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Revisiting the gender pay gap

The gender pay gap: evidence from Austria[1]

Note by Statistics Austria

Summary

Compared to other European Union (EU) Member States, Austria is characterised by high wage differentials between men and women. Expressed in average gross hourly earnings, the Austrian gender pay gap (GPG) is 25.5 per cent. The results of the decomposition based on data from the Structure of Earnings Survey show that in Austria less than half of the GPG can be explained by observed characteristics such as economic sector, occupation, age or length of employment. Furthermore, the level of the GPG also varies depending on the definition as well as coverage. Measurement of the GPG based on the median instead of the arithmetic mean reduces the GPG by 2.3 percentage points. The results also indicate clear differences on whether or not the calculations include overtime pay or apprentices or if gross / net annual earnings are used instead of hourly wages.

I. The gender pay gap in EU member states

1.   Within the European Union (EU), Austria figures among the countries with the highest gender gaps. While the average EU gender pay gap (GPG) is 17.7 per cent, women in Austria earn approximately a quarter (25.5 per cent) less than men (figure 1). According

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[1] Prepared by Tamara Geisberger, Earnings and Gender Statistics, Statistics Austria.

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to the Eurostat definition, the GPG is the relative difference between the average (arithmetic mean) gross hourly earnings of women and men expressed as percentage.

2.   From the reference year 2006 onwards, Eurostat has calculated the GPG by using the four-yearly Structure of Earnings Survey (SES).[2] The SES is a rich employer-employee data set that provides harmonised data for enterprises with at least ten employees in NACE Rev. 1.1 sections C to O (excluding L = public sector)[3]. Between the SES benchmark years, the Member States provide national estimates. The data presented in this paper are based on the SES 2006

3.   The Indicator is unadjusted, i.e. without correcting for gender differences in the labour market or individual characteristics of employed men and women.

Figure 1.
Gender pay gap in unadjusted form, 2006
(%)
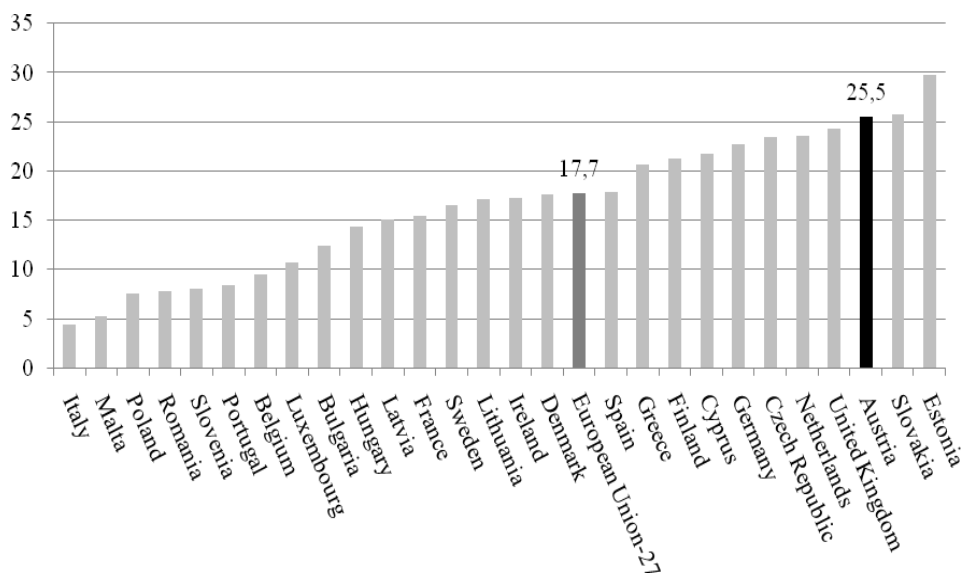
Source: Eurostat. Gender Pay Gap (SES 2006, tsiem040)

4.   The comparison of EU Member States shows that the level of the GPG differs widely among Member States (figure 1). These variations are due to a considerable number of complex, interrelated factors such as e.g. part-time work, occupational and sectoral segregation, career breaks etc., which vary significantly between Member States. Consequently, the GPG must be interpreted in combination with additional factors.

5.   In this context, one of the key indicators is women's labour market participation. The results obtained by Eurostat[4] indicate that countries with a low GPG tend to be

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[2] The SES is based on the Council Regulation (EC) No. 530/1999 and the Commission Regulation No. 1738/2005 amending Regulation (EC) No. 1916/2000.

