

10 February 2014

Original: English

Economic Commission for Europe**Conference of European Statisticians****Group of Experts on Gender Statistics****Work Session on Gender Statistics**

Geneva, 19-21 March 2014

Item 4 of the provisional agenda

Gender segregation in education and employment and its relationship with the gender pay gap**Improving the measurement of the gender pay gap in Estonia****Note by the Statistics Estonia¹***Summary*

Gender Pay Gap in Estonia is the highest in the EU and based on analyses done so far, there are no very clear explanations for that. This paper presents the overview of Gender Pay Gap in EU and in Estonia, connection between Gender Pay Gap and other relevant background indicators, tries to find some explanations for high Gender Pay Gap in Estonia and finally introduce the new project implemented by Statistics Estonia to improve measurement of Gender Pay Gap in Estonia and providing the relevant statistics on that area.

¹ Prepared by Merle Paats and Urve Kask.

1. Gender Pay Gap in Estonia is the highest in the EU and based on analyses done so far, there are no very clear explanations for that. This paper presents the overview of Gender Pay Gap in EU and in Estonia, connection between Gender Pay Gap and other relevant background indicators, tries to find some explanations for high Gender Pay Gap in Estonia and finally introduce the new project implemented by Statistics Estonia to improve measurement of Gender Pay Gap in Estonia and providing the relevant statistics on that area.

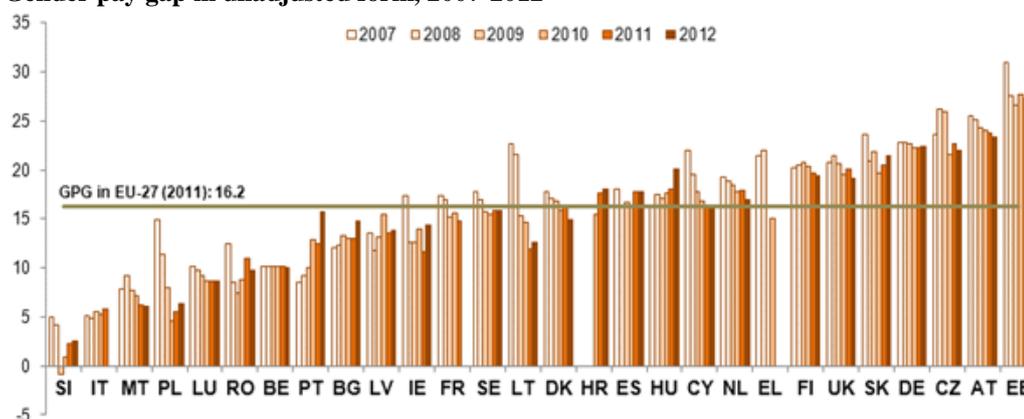
Gender Pay Gap in Estonia is the highest in the EU and based on analyses done so far, there are no very clear explanations for that. This paper presents the overview of Gender Pay Gap in EU and in Estonia, connection between Gender Pay Gap and other relevant background indicators, tries to find some explanations for high Gender Pay Gap in Estonia and finally introduce the new project implemented by Statistics Estonia to improve measurement of Gender Pay Gap in Estonia and providing the relevant statistics on that area.

1. The Gender Pay Gap (GPG) is the difference between men's and women's pay, based on the average difference in gross hourly earnings of all employees.

2. On average, women in the EU earn around 16% less per hour than men and GPG varies across Europe, being the highest in Estonia.

3. Although the overall GPG on EU level has narrowed in the last decade, in some countries the national GPG has actually been widening.

Gender pay gap in unadjusted form, 2007-2012



Source: Eurostat, SES (earn_gr_gpgr2)

2. The GPG exists even though women do better at school and university than men. In several Member States, GPG is not decreasing, despite the changes seen in labour market during recent years: an increase in the employment rate for women, an increase in job opportunities for women, and increases in women's education levels, which in many countries is already equal or even exceed those of men. The GPG used to describe the differences in the earnings in EU, does not take into account all of the factors that impact on the GPG, such as differences in education, labour market experience, hours worked, type

² Eurostat, Gender Pay Gap metadata (http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/en/earn_grgpgr2_esms.htm)

³ Eurostat, Gender pay gap in unadjusted form in % - NACE Rev. 2 (structure of earnings survey methodology) (earn_gr_gpgr2) (http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=earn_gr_gpgr2&lang=en)

⁴ European Commission (2013). Tackling the gender pay gap in the European Union (http://ec.europa.eu/justice/gender-equality/files/gender_pay_gap/gpg_brochure_2013_final_en.pdf)

