0619	–0.0750
	(0.1571)	(0.5336)	(0.2036)

Health and welfare	0.1333**	0,2166	0.0768
	(0.0301)	(0.1316)	(0.2013)
Services	0.0586	0.1977**	–0.0729
	(0.3159)	(0.0447)	(0.2090)
Marital status (married or cohabiting = 1)	0.0521***	0.1166***	0.0214**
	(0.0000)	(0.0000)	(0.0328)
Number of children (aged 0–18)	–0.0032	–0.0013	–0.0118**
	(0.4775)	(0.8518)	(0.0397)
Harju, except for Tallinn	0.0833***	0.0885***	0.0745***
	(0.0000)	(0.0001)	(0.0000)
Hiiu	–0.2431***	–0.2207***	–0.2485***
	(0.0000)	(0.0000)	(0.0000)
Ida-Viru	–0.3068***	–0.3329***	–0.2845***
	(0.0000)	(0.0000)	(0.0000)
Jõgeva	–0.2399***	–0.2201***	–0.2464***
	(0.0000)	(0.0000)	(0.0000)
Järva	–0.1865***	–0.1920***	–0.1856***
	(0.0000)	(0.0000)	(0.0000)
Lääne	–0.1849***	–0.2002***	–0.1670***
	(0.0000)	(0.0000)	(0,0000)
Lääne-Viru	–0.2049***	–0.2233***	–0.1962***
	(0.0000)	(0.0000)	(0.0000)
Põlva	–0.2535***	–0.2861***	–0.2203***
	(0.0000)	(0.0000)	(0.0000)
Pärnu	–0.1442***	–0.1469***	–0.1392***
	(0.0000)	(0.0000)	(0.0000)
Rapla	–0.1961***	–0.2145***	–0.1727***
	(0.0000)	(0.0000)	(0.0000)
Saare	–0.2084***	–0.2206***	–0.1907***
	(0.0000)	(0.0000)	(0.0000)
Tartu	–0.1184***	–0.1094***	–0.1259***
	(0.0000)	(0.0000)	(0.0000)
Valga	–0.2995***	–0.3453***	–0.2513***
	(0.0000)	(0.0000)	(0.0000)
Viljandi	–0.2299***	–0.2464***	–0.2135***
	(0.0000)	(0.0000)	(0.0000)
Võru	–0.2480***	–0.2681***	–0.2227***
	(0.0000)	(0.0000)	(0.0000)
Public sector	–0.0381***	–0.0018	–0.0681***
	(0.0083)	(0.9407)	(0.0002)
Foreign-owned enterprise	0.1838***	0.2040***	0.1624***
	(0.0000)	(0.0000)	(0.0000)
11–19 employees	0.1212***	0.1252***	0.1196***
	(0.0000)	(0.0000)	(0.0000)
20–49 employees	0.1293***	0.1310***	0.1279***
	(0.0000)	(0.0000)	(0.0000)
50–99 employees	0.1857***	0.1976***	0.1759***
	(0.0000)	(0.0000)	(0.0000)
100–199 employees	0.2305***	0.2429***	0.2256***
	(0.0000)	(0.0000)	(0.0000)
200–499 employees	0.2194***	0.2538***	0.1950***