[3] According to Plantenga / Remery (2006) this might influence the extent of the gender pay gap in two ways: Women tend to be over-represented in the public sector and the gender pay gap is narrower in the public sector than in the private sector.

[4]http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Gender_pay_gap_statistics

characterised by lower labour market participation of women than countries with a high GPG. This might be explained by the fact that in Member States with an overall low female employment rate, women with higher qualifications enter the labour market more frequently than women that can expect only low earnings. So as an effect of self-selection the GPG is lower in countries with a low female employment rate.

6.   The opposite effect is observed for Austria as well as other countries, including the Netherlands, the United Kingdom and Germany. These are not only countries with a high GPG but also with a high rate of female labour market participation (figure 2). The high employment rate of women in these countries is accompanied by a high rate of female part-time work (figure 3) and consequently a higher percentage of poorly qualified women (see Dupré, 2010, p. 4).

7.   Thus, in some countries, labour market participation of women is a relevant factor. The case of the Scandinavian EU Member States shows, however, that a high employment rate of women does not necessarily result in a high GPG. Despite high female labour market participation and part-time employment rates, in Sweden and Denmark the GPG is below the EU average.
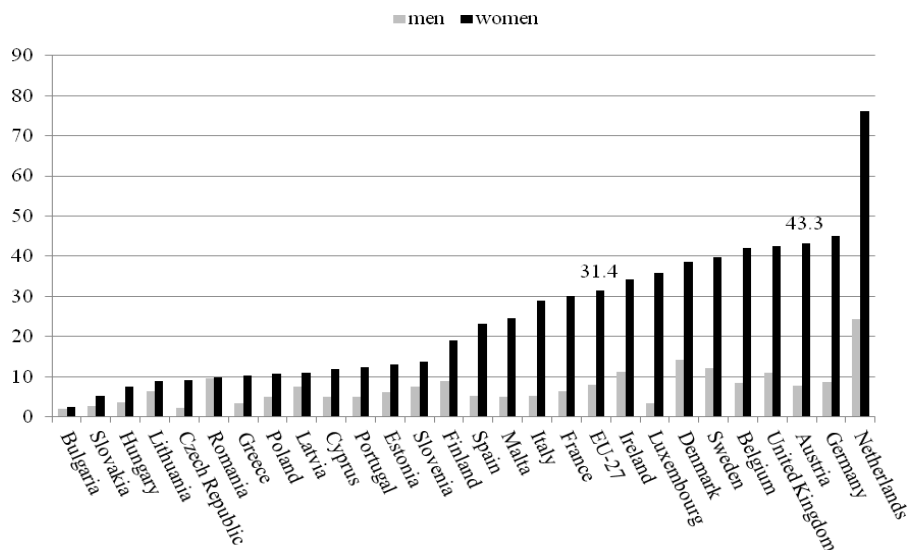
Figure 2
Employment rates of women, 2010
(%)
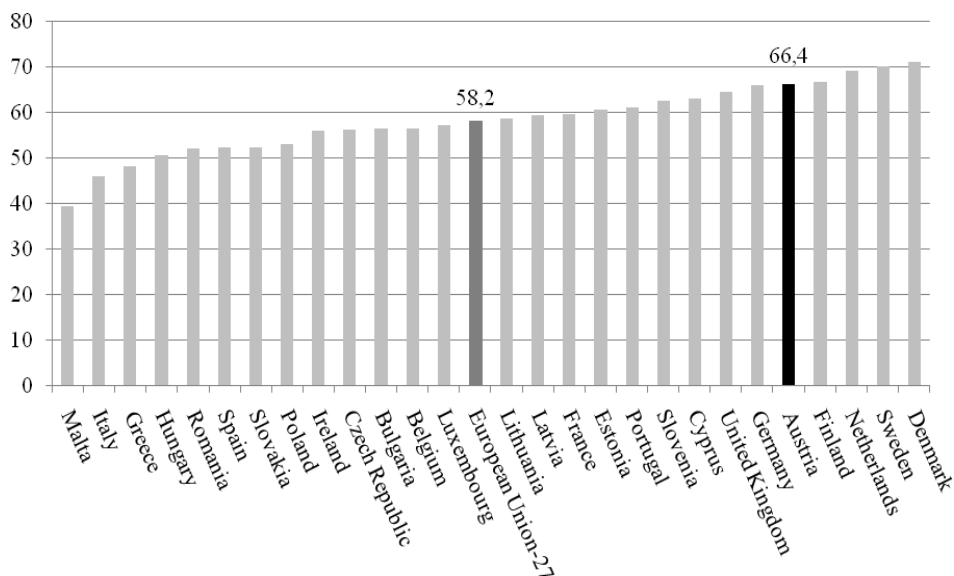
Source: Eurostat. Labour Force Survey 2010 (LFS annual survey results - lfsa).