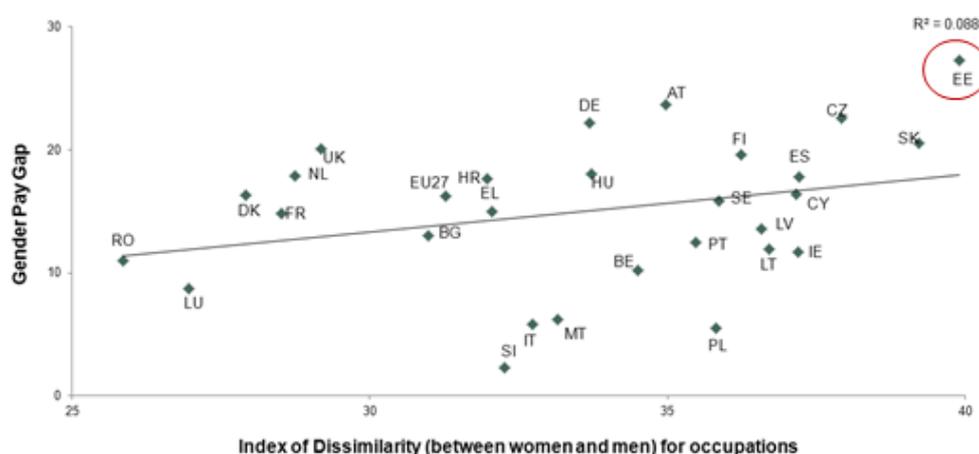
⁵ Belgian Presidency report (2010) The gender pay gap in the Member States of the European Union: quantitative and qualitative indicators (<http://register.consilium.europa.eu/doc/srv?l=EN&t=PDF&gc=true&sc=false&f=ST%2016516%202010%20AD D%202&r=http%3A%2F%2Fregister.consilium.europa.eu%2Fpd%2Fen%2F10%2Fst16%2Fst16516-ad02.en10.pdf>)

of job, etc. But still, even when these factors are taken into consideration, more than half of the GPG remains unexplained⁶.

3. A narrow gender pay gap may be explained by the fact that the employment rate for women is low, and that those who are working are also those who have the personal characteristics as level of education, profession and so on, associated with higher salaries⁷. Even if we can see here the positive trend line, we can explain only 18% of GPG with employment rate⁸. If we look the situation in Estonia, then we can see, that Estonia does not have highest employment rate for women in the EU.

4. One of the factors that best explains the gender pay gap is segregation in the labour market. Women are often overrepresented in sectors, occupations and positions where pay tends to be moderate⁹. Comparing the GPG and segregation based on Index of Dissimilarity, we can explain with occupational segregation on labour market only 9% and with sectoral segregation on labour market only 8% of GPG variations¹⁰. Estonia is a clear outlier of the average trend showing the highest GPG and the highest occupational segregation. Also, Estonia is among those six Member States who have the highest GPG and as well as among those six Member States who have the highest sectoral segregation.

Gender Pay Gap and segregation, 2011



⁶ ibid

⁷ ibid

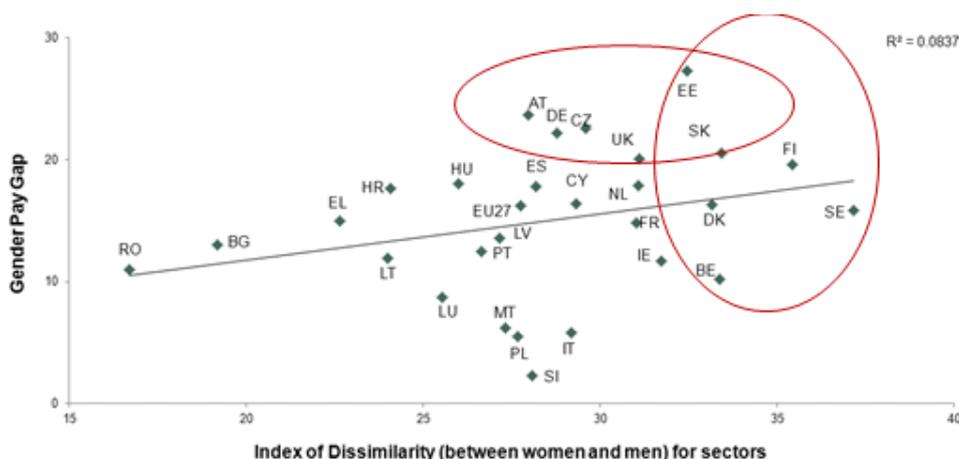
⁸ Calculations based on Eurostat, Employment rates by sex, age and nationality (%) (lfsa_ergan) (http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa_ergan&lang=en)