	(0.0000)	(0.0000)	(0.0000)
500–999 employees	0.2118***	0.2279***	0.2003***
	(0.0000)	(0.0000)	(0.0000)
Over 1000 employees	0.2565***	0.2632***	0.2544***
	(0.0000)	(0.0000)	(0.0000)
Professionals	0.0164	–0.0413	0.0413
	(0.4443)	(0.2151)	(0.1447)
Technicians and associated professionals	–0.0985***	–0.0685**	–0.1109***
	(0.0000)	(0.0479)	(0.0001)
Clerks	–0.2357***	–0.2392***	–0.2213***
	(0.0000)	(0.0000)	(0.0000)
Service workers and shop and market sales workers	–0.3209***	–0.3056***	–0.3121***
	(0.0000)	(0.0000)	(0.0000)
Skilled agricultural and fishery workers	–0.1152**	–0,1064	–0.1654***
	(0.0117)	(0.1132)	(0.0081)
Craft and related trade workers	–0.1932***	–0.1919***	–0.2365***
	(0.0000)	(0.0000)	(0.0000)
Plant and machinery operators	–0.2206***	–0.2191***	–0.2369***
	(0.0000)	(0.0000)	(0.0000)
Elementary occupations	–0.4341***	–0.4493***	–0.4340***
	(0.0000)	(0.0000)	(0.0000)
Military	–0.0667	–0.0331	–0.0831
	(0.1100)	(0.5150)	(0.4319)
Fishery	–0.0629	–0.0428	–0.1814
	(0.4025)	(0.6032)	(0.2967)
Mining	0.2996***	0.3151***	0.1690**
	(0.0000)	(0.0000)	(0.0136)
Manufacturing	0.0881***	0.1089***	0.0383
	(0.0002)	(0,0002)	(0.2941)
Electricity, gas and water supply	0.2346***	0.2570***	0.0979*
	(0.0000)	(0.0000)	(0.0990)
Construction	0.2904***	0.3048***	0.1661***
	(0.0000)	(0.0000)	(0.0036)
Wholesale and retail trade; remediation activities	0.1348***	0.1841***	0.0479
	(0.0000)	(0.0000)	(0.1946)
Accommodation and food services	0.1105***	0.0335	0.0724*
	(0.0005)	(0.5989)	(0.0807)
Transportation, storage and communications	0.2174***	0.2295***	0.1478***
	(0.0000)	(0.0000)	(0.0002)
Financial activities	0.2612***	0.3275***	0.1975***
	(0.0000)	(0.0000)	(0.0002)
Real estate activities	0.0900***	0.0922**	0.0528
	(0.0019)	(0.0187)	(0.2149)
Public administration and defence	0.2172***	0.1292***	0.2234***
	(0.0000)	(0.0014)	(0.0000)
Education	0.0471*	–0.0638	0.0353
	(0.0927)	(0.1637)	(0.3652)
Health and social work	0.0647**	–0.0243	0.0380

	(0.0257)	(0.6725)	(0.3358)
Other	0.0792***	0.0744*	0.0384
	(0.0076)	(0.0901)	(0.3594)
1 subordinate	0.0374	0.0200	0.0386
	(0.1899)	(0.6880)	(0.2482)
2–5 subordinates	0.1190***	0.1149***	0.1260***
	(0.0000)	(0.0001)	(0.0000)
6–10 subordinates	0.1605***	0.1851***	0.1276***
	(0.0000)	(0.0000)	(0.0013)
11–20 subordinates	0.1607***	0.1769***	0.1389***
	(0.0000)	(0.0000)	(0.0001)
21–50 subordinates	0.2572***	0.3010***	0.2252***
	(0.0000)	(0.0000)	(0.0000)
Over 50 subordinates	0.3489***	0.4762***	0.2356***
	(0.0000)	(0.0000)	(0.0001)
Number of hours worked	0.0048***	0.0049***	0.0042***
	(0.0000)	(0.0003)	(0.0023)
Member of a trade union	–0.0298**	–0.0125	–0.0440***
	(0.0134)	(0.,5625)	(0.0019)
Number in study	13027	6223	6804
R-squared	0.4338	0.3745	0.4539

Note: The table shows the results of a simple least squares regression. The dependent variable is a natural logarithm of the real wage. The robust *p-values* are shown under the regression coefficients (in brackets). *** indicates that the estimate for the coefficient of the applicable variable is relevant, with at least 99% probability, ** indicates relevance with at least 95% probability, * indicates relevance with at least 90% probability. The control groups are as follows: level of education = secondary education; acquired field of study = none; region = Tallinn; number of employees = 1–10; occupation = legislators, senior officials and managers; sector of activity = agriculture, hunting and forestry; number of subordinates = 0.