Figure 3
Part-time employment as a percentage of total employment by sex, 2010
(%)

Source: *Eurostat. Labour Force Survey 2010 (LFS annual survey results - lfsa_eppga).*

8.   Consequently, there must be other factors which have an adverse effect on women on the labour market. In this context, the percentage of low-wage earners is another indicator of gender inequalities in terms of pay. With respect to other Member States, the percentage of low-wage earners among women is particularly high in Austria compared to men. With 28.7 per cent, the share of women among low-wage earners is more than three times as high as among men (9.2 per cent). In relative terms, this represents the largest gap between male and female low-wage earners among all EU Member States.

Table 1
Distribution of low-wage earners (full-time employees) by sex, 2006
(%)

Country	**EU-27**	**BE**	**BG**	**CZ**	**DK**	**DE**	**EE**	**IE**	**EL**	**ES**	**FR**	**IT**	**CY**	**LV**
Men	13.5	4.8	26.5	9.5	4.7	15.9	11.7	15.6	12.4	11.2	7.7	11.5	11.0	29.2
Women	23.1	12.8	27.7	26.1	11.6	28.0	28.7	28.7	23.2	22.6	10.6	16.2	33.4	32.3

Country	**LT**	**LU**	**HU**	**MT**	**NL**	**AT**	**PL**	**PT**	**RO**	**SI**	**SK**	**FI**	**SE**	**UK**
Men	25.0	11.9	24.5	10.1	10.5	9.2	18.3	14.5	25.7	12.1	10.8	3.3	7.6	15.6
Women	30.1	24.6	22.3	13.3	25.0	28.7	26.3	26.6	27.8	21.3	25.0	8.8	14.9	30.6

Source: Eurostat. SES 2006 (earn_ses_adeci)

9.   Low-wage earners among full-time employees: those earning less than two thirds of the national median wage per year.

10.   National analyses on low-wage employment in Austria (Greenberger & Kittler 2010) indicate that the percentage of low-wage employees is particularly high among part-time workers and other precarious forms of employment; at the same time, women are significantly over-represented in atypical forms of employment.

11.   While according to the Labour Force Survey (LFS, 2009) approximately 48 per cent of the Austrian labour force are women, the female percentage among those whose main economic activity is exclusively part-time is roughly 85 per cent. With a female share of 76 per cent, women are also over-represented far above the average in marginal ("mini"-) jobs. While the female percentage among those employed under a quasi-freelance contract amounts to 56 per cent, this percentage is 53 per cent among those with a fixed-term employment contract. With a female percentage of only 33 per cent, the only atypical form of employment that is predominantly male is temporary work (Geisberger & Knittler 2010, p. 451).

12.   Aggregating all atypical forms of employment, nearly one out of two women (48 per cent), but only roughly one out of eight men (13 per cent) had an atypical employment contract. This implies that in order to analyse the gender pay gap not only differences in employment and part-time rates need to be addressed, but also differences in the wage structure.

II.   Measuring the gender pay gap in Austria

A.   Analyses based on ses data

13.   For a more detailed analysis, the gender pay gap was decomposed based on the data from the SES 2006.[5] The aim of the analyses was to examine the degree to which differences in the distribution of observable characteristics can explain the GPG in Austria. The degree to which each factor influences the GPG depends on the gender-specific segregation of the labour market as well as pay differentials between the different segments of the labour market on the one hand, and on gender differences in education and career patterns on the other.

1.   Adjusted / unadjusted Gender Pay Gap

14.   If the pay gap is adjusted by observable differences such as age, education or length of service as well as segregation effects due to differences in the distribution of women and men by economic sector and occupation, the Austrian gender pay gap drops from 25.5 per cent to 18.1 per cent (figure 4).

