Zurich Gender Wage Gap

Gender-specific development of the wages in the Zurich private sector 2002-2008

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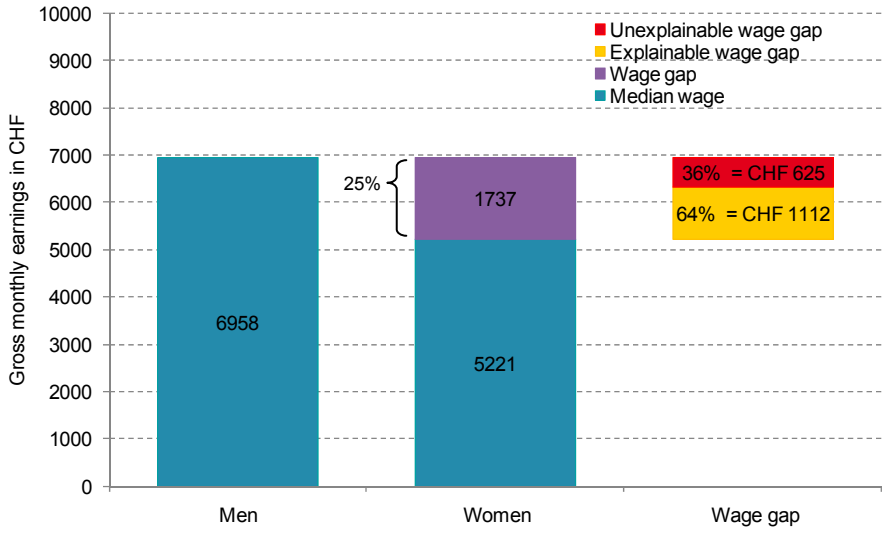
In the Canton of Zurich, women still earn considerably less than men – also with as good endowment in education, occupational position, job requirements, employment experience and seniority. This paper analyses the gender-specific development of the wages and the gender wage gap in the private sector of the Canton of Zurich with data from the Swiss Earnings Structure Surveys 2002-2008.

Median wages

Wages in the Canton of Zurich are generally among the highest in Switzerland. In 2008, the median wage in the private sector in the Canton of Zurich was CHF 6236. The Swiss average is 6 percent lower at CHF 5777. In the private sector of the Canton of Zurich the median wage earned by women (CHF 5221) is clearly lower than that of men (CHF 6958).

Gross monthly earnings (median) by sex and proportion of unexplainable wage gap

Canton of Zurich, 2008



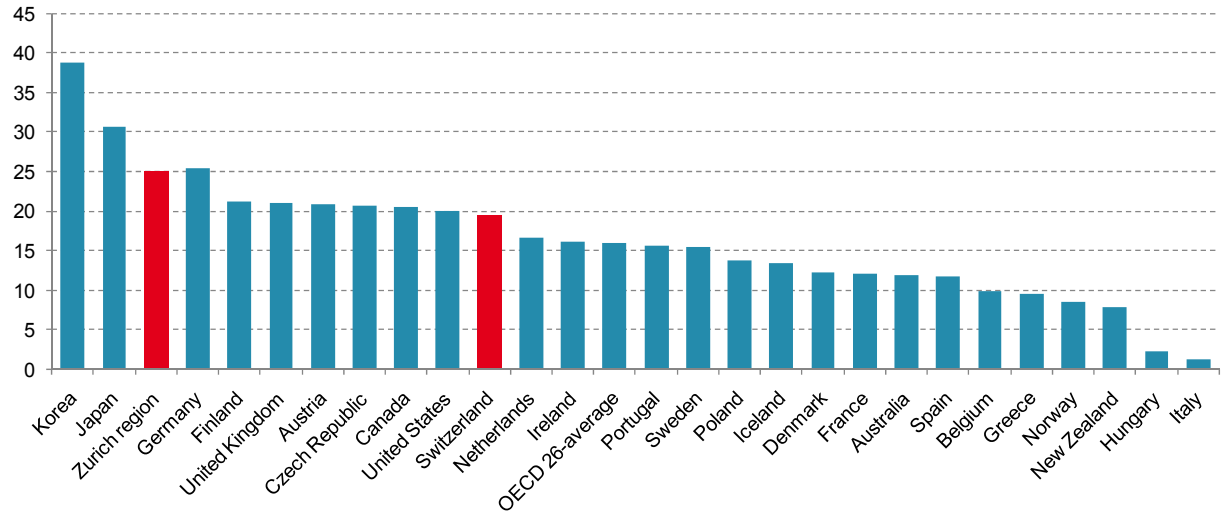
Graphic: Statistics Canton of Zurich, Source: Swiss Earnings Structure Survey