⁹ Belgian Presidency report (2010) The gender pay gap in the Member States of the European Union: quantitative and qualitative indicators

(<http://register.consilium.europa.eu/doc/srv?l=EN&t=PDF&gc=true&sc=false&f=ST%2016516%202010%20AD%202&r=http%3A%2F%2Fregister.consilium.europa.eu%2Fpd%2Fen%2F10%2Fst16%2Fst16516-ad02.en10.pdf>)

¹⁰ Index of Dissimilarity is calculated based on data from Eurostat, Full-time and part-time employment by sex, age and occupation (1000) (lfsa_epgais)

(http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa_epgais&lang=en); Full-time and part-time employment by sex, age and economic activity - NACE A10 (from 2008 onwards, NACE Rev. 2) - 1000 (lfsa_epgn62) (http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa_epgn62&lang=en)



Source: Eurostat, SES (earn_gr_gpgr2); calculations based on Eurostat, LFS (lfsa_epgn62 and lfsa_eggais)

Note: Data for EL refers year 2010; Index of Dissimilarity is calculated by taking the sum of the absolute differences, in each sectors or occupations, between women and men using the following calculation steps: (1) share of employed women and men in each sector or occupation from all employed women and men; (2) calculating absolute differences for each sector or occupation between women and men; (3) adding up the absolute differences for sector or occupation and dividing by 2.

5. For analysing the influence of part-time work on the GPG, is important to take account that the GPG is based on hourly earnings: earnings are calculated on the working hours, but still it does not take account the real nature of part-time and full-time work. Women bear the burden of unpaid work and childcare they tend to work shorter hours. In addition, women also generally work in sectors and occupations where jobs are compatible with their family responsibilities. As a result of that, women are more likely to work part-time, be employed in low-paid jobs and not take on management positions¹¹. Still, the correlation between part-time work and GPG is very low¹².

6. Results from earlier studies showed that there could be the correlation between the level of education and gender pay gap: some studies show that the fact that women's and men's education levels have become closer has led to a narrowing of the pay gap, whilst others show the opposite¹³. Estonia has the highest GPG and almost the highest share of highly educated women which is in contrast with the negative EU-average trend¹⁴.

¹¹ European Commission (2013). Tackling the gender pay gap in the European Union

(http://ec.europa.eu/justice/gender-equality/files/gender_pay_gap/gpg_brochure_2013_final_en.pdf)

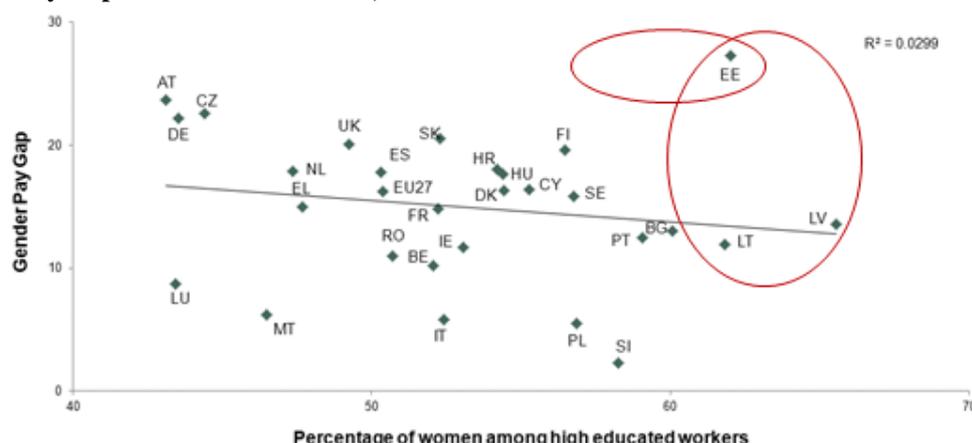
¹² Calculations based on Eurostat, Full-time and part-time employment by sex, age and highest level of education attained (1000) (lfsa_egaed) (http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa_egaed&lang=en)

¹³ Belgian Presidency report (2010) The gender pay gap in the Member States of the European Union: quantitative and qualitative indicators

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¹⁴ Calculations based on Eurostat, Employment by sex, age and highest level of education attained (1000) (lfsa_egaed) (http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa_egaed&lang=en)