15.   This calculation (Oaxaca-Blinder Decomposition)[6] disaggregates the wage difference into an explained and an unexplained component based on the characteristics of women and men. Detailed results of such decomposition show that assuming zero difference between women and men with regard to economic activity (NACE), the pay gap drops by 1.8 percentage points. Adding, in a next step, the gender differences in the distribution by occupation (ISCO), this explains approximately 1.4 percentage points of the GPG. If the highest completed level of education is also taken into account, then the wage difference decreases by another 2.2 percentage points. On the other hand, addition of the age factor alone has only a minor impact on the gender pay gap, namely a mere 0.1

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[5] In Austria the SES is conducted in the form of a sample survey. The sample was drawn by selecting approximately 12,000 enterprises and 200,000 employees (response rate: 98 per cent), representing 38,200 enterprises and 2.2 million employees.
 http://www.statistik.at/web_en/statistics/ social_statistics/personal_income/structure_ of_earnings/index.html

[6] See Hübler (2003) and Reimers (1983) for a more detailed description of this method.

percentage points. This small impact is due to a strong correlation between the factors age and length of service, which explains 1.9 percentage points of the GPG (see Geisberger/Glaser 2010, p. 198).

Figure 4
Decomposition of the Gender Pay Gap
(%)
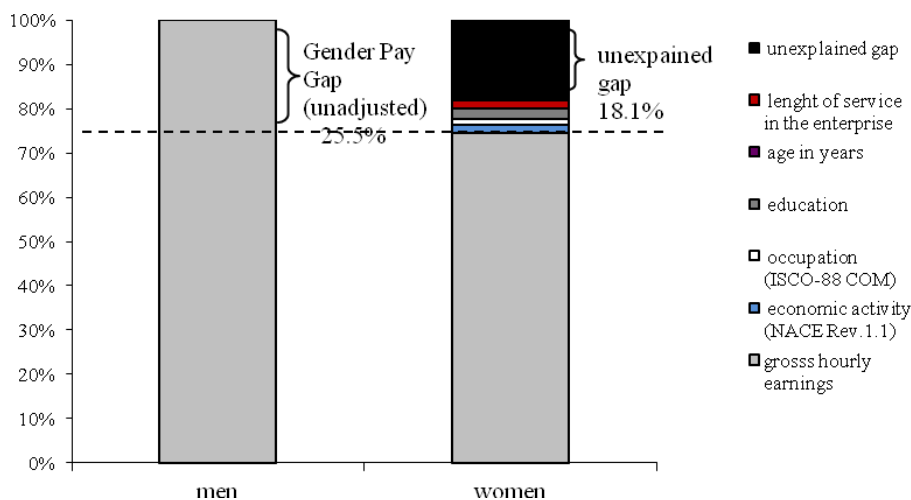
Source: Statistics Austria. SES 2006

16. Overall, the output reveals that the observed characteristics explain approximately a mere third of the Austrian GPG. Because of generally lower pay levels in female-dominated economic sectors and occupations, one part of this can be attributable to sectoral and occupational segregation by gender. Another part is due to gender differences in the level of education or work experience, i.e. the resources of the individual in terms of human capital. For example, in Austria the average length of service in the enterprise is six years for women, while that of men is nine years. Consequently, taken as a whole, women benefit from the seniority principle less than men.

17. However, most of the GPG cannot be explained by the observed factors. Nevertheless, the unexplained gap (18.1 per cent) should not be directly interpreted as discrimination, because on the one hand, some of the remaining wage difference might also be due to characteristics that could not been taken into account. On the other hand, the observed difference – such as gender-specific segregation by sector and occupation – might also be a result of discrimination.

18. Finally, adjustment by observed factors is just an arithmetical exercise as it disregards the difference between sectors and occupations, as well as other factors, in order to compare pay levels within a given segment. In real terms, however, these differences, and consequently the pay gap, remain the same. For this reason, the adjusted indicator to measure the gender pay gap fails to provide a full picture of the actual gender-specific differences on the labour market.