Annex 2. Impact of different variables on the unexplained pay gap

Table A2.1. **Estimates for regression coefficients with the dummy variable representing sex, various periods**

Years	Only sex	All variab-les	Trade union	Hours worked	No of subordi-nates	Sector	Occu-pation	No. of emplo-yees	Foreign owned	Public sector	Region	Child-ren	Married cohabi-ting	Field	Edu-ca-tion level	Eth-ni-city	Age
2000–2002	0.219	0.201	0.200	0.208	0.212	0.216	0.213	0.203	0.197	0.201	0.211	0.204	0.,206	0.189	0.208	0.205	0.198
2003–2005	0.280	0.243	0.243	0.247	0.251	0.265	0.275	0.247	0.241	0.244	0.245	0.248	0.249	0.239	0.248	0.249	0.238
2006–2008	0.332	0.289	0.289	0.293	0.293	0.322	0.315	0.287	0.289	0.289	0.290	0.289	0.291	0.275	0.295	0.297	0.279
Total sample (2000–2008)	0.287	0.243	0.244	0.247	0.250	0.273	0.270	0.244	0.241	0.244	0.247	0.246	0.249	0.228	0.252	0.249	0.236

Note: The table shows the estimates for regression coefficients with a dummy variable representing sex (the dummy variable equals one if the respondent is male). OLS regressions, where the dependent variable is the logarithm of the real wage. The estimates for all the regression coefficients are statistically relevant, with an over 99% probability. The first column (with the heading 'Only sex') shows the estimates applicable to the regressions where the right hand side of the equation is only the dummy variable representing sex. The estimates in the second column are applicable to the regressions where all the explanatory variables have been added. The estimates in the following columns are from regressions where all the explanatory variables have been added, except for the variable indicated in the column heading.

Table A2.2. **Percentage change in the unexplained gender pay gap**

Years	All variables	Trade union	Hours worked	No of subordinates	Sector	Occupation	No of employees	Foreign owned	Public sector	Region	Children	Married or cohabiting	Field	Education level	Ethnicity	Age
2000–2002	8.3	–0.3	3.2	5.1	6.9	5.8	0.7	–1.9	–0.2	4.7	1.3	2.5	–6.2	3.2	2.0	–1.7
2003–2005	13.2	–0.1	1.4	3.1	8.2	11.5	1.6	–1.1	0.2	0.4	1.8	2.1	–1.7	1.9	2.1	–2.2
2006–2008	13.1	0.0	1.4	1.4	10.4	8.3	–0.7	0.1	0.1	0.4	0.1	0.7	–5.0	2.3	2.9	–3.6
Total sample (2000–2008)	15.4	0.2	1.4	2.6	11.0	9.8	0.3	–0.8	0.2	1.7	1.3	2.1	–6.5	3.4	2.3	–3.3

Note: The first column of the table shows how large the share of the illustrated pay gap in the relevant period was in the general pay gap (%). The figures in the following columns show how little the unexplained pay gap is reduced (%) when the relevant variable is left out of the regression (compared to the regression that contains all the control variables).

Table A2.3. **Estimates for regression coefficients with the dummy variable representing sex, labour market segments**

Labour market segment	Only sex	All variables	Trade union	Hours worked	No of subordinates	Sector	Occupation	No of employees	Foreign owned	Public sector	Region	Children	Married, cohabiting	Field	Education level	Ethnicity	Age
Ethnicity																	
Estonian	0.279	0.240	0.241	0.244	0.248	0.266	0.264	0.244	0.239	0.242	0.245	0.244	0.246	0.226	0.250		0.235
Other ethnicity	0.315	0.249	0.252	0.251	0.253	0.288	0.282	0.245	0.246	0.248	0.249	0.250	0.252	0.233	0.255		0.236
Educational level																	
Primary or basic education	0.359	0.198	0.200	0.201	0.202	0.237	0.234	0.189	0.192	0.199	0.195	0.203	0.203	0.202		0.200	0.214
Secondary education	0.350	0.265	0.266	0.268	0.270	0.296	0.282	0.267	0.263	0.266	0.270	0.268	0.270	0.254		0.272	0.259
Higher education	0.275	0.196	0.198	0.200	0.207	0.203	0.211	0.203	0.198	0.197	0.207	0.200	0.203	0.166		0.205	0.180
Age group																	
15–34 year olds	0.271	0.276	0.277	0.281	0.283	0.304	0.296	0.276	0.277	0.276	0.285	0.282	0.276	0.264	0.264	0.284	
35–54 year olds	0.319	0.233	0.234	0.236	0.240	0.268	0.265	0.234	0.231	0.234	0.237	0.239	0.239	0.216	0.246	0.241	
55–74 year olds	0.221	0.148	0.148	0.152	0.156	0.170	0.173	0.156	0.142	0.148	0.150	0.149	0.169	0.141	0.164	0.148	
Working in a management position																	
Managers	0.331	0.259	0.261	0.262	0.267	0.283	0.265	0.271	0.258	0.260	0.263	0.262	0.267	0.234	0.294	0.261	0.247

Note: see Table A2.