Gender pay gap of 25 percent

The wage gap between women and men remains large. According to 2008 salary structure data, it amounts to CHF 1737 or 25 percent in the private sector in the Canton of Zurich. These are two percent more than in the years 2002 to 2006 and 6 percent more than the Swiss average (19%). The OECD average is estimated at 16 percent.

Gender pay gap in median earnings

OECD countries, 2008



Source: OECD Employment Outlook 2010. Note: The gender wage gap is unadjusted and is calculated as the difference between median earnings of men and women relative to median earnings of men.

36 percent of the wage gap are unexplainable ("discrimination effect")

Some 64 percent of the gap is attributable to differences in education, occupational position, job requirements, employment experience and seniority. The remaining 36 percent, however, cannot be explained by means of the applied regression model and can be interpreted as potential wage discrimination of women. This means that even when there are no differences between a woman and a man with respect to the variables listed above, she earns on average 9 percent less than he does.

In 2002, the unexplainable proportion of the wage gap counted 42 percent. Until 2006, it declined to 34 percent and decreased in 2008 up to 36 percent. Throughout Switzerland, the proportion of potential wage discrimination of women amounts 39 percent (Strub/Stocker 2010), in the City of Zurich 35 percent (Statistics Office City of Zurich 2010).

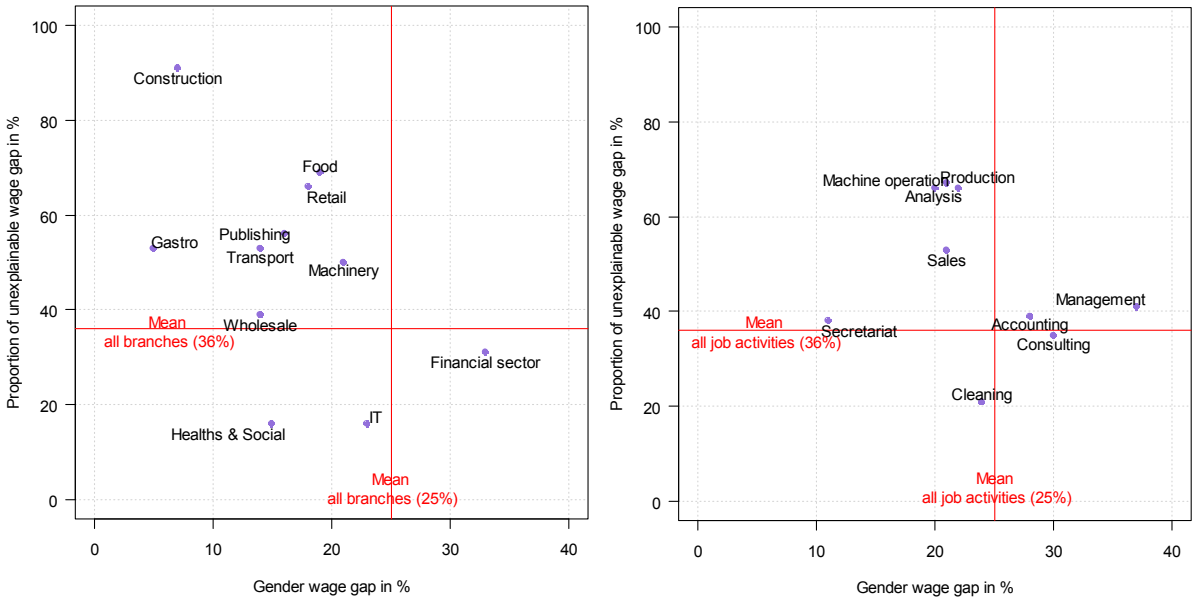
Economic branches and job activities

There are considerable differences in wage discrimination in economic branches and job activities The biggest differences are to be found in the financial sector (33%), electronic industry (32%) and research & development (30%), as well as in the job activities management (37%), consulting (30%) and accounting (28%).