Gender Pay Gap and level of education, 2011

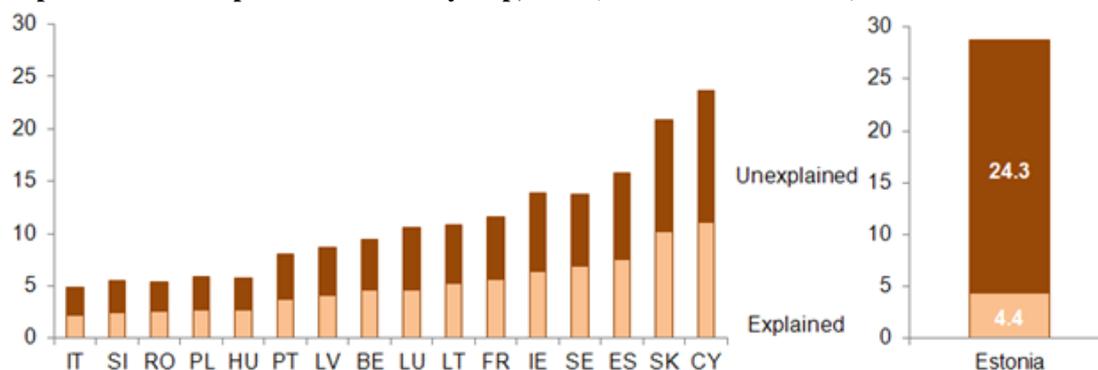


Source: Eurostat, SES (earn_gr_gpgr2); Eurostat, LFS (lfsa_egaed)

Note: Data for EL refers year 2010.

7. The results of analysing explained and unexplained GPG showed that in all the countries concerned, the explained component is smaller than the unexplained component except in Sweden¹⁵. Based on another study done for Estonia, explained part is very small in Estonia from GPG¹⁶. One reason for the unexplained GPG 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 that analyse.

Explained and unexplained Gender Pay Gap, 2006 (for Estonia 2000-2008)



Source: Belgian Presidency report 2010; Anspal, Rõõm (2010) Gender Pay Gap in Estonia: Empirical Analysis

Note: The data for all Member States were not available in Belgian Presidency report 2010. Different methodology was used to calculate explained and unexplained GPG in Belgian Presidency report and for Estonia.

¹⁵ Belgian Presidency report (2010) The gender pay gap in the Member States of the European Union: quantitative and qualitative indicators

(<http://register.consilium.europa.eu/doc/srv?l=EN&t=PDF&gc=true&sc=false&f=ST%2016516%202010%20AD%202&r=http%3A%2F%2Fregister.consilium.europa.eu%2Fpd%2Fen%2F10%2Fst16%2Fst16516-ad02.en10.pdf>)

¹⁶ Sten Anspal and Tairi Rõõm (2010) Gender Pay Gap in Estonia: Empirical Analysis

(http://www.sm.ee/fileadmin/meedia/Dokumendid/V2ljaanded/Publikatsioonid/2011/Gender_pay_gap_Estonia_analysis.pdf)

8. Part of the GPG in Estonia derives from the concentration of Estonia’s employed women and men in different occupations and sectors. Based on the occupational segregation, there are more managers among men and more service and sales workers and more clerks among women. With adding the average earning for each sector, message will be even more clear: men work more on average in such occupations that are better-paid. The situation is similar according to sectoral segregation and earnings in different sectors. Even if women dominate in the highest-paid sector, men dominate on the next two. Additionally, on three less-paid sectors, there are more women than men¹⁷. Based on the results of earlier mentioned analyse about explained and unexplained GPG in Estonia, one main conclusion may be that during the years 2006-2008 the gender pay gap increased and also the part that can be explained by both the sector and the occupation has increased. Even more, one reason for the increase of gender pay gap in this period is the increase in segregation. The earlier mentioned study also tried to find the answer to the question: how big would the gender pay gap be if there was no occupational segregation at all. Calculations showed that if there were equal numbers of employed women and men in all occupations, the average gender pay gap would decrease by 32%¹⁸.

Earnings in Euros by occupations in Estonia, 2010



Source: Statistics Estonia

9. 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 at the moment. Still, some indirect analyse was done in that earlier mentioned study based on having the children or no. The results demonstrated that women with children earn on average 1.2% less than women with no children (per child) and also, that this difference is not statistically relevant for men¹⁹.

10. GPG in Estonia is the highest in the EU and there are no very clear explanations for that based on analyses done so far. This is clear, that more women than men occupy less-paid sectors and occupations in the labour market but this tendency does not explain gender pay gap fully. To analyse the situation more deeply, the improving the measurement of GPG and providing the statistics is crucial.

11. The project “Increased availability of gender pay gap statistics” is a sub-project of the Norwegian support programme on “Promoting gender equality and work and family life balance”. The project is implemented by Statistics Estonia.