Table A2.4. **Percentage change in the unexplained gender pay gap, labour market segments**

Labour market segment	Only sex	All variables	Trade union	Hours worked	No of subordinates	Sector	Occupation	No of employees	Foreign owned	Public sector	Region	Children	Married, cohabiting	Field	Education level	Ethnicity	Age
Ethnicity																	
Estonians		13.8	0.0	1.6	3.0	9.6	8.8	1.3	–0.6	0.6	1.9	1.6	2.3	–6.3	4.0		–2.2
Other ethnicity		21.2	1.2	1.0	1.7	13.7	11.8	–1.3	–0.9	–0.2	0.0	0.6	1.5	–6.7	2.7		–5.5
Level of education																	
Primary or basic education		45.0	1.1	1.3	1.8	16.5	15.3	–4.9	–3.2	0.6	–1.7	2.5	2.4	1.8		1.1	7.7
Secondary education		24.2	0.2	0.9	1.7	10.4	5.9	0.7	–0.8	0.2	1.7	0.9	1.8	–4.6		2.3	–2.6
Higher education		28.6	0.8	1.8	5.2	3.3	7.1	3.2	1.0	0.3	5.0	1.8	3.2	–18.2		4.1	–9.4
Age group																	
15–34 year olds		–1.9	0.1	1.6	2.5	9.3	6.6	–0.1	0.3	–0.1	3.1	2.0	–0.2	–4.5	–4.5	2.7	
35–54 year olds		26.9	0.3	1.3	2.7	12.9	12.0	0.5	–1.1	0.4	1.7	2.3	2.4	–7.7	5.2	3.1	
55–74 year olds		33.2	–0.1	2.6	5.4	12.8	14.4	5.3	–4.4	–0.1	1.1	0.5	12.7	–4.6	10.0	–0.1	
Working in a management position																	
Managers		21.7	0.7	1.3	3.1	8.6	2.3	4.4	–0.4	0.5	1.7	1.3	3.1	–10.9	12.1	0.8	–4.9

Note: See Table A2.2.

Table A2.5. **Estimates for regression coefficients with the dummy variable representing sex: enterprise type and trade union membership**

	Only sex	All variables	Trade union	Hours worked	No of subordinates	Sector	Occupation	No of employees	Foreign owned	Public sector	Region	Children	Married, cohabiting	Field	Educa-tion level	Ethni-city	Age
Form of ownership of enterprise																	
Public sector	0.242	0.181	0.182	0.184	0.190	0.227	0.212	0.200			0.179	0.181	0.186	0.155	0.202	0,182	0,16
Domestic Private	0.301	0.233	0.234	0.236	0.239	0.261	0.264	0.226			0.242	0.236	0.237	0.225	0.236	0,240	0,22
Foreign owned	0.413	0.307	0.309	0.315	0.309	0.313	0.320	0.299			0.300	0.310	0.315	0.302	0.314	0,316	0,30
Trade union membership																	
Yes	0.248	0.258		0.258	0.263	0.307	0.306	0.264	0.260	0.258	0.259	0.257	0.269	0.225	0.266	0,263	0,24
No	0.293	0.241		0.245	0.248	0.268	0.265	0.241	0.239	0.242	0.245	0.244	0.246	0.228	0.250	0,247	0,23
Size of the enterprise																	
1–10 employees	0.275	0.204	0.204	0.203	0.213	0.225	0.249		0.209	0.205	0.207	0.210	0.207	0.193	0.214	0,207	0,20
11–49 employees	0.280	0.235	0.235	0.240	0.239	0.266	0.263		0.233	0.236	0.247	0.238	0.241	0.220	0.243	0,240	0,22
50–199 employees	0.264	0.246	0.246	0.250	0.251	0.279	0.266		0.245	0.246	0.246	0.248	0.249	0.235	0.249	0,252	0,23
Over 200 employees	0.288	0.289	0.295	0.292	0.293	0.318	0.312		0.290	0.289	0.267	0.287	0.301	0.271	0.293	0,292	0,28