The biggest unexplainable proportion of the wage gap register the economic branches construction (91%), food industry (69%) and retail trade (66%) as well as the job activities production (67%), machine operation (66%) and analysis (66%).

Gender wage gap by industry and job activity

Canton of Zurich, 2008, wage gap in % of men's salary and not explainable proportion in %



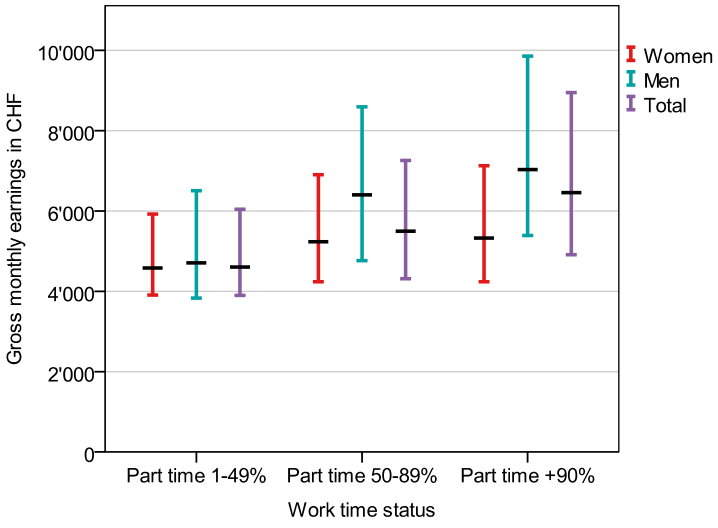
Graphic: Statistics Canton of Zurich, Source: Swiss Earnings Structure Survey

Part time penalty

Women are more likely than men to work part time. In the Canton of Zurich, 31 percent of the persons employed work part time (work time status lower than 90%), in the group of women 52 percent, in the group of men 13 percent. Average part time wages are around one fifth lower than full time wages (part time wages converted to full time). Part time working women earn 6 percent less than full time workers, men 16 percent less.