2. Arithmetic mean / median

19. Using the median instead of the arithmetic mean also produces results that deviate from the GPG computed by Eurostat. The median is the level below and above which the earnings of half of all employees, respectively, are shown. Due to the structure and

distribution of earnings, the median is usually lower than the arithmetic mean. One major characteristic of the median is that it is less influenced by extremely high (low) values than the arithmetic mean. For this reason, the median is more robust with regard to so-called outliers. But this also means that the results do not reflect extremely high values, for example.

20.   In calculating gender-specific wage differences, it must also be noted that the distribution of women's earnings is more concentrated on lower and medium income groups, while the earnings of men are more dispersed and might occasionally reach extremely high values. Therefore, the gap between the mean and the median is wider in men's earnings. Consequently, the gender pay gap is narrower if measured against the median.

21.   Table 2 illustrates this effect and shows that the difference between gross hourly earnings of women and men drops by approximately two percentage points, i.e. from 25.5 per cent to 23.2 per cent, if extreme values are excluded from the calculation by using the median.

Table 2
Gender wage differentials, SES 2006
(%)

	Arithmetic Mean	**Median**
all employees		
gross hourly earnings (including paid overtime)	25.5	23.2
gross hourly earnings (**not** including paid overtime)	24.5	21.9
employees (without apprentices)		
gross hourly earnings (including paid overtime)	26.3	23.9
gross hourly earnings (**not** including paid overtime)	25.3	22.7

Source: Statistics Austria. SES 2006

22.   In contrast to Eurostat, the nationally published SES data are based on the median. In addition, to ensure comparability, the standard presentation of hourly earnings does not include overtime or apprentices.

3.   With /without overtime

23.   A comparison of gross hourly earnings with/without overtime (table 2) shows that the gender pay gap in the calculation without overtime pay is one percentage point below the gap that includes overtime pay.

24.   The reason is that men work more overtime hours than women. In addition, overtime pay in Austria is relatively significant compared to other EU Member States. In Austria, the percentage of overtime pay in total gross monthly earnings is 5.6 per cent (men 6.9 per cent, women 2.8 per cent), while this share is 2.1 per cent (men 2.8 per cent, women 1.1 per cent) in the EU-27.

25.   According to data from SES 2006, approximately 42 per cent of all men and 21 per cent of all women in Austria received overtime compensation in the form of pay. On average, men were working 9.4 while women worked 3.6 paid hours of overtime a month.

4. With / without apprentices

26.   Another relevant factor for earnings, particularly in Austria, is the inclusion of apprentices. While apprentice training is of no relevance in many EU Member States, the dual education system prevailing in Austria (as well as Germany and Switzerland) plays a major role. In Austria, approximately 40 per cent of all adolescents of a given year of birth enrol in dual education. According to SES 2006 data, measured against the total number of employees this amounts to a share of 4.2 per cent (men 5.2 per cent, women 3.7 per cent).

27.   Apprentices receive remuneration for their work, which is usually lower than average salaries. Therefore, gross hourly earnings are lower if apprentices are included in the calculations. Due to the higher percentage of male apprentices, the effect on gross hourly earnings is more pronounced for men than for women. A comparison of gender pay differences with/without apprentices (table 2) shows that the gender-specific wage difference is smaller if apprentices are included.

B.   Annual earnings

28.   In addition to data from the SES, Austria also publishes Annual Earnings Statistics in the form of regular reports (see e.g. General Income Report)[7]. In contrast to the SES data, the annual data cover the whole economy, i.e. including enterprises with less than ten employees as well as the public service, where gender wage differentials are generally lower overall. The annual data are based on a combination of different administrative data (national tax data, social security information and Labour Force Survey). Under a Gentlemen's Agreement, Annual Earnings Statistics are also transmitted to Eurostat. However, comparability between Member States is limited because Member States use different sources and coverage is not standardised.[8]

1.   Gross / net earnings from 1997 to 2010

29.   In terms of gross annual income, women earned nearly 40 per cent less than men in 2010. This comparison relates to all employees, irrespective of the extent of employment.

30.   No major changes are observed over time. Looking at the trend in the relative income situation of women compared to men, the wage differences between women and men have remained relatively stable over the past few years (figure 5). Measured against median gross annual earnings, the income differential between women and men was 39.6 per cent in 1999 and 39.4 per cent in 2010. A slight decrease over 2008 (40.7 per cent) is mainly due to the fact that men's incomes have risen less sharply from the onset of the economic and financial crisis , respectively, that the incomes have even dropped among male blue-collar workers.