Notes: See Table A2

Table A2.6. **Percentage change in the unexplained gender pay gap: enterprise type and trade union membership**

	Only sex	All variables	Trade union	Hours worked	No of subordi-nates	Sector	Occupation	No of employees	Foreign owned	Public sector	Region	Children	Married, cohabiting	Field	Educa-tion level	Ethni-city	Age
Form of ownership of enterprise																	
Public sector		25.2	0.2	1.7	4.8	20.3	14.7	9.3			–1.4	–0.2	2.8	–16.7	10.2	0,4	–7,6
Domestic Private		22.7	0.5	1.3	2.5	10.7	11.8	–3.1			3.9	1.6	2.0	–3.3	1.4	3,2	–2,3
Foreign owned		25.8	0.6	2.5	0.6	2.0	4.2	–2.6			–2.1	1.1	2.6	–1.6	2.2	2,8	–1,7
Trade union membership																	
Yes		–4.2		–0.2	1.8	15.9	15.6	2.5	0.8	0.0	0.3	–0.4	4.2	–14..9	2.9	2,0	–4,2
No		17.8		1.6	2.7	10.1	9.0	0.0	–0.8	0.4	1.4	1.4	1.9	–5.8	3.5	2,4	–3,2
Size of the enterprise																	
1–10 employees		26.1	0.0	–0.1	4.5	9.7	18.2		2.4	0.8	1.9	3.0	1.5	–5.4	5.0	1,9	–1,2
11–49 employees		16.0	0.0	1.9	1.3	11.4	10.6		–1.2	0.3	4.9	1.0	2.3	–7.2	3.3	1,9	–3,7
50–199 employees		6.8	0.2	1.6	2.0	12.0	7.6		–0.4	0.1	0.3	1.0	1.4	–4.3	1.4	2,5	–3,9
Over 200 employees		–0.2	2.2	1.0	1.5	9.1	7.4		0.2	0.1	–8.1	–0.9	4.0	–6.6	1.2	1,2	–2,6

Note: See Table A2.2

Annex 3. Gender pay gap and proportion of men amongst wage-earners, according to field acquired in Estonia

Table A3.1. **Gender pay gap and proportion of men amongst wage-earners, according to field acquired in Estonia, previous ELFS classification, 2000–2003**

Subject field	Average wage		Pay gap (%)	Proportion of men (%)	Relative wage (men)	Relative wage (women)	No in study (men)	No in study (women)
	Men	Women						
General education	3378	2518	25.5	50.6	100.0	100.0	926	899
Teacher training and education	4636	3526	23.9	8.8	137.2	140.0	21	250
Arts	4305	3444	20.0	27.5	127.4	136.8	15	54
Humanities	8394	5088	39.4	14.3	248.5	202.1	6	24
Theology	3449			100.0	102.1		2	0
Social and behavioural sciences	4258	3642	14.5	30.4	126.0	144.6	6	13
Commerce and business	6090	3346	45.1	9.9	180.3	132.9	39	428
Law	5487	6831	- 24.5	60.9	162.4	271.3	30	18
Natural sciences	5523	2480	55.1	53.5	163.5	98.5	17	13
Mathematics and computer science	4928	4709	4.4	33.3	145.9	187.0	12	23
Medicine and health	5129	3039	40.7	6.9	151.8	120.7	11	184
Manufacturing and crafts	3480	2442	29.8	70.4	103.0	97.0	506	215
Engineering and technology	4790	3076	35.8	73.4	141.8	122.1	499	185
Architecture	5750	2817	51.0	27.3	170.2	111.9	2	4
Agriculture, forestry and fishery	3322	2918	12.2	62.5	98.3	115.9	327	197
Home economics		2349		0.0		93.3	0	8
Transport and communications	4104	2954	28.0	76.8	121.5	117.3	105	35
Services, food services and tourism	3715	2234	39.9	11.8	109.9	88.7	24	157
Media and documentation	7845	3569	54.5	16.7	232.2	141.7	2	16
Security	4137	3370	18.5	50.0	122.4	133.8	47	49

Table A3.2. **Gender pay gap and proportion of men amongst wage-earners, according to field acquired in Estonia, later ELFS classification, 2004–2008**