Gross monthly earnings by work time status and sex

Canton of Zurich, 2008, part time wages converted to full time



Graphic: Statistics Canton of Zurich, Source: Swiss Earnings Structure Survey

Gross monthly earnings (median)b in CHF, wage gap in percent of men's earnings

Canton of Zurich, 2008, by sex and economic branch

	2002			2004			2006			2008		
Industry	Men	Women	Wage gap in %	Men	Women	Wage gap in %	Men	Women	Wage gap in %	Men	Women	Wage gap in %
Horticulture	4 690	4 256	-9	4 381	3 636	-17	4 425	3 628	-18	4 540	3 579	-21
Food industry	5 787	4 405	-24	5 732	4 404	-23	5 861	4 611	-21	5 935	4 837	-19
Textil industry	5 073	4 249	-16	5 392	4 066	-25	5 674	4 298	-24	5 844	4 746	-19
Wood- and paper industry	5 567	4 645	-17	5 542	4 980	-10	5 667	4 818	-15	5 743	4 578	-20
Publishing and printing	7 230	5 850	-19	7 475	6 208	-17	7 636	6 479	-15	7 583	6 391	-16
Chemical Industry	6 554	5 867	-10	6 638	5 800	-13	6 682	5 967	-11	7 124	6 329	-11
Plastic industry	5 651	4 616	-18	5 678	4 583	-19	5 830	4 940	-15	6 043	4 875	-19
Metal industry	5 798	4 958	-14	5 984	4 996	-17	6 020	5 115	-15	6 163	5 299	-14
Machine industry	6 771	5 495	-19	6 803	5 523	-19	6 900	5 294	-23	7 186	5 684	-21
Elektro industry	7 919	5 240	-34	7 850	5 393	-31	6 954	4 755	-32	8 304	5 655	-32
Medtech, Watches	7 034	4 774	-32	7 381	4 865	-34	7 354	4 869	-34	7 274	5 205	-28
Other manufacture of goods	5 680	4 630	-18	5 755	4 793	-17	5 803	5 222	-10	6 173	5 533	-10
Energy sector	7 259	6 255	-14	7 950	6 498	-18	8 398	6 794	-19	8 642	7 043	-19
Construction	5 672	5 483	-3	5 805	5 501	-5	5 851	5 675	-3	6 041	5 608	-7
Wholesale trade	6 470	5 469	-15	6 588	5 674	-14	6 795	5 814	-14	6 950	5 988	-14
Retail trade	4 967	4 000	-19	5 126	4 055	-21	5 384	4 226	-22	5 301	4 331	-18
Gastronomy	4 243	3 858	-9	4 230	3 917	-7	4 271	4 024	-6	4 357	4 125	-5
Transport	5 577	4 822	-14	5 891	5 251	-11	5 869	5 251	-11	6 092	5 258	-14
Telecommunications	8 206	6 253	-24	9 234	6 530	-29	9 093	6 551	-28	8 023	6 000	-25
Financial sector	8 797	6 326	-28	8 889	6 205	-30	9 841	6 867	-30	10 705	7 143	-33
Real estate	6 729	5 595	-17	6 596	5 674	-14	6 780	5 788	-15	6 514	5 813	-11
Information technology	7 789	5 581	-28	7 529	5 710	-24	7 738	5 854	-24	8 238	6 094	-26
Research and development	10 536	6 690	-37	9 803	7 392	-25	10 211	8 278	-19	10 367	7 269	-30
Education	7 935	6 455	-19	8 412	6 680	-21	8 076	6 773	-16	8 639	6 926	-20
Health and social work	6 478	5 720	-12	6 758	5 790	-14	6 993	5 877	-16	7 120	6 064	-15
Special interest groups	7 128	6 190	-13	7 584	6 416	-15	7 676	6 603	-14	7 527	6 680	-11
Arts, entertainment and recrea	6 413	5 497	-14	8 585	7 326	-15	8 652	7 214	-17	8 759	7 505	-14
Personal services	4 632	3 558	-23	4 594	3 619	-21	5 017	3 661	-27	4 778	3 613	-24
Total	**6 552**	**5 143**	**-22**	**6 599**	**5 082**	**-23**	**6 760**	**5 238**	**-23**	**6 958**	**5 221**	**-25**

Graphic: Statistics Canton of Zurich, Source: Swiss Earnings Structure Survey

Decomposition of gender wage gap, endowment effect, discrimination effect

Canton of Zurich

	Difference log. wages	Endowment effect ("explainable")	Discrimination effect ("not explainable")	Discrimination effect in % of wage gap
Year				
2002	0.297	0.173	0.124	42
2004	0.298	0.186	0.112	38
2006	0.295	0.194	0.102	34
2008	0.314	0.200	0.114	36
Branch, 2008				
Construction	0.129	0.011	0.118	91
Food industry	0.196	0.061	0.135	69
Retail trade	0.207	0.070	0.137	66
Publishing and printing	0.181	0.079	0.102	56
Gastronomy	0.079	0.037	0.042	53
Transport	0.186	0.088	0.098	53
Machinery	0.208	0.105	0.103	50
Wholesale trade	0.197	0.120	0.077	39
Financial sector	0.410	0.284	0.127	31
Health and social work	0.145	0.121	0.024	16
IT	0.450	0.379	0.071	16
Job activity 2008				
Production	0.221	0.073	0.148	67
Machine operation	0.222	0.076	0.146	66
Management	0.452	0.267	0.185	41
Accounting	0.306	0.186	0.119	39
Secretariat	0.198	0.122	0.076	38
Consulting	0.340	0.222	0.118	35
Sales	0.243	0.115	0.129	53
Analysis	0.225	0.076	0.150	66
Cleaning	0.145	0.114	0.031	21

Graphic: Statistics Canton of Zurich, Source: Swiss Earnings Structure Survey

Methodology

Starting point to calculate the unexplainable wage differential between women and men was a regression model, which was estimated for women and men separately. The dependent variable ln(Y) is the logarithm of a standardized monthly wage rate (based on a 42-hour workweek).