31.   This decline is even slightly more significant in net income. In 2008, women were earning 33.3 per cent less than men after tax. The gap amounted to 31.8 per cent in 2010. This is essentially due to the effects of the 2009 tax reform, which took slightly more

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[7] http://www.statistik.at/web_en/statistics/social_statistics/personal_income/general_income_report/index.html

[8] For some Member States no data are available for the following NACE sections: public sector, education, health or social work; in most Member States the coverage of small enterprises (less than 10 employees) is not possible; currently no full-time units are available for Austria.
http://epp.eurostat.ec.europa.eu/portal/page/portal/labour_market/earnings/database

burden off low incomes than medium or high incomes, ensuring more benefit to women than men.

Figure 5
Wage differentials between men and women, Annual Earnings 1997 to 2010
(%)
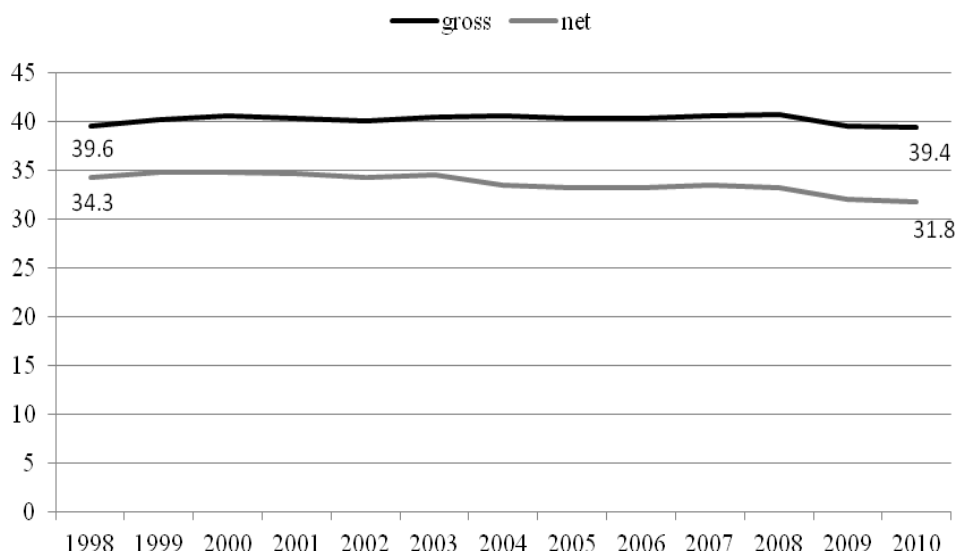
Source: Statistics Austria. Wage Tax Statistics - Social statistical analysis

2. Gross annual earnings of full-time workers employed for the whole year

32.   Considering differences in the extent of employment (part-time, seasonal jobs), and limiting the comparison to full-time workers employed for the whole year, the gross annual earnings of women are still approximately 19 per cent below those of men.

Table 3
Gross annual earnings, 2010

	number of employees			*(median) gross annual earnings*		
	women	*men*	*Proportion of women (%*	*women*	*men*	*Wage gap (%)*
all employees	1 896 205	2 142 960	46.9	17 802	29 400	39.4
full-time workers employed for the whole year	764 645	1 380 532	35.6	30 086	37 152	19.0

Source: Statistics Austria. Wage Tax Statistics - Social statistical analysis

33.   At present, full-time units (FTU) based on income tax data cannot be calculated for Austria. Even though the tax data differentiate between full-time and part-time workers, more detailed data on the extent of employment are not available. Consequently, approximations are only possible by limitation to full-time workers employed for the whole year.

34.   The disadvantage of this method compared to the calculation of FTU or hourly earnings (as for the SES) is that approximately 60 per cent of all women and 36 per cent of all men are excluded from calculations as they either work part-time or are not employed throughout the year. Thus the proportion of women drops from about 47 per cent to roughly 36 per cent (table 3). The advantage of the income tax data on the other hand is that the data are available on an annual basis and that they provide an exact picture of the actual amount of earned income.

3.   High / low earnings

35.   Considering the distribution of incomes earned by full-time workers employed for the whole year by deciles, it becomes evident that the lower deciles, i.e. those income groups where earnings are lowest, comprise relatively more women than men. In the first and second deciles, the proportion of women is significantly above 50 per cent and consequently, significantly above the proportion of men. By contrast, men are predominant in all other deciles. The proportion of men reaches approximately 82 per cent in the uppermost (10th) decile, while the overall proportion of men among all employees is 64 per cent.