Subject field	Average wage		Pay gap (%)	Proportion of men (%)	Relative wage (men)	Relative wage (women)	No in study (men)	No in study (women)
	Men	Women						
General education	5841	3674	37.1	51.4	100.0	100.0	1464	1336
Teacher training and educations	7527	4889	35.0	8.5	128.9	133.1	36	402
Humanities and arts	6569	5229	20.4	31.1	112.5	142.3	40	85
Foreign languages and cultures	7295	6977	4.4	11.6	124.9	189.9	5	29
Social sciences, business and law	9398	5070	46.1	15.1	160.9	138.0	148	838
Biology and environmental sciences	12325	7003	43.2	20.7	211.0	190.6	6	16
Physics, chemistry and geological sciences	8517	5615	34.1	44.4	145.8	152.8	20	20
Mathematics and statistics	6960	6323	9.2	20.0	119.1	172.1	4	10
Computer sciences	9475	5936	37.4	50.6	162.2	161.5	31	32
Computer use	5782	5000	13.5	33.3	99.0	136.1	4	7
Engineering, manufacturing and construction	6350	3988	37.2	70.1	108.7	108.5	1571	656
Agriculture, forestry and fishery	6519	3952	39.4	43.5	111.6	107.6	182	244
Health and welfare	8590	5690	33.8	6.3	147.1	154.9	19	278
Services	6101	3986	34.7	64.1	104.4	108.5	459	256

Annex 4. Oaxaca-Blinder decomposition

Pay gap (difference between the natural logarithms of the wages)	
Difference between the natural logarithms of the wages (general pay gap)	0.271***
	(28.09)
Pay gap explained by differences in characteristics	0.0282**
	(3.25)
Pay gap explained by differences in regression variables	0,243***
	(25.45)
Contribution of characteristic differences to the pay gap	
Age	0.00394***
	(4.94)
Age squared	–0.0125***
	(–8.92)
Ethnicity: Estonian	–0.00182
	(–1.45)
Level of education†	–0.0242***
	(–6.05)
Field of study†	–0.0237***
	(–5.23)
Married or cohabiting	0.00423***
	(4.87)
Number of children†	0.00461***
	(4.00)
Region†	0.00442
	(1.95)
Public sector	0.00691**
	(2.68)
Foreign owned enterprise	0.00144
	(1.29)
Number of employees in the organization†	0.00623***
	(4.29)
Occupation†	0.00240
	(0.43)
Sector of activity†	0.0422***
	(8.36)
Number of subordinates†	0.00647***
	(5.14)
Number of hours worked	0.00582***
	(4.61)
Member of a trade union	0.00167*
	(2.47)
Contribution of regression coefficients to the pay gap	
Age	–0.123***
	(–3.83)
Age squared	–0.00233
	(–0.30)
Ethnicity: Estonian	0.00404
	(0.26)
Level of education†	–0.0700
	(–0.65)
Field of study†	0.0980
	(1.34)
Married or cohabiting	0.0638***
	(4.50)

Number of children†	0.00444
	(0.66)
Region†	–0.0149
	(–0.89)
Public sector	0.0191*
	(2.26)
Foreign owned enterprise	0.00575
	(1.77)
Number of employees in the enterprise†	0.0122
	(0.70)
Occupation†	–0.00434
	(–0.12)
Sector of activity†	0.0456
	(1.09)
Number of subordinates†	0.00393
	(0.82)
Number of hours worked	0.0285
	(0.36)
Member of a trade union	0.00304
	(1.23)
Constant	0.169
	(1.27)
N	13027

The *t*-statistics are in brackets.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.
The variables in the regression equation are treated as non-discriminatory, with estimates obtained on the basis of samples containing both women and men (the regression equation also contained the sex variable). The regression equations have been estimated using heteroskedasticity-robust standard errors.
The control groups are as follows: level of education = primary education; acquired field of study = none; region = Tallinn; number of employees = 1–10; occupation = legislators, senior officials and managers; sector of activity = agriculture, hunting and forestry; number of subordinates = 0.
† Groups of variables have been used, with their coefficients grouped. E.g. The variables *number of children aged 0–3, number of children aged 4–6, number of children aged 7–18* have been used in the regression equations but the results have been combined into the group *number of children* so that the results of the groups could be more easily followed.