Regression model

$\ln(Y) = \beta 0 + \beta 1$ EDU + $\beta 2$ SEN + $\beta 3$ EXPER + $\beta 4$ EXPER2 + $\beta 5$ PTIME1 + $\beta 6$ PTIME2 + $\beta 7$ PTIME3 + $\beta 8$ QUAL1 + $\beta 9$ QUAL2 + $\beta 10$ QUAL3 + $\beta 11$ OPOS1 + $\beta 12$ OPOS2 + $\beta 13$ OPOS3 + $\beta 14$ FSIZE1 + $\beta 15$ FSIZE2 + $\beta 16$ FSIZE3 + $\beta 17$ FSIZE4 + $\beta 18$ MSTAT1 + $\beta 19$ MSTAT2 + $\beta 20$ MSTAT3 + ε

where ε is a stochastic disturbance term; the $\beta 1$ to $\beta 20$ are the coefficients to be estimated; EDU characterizes the level of education (highest graduation in years); SEN stands for the seniority (tenure at current employer in years); EXPER captures the years of working experience prior to entering the firm (age-years of service-education-preschool years); EXPER2 is the corresponding squared term; PTIME1 to PTIME2 are dummy variables depicting whether an individual has a part-time job ranging from 1-49 percent, 50-89 percent and more than 90 percent of a full-time job; QUAL1 to QUAL3 are dummy variables capturing the level of qualification (QUAL1: Extremely demanding and difficult tasks/Independent and skilled work, QUAL2: Work requiring professional/technical skills, QUAL3: Simple and repetitive tasks), OPOS characterizes the occupational position (OPOS1: top and upper management, OPOS2: middle and lower management, OPOS3: not part of management); FSIZE1 to FSIZE4 are dummy variables representing enterprise size (ESIZE1: 3-5 employees, ESIZE2: 6-50 employees, ESIZE3: 51-500 employees, ESIZE4: 500 and more employees); MSTAT1 to MSTAT 2 are dummy variables representing the marital status (MSTAT1: single, MSTAT2: married, MSTAT3: other).

Oaxaca-Blinder decomposition

The standard procedure to decompose wage differentials is the one developed by Blinder (1973) and Oaxaca (1973) which allows that productive characteristics of men and women are rewarded differently. Wages are estimated separately for individuals i of the different groups g, males and females:

$W_{gi} = \beta_g X_{gi} + \varepsilon$

where g = (m, f) represents the two sexes; W_{gi} is the log wage and X_{gi} the control characteristics of an individual i of group g.

The total wage differential between men and women can then be decomposed into an explained part due to differences in characteristics and an unexplained residual. The difference in mean wages can be written as:

$W_m - W_f = \beta_m (X_m - X_f) + X_f (\beta_m - \beta_f) = E + U,$

where W_g and X_g denote the mean log wages and control characteristics of group g and β_g represents the estimated parameter from the equation above. While the first term stands for the effect of different productive characteristics (the endowment effect E), the second term represents the unexplained residual U which is due to differences in the estimated coefficients for both groups and is often referred to as "discrimination effect". The difference of the mean log wages between men and women can approximately be interpreted as wage gap in percentages. In other words, it shows "how much women would additionally earn, if with the given endowment they would be treated as the group of men" (Achatz 2004: 22).

Swiss Earnings Structure Survey

Conducted every two years in October since 1994, the Swiss Earnings Structure Survey (SESS) is based on a written questionnaire sent to companies. It provides representative data for all economic branches (except for agriculture), thereby enabling us to describe the structure of earnings in Switzerland on a regular basis. The survey focuses not only on economic branches and company size, it also considers employee- and job-related characteristics such as level of education, professional position, years of service, level of

qualifications required for the job and type of activity carried out within the company.

Since 1994, data on earnings have been collected in the private sector as well as in the administrative bodies and organisations of the Confederation. Since 1998 the survey also provides data on the public sector at cantonal level and since 2006 on earnings in the public sector at the municipal level. As a result, in the year 2008 data could be gathered and analysed for 44,600 private and public sector companies and government offices with around 1.7 million employees. For the Canton of Zurich, the sample includes 8,000 private sector companies with around 330‘000 employees. The proportion of women in these companies is 36 percent.

REFERENCES

Achatz, J. et al. (2004): Bonus oder Bias? Mechanismen geschlechtsspezifischer Entlöhnung. IAB