¹⁷ Calculations based on data from Statistics Estonia (<http://pub.stat.ee/px-web.2001/dialog/statfile1.asp>)

¹⁸ Sotsiaalministeerium (2013) Sooline palgalõhe Eestis. Artiklite kogumik.Sotsiaalministeeriumi toimetised, 2/2011 (http://www.sm.ee/fileadmin/meedia/Dokumendid/V2ljaanded/Toimetised/2011/toimetised_20112.pdf)

¹⁹ Sten Anspal, Liis Kraut, Tairi Rõõm (2010). Sooline palgalõhe Eestis. Empiiriline analüüs (http://praxis.ee/fileadmin/tarmo/Projektid/Too-ja_Sotsiaalpoliitika/2_raport.pdf)

12. The objective of the project is to improve availability of gender pay gap statistics. Currently, this statistics is based on the Structure of Earnings Survey, which is coordinated by Eurostat under a directly applicable regulation (the survey unit is an economic unit, with a sample of employees selected from each economic unit; they are then asked 5–6 personified questions, incl. a question about wages). The survey is conducted every four years and it is an important data source for a comparison of pay gaps between Member States. One of the problems associated with the survey is a long delay between data collection and publication (e.g., the data of the 2014 survey will be available for customers in the first quarter of 2016). This is the reason for dissatisfaction of the Ministry of Social Affairs as the main customer.

13. The main objective of the project is to upgrade gender pay gap statistics and ensure the possibility of annual monitoring. This should not lead to an increased administrative burden on undertakings due to additional data collection, but added value should be created through generation of other methods for production of output data without additional data collection. This should be achieved by creating an integrated source database, based on existing data and inclusion of administrative data sources. The database is personified, i.e., data are linked through an identifier (based on personal identification code to enable linking of different databases). The main source for gender pay gap statistics will be the Labour Force Survey and Estonian Social Survey, which will be linked with the social insurance database of the Tax and Customs Board. This will help to improve and supplement the work income (wage) indicator of the Labour Force Survey and Estonian Social Survey. Additionally will be used Population Census 2011 data; the Social Insurance data, the statistical profile data and so on.

14. Integration of different national databases: integration of the data on economic units (Structure of Earnings Survey) with personified data (in essence, one data source is additionally weighted on top of another source to obtain complete information on the process monitored (changes in pay gap). The indicator published in the Eurostat database will be a subset of the nationally published indicator (Eurostat has imposed some restrictions, e.g., excluding companies with less than 10 employees, etc.). The main purpose of the information published, it would be understandable to users. That there are no contradictions between the various databases.

15. The source database has three objectives:

- a) Enable annual monitoring of gender pay gap through various background indicators;
- b) Enable preparation of indicators for monitoring the development plans and strategies on labour market equality of men and women;
- c) Research – in-depth analyses for studying the nature of gender pay gap.

The aim of the project is achievement of the first objective, i.e., to enable annual monitoring of gender pay gap through various background indicators.

16. Indicators, which the consumer wishes to annually monitor:

- a) Indicators for average gender pay gap (annual monitoring):
 - i) The average gender pay gap – average hourly wages – the differences between full-time working men and women net pay equivalents;
 - ii) Explained and unexplained gender pay gap (not yet);
- b) Indicators for structural factors that influence gender pay gap (*at present time will not be calculated on a regular basis but in future will be calculated on the annual basis*):
 - iii) Duncan & Duncan Segregation Index –shows the percentage of women who should need to switch their occupations;

- iv) The proportion of women in the top management – ISCO-08: 1 Managers – 11 Chief Executives, senior officials and legislators;
- v) Entrepreneurs by gender – self-employers, employers, farmers;
- vi) Start-up company owners by gender;
- vii) Part-time employment by gender;
- viii) The passivity caused by the lack of child care services by gender – based on surveys – the reasons of part-time employment and staying unemployed;
- ix) The proportion of men and women receiving parental leave –the number of men who receive parental leave per year;
- x) Parental leave days used by women and men per year; the average period of parental leave by gender;
- xi) Parental leave pay by gender – the number of women and men receiving parental leave pay; the amount of average parental leave pay by gender;
- xii) Paternity leave – number of fathers on paternity leave for all children born per year;
- xiii) Paid and unpaid work by gender;
- xiv) The effect of parenthood on employment – suggestions for indicators;
- xv) Gender employment rate gap by number of children and age of youngest child.

17. Conclusion:

- a) Gender Pay Gap in Estonia is the highest in the EU and unfortunately, it does not seem to decrease. At first, we need the data to describe and understand the situation
- b) We started to improve gender pay gap statistics and measurement in Estonia and we hope that this project give as light to improve the situation in Estonia.