36.   It is thus evident that the higher the earnings, the lower the proportion of women in the respective income groups. A slight deviation from this trend is only noted in the second decile, where the proportion of women is slightly higher than in the first decile. From the third decile onwards, the proportion of women starts decreasing continuously.

Figure 6
Distribution of gross annual earnings per deciles, 2010
(%)
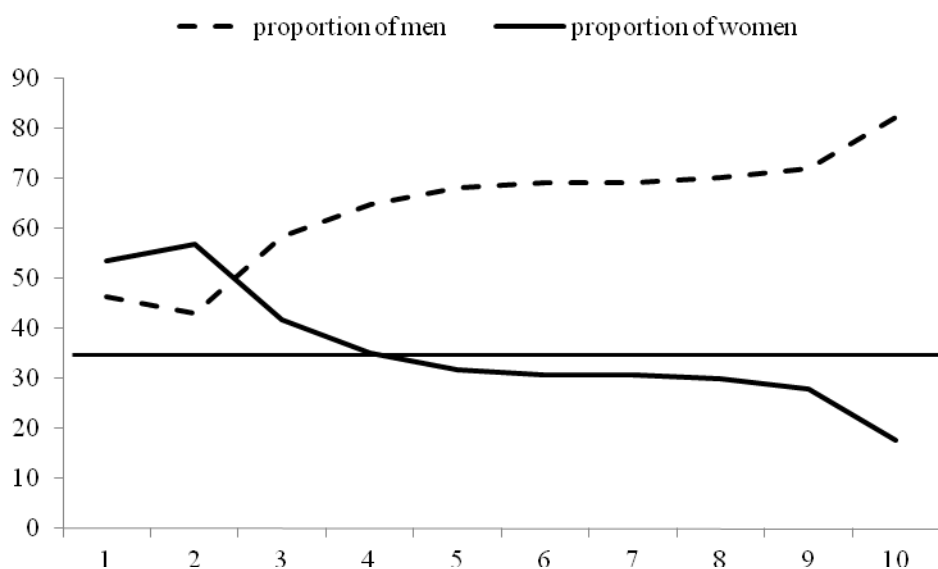
Source: Statistics Austria. Wage Tax Statistics - Social statistical analysis.

III. Outlook

37.   The following measures have been adopted in Austria to reduce the gender wage gap:

(a)   from 2011, enterprises must submit internal income reports. These reports must specify not only the number of women and men classified under a given level of pay according to the relevant collective bargaining agreement, but also the average income of men and women in the respective group, adjusted by working time. In a first step, this regulation only applies to large enterprises from 1,000 people onwards. From 2014, all enterprises from 150 employees onwards will be required to submit a relevant report to the works council on a two-yearly basis. Where no works council exists, the report must be accessible to all employees;

(b)   in addition, in job advertisements employers must specify the minimum salary paid under the respective collective agreement as well as any possibility of additional pay;

(c)   Another measure is a salary calculator developed by Statistics Austria on the behalf of the Federal Minister for Women and the Civil Service.[9] The results are based on statistical estimation models. Information on income is derived from national tax data. Further socio-economic information is based on the Labour Force Survey. Upon entering relevant criteria such as age, education, work experience or type of activity, the calculator provides the monthly gross income as well as the gender wage gap.

38.   Independent of the efforts of Austria, Eurostat has developed a salary calculator for all EU Member States based on the data from the SES.[10]

39.   The results due in forthcoming years will show how the measures, which are essentially aimed at increased transparency in relation to incomes, will contribute to reducing the GPG. The data from SES 2010 will be available from mid-2012. However, since the reporting period will comprise the period before introducing the new measures, it will not be possible to draw conclusions as to the effectiveness of the adopted measures.

40.   Relating to the measurement of GPG, the results of SES 2010 will again provide breakdowns by NACE or age for Austria. Moreover, Eurostat is discussing the issue of calculating a GPG based on median gross hourly earnings, in addition to the arithmetic mean.

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[9] http://www.statistik.at/web_de/statistiken/soziales/personen-einkommen/gehaltsrechner/index.html

[10] http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Salary_calculator

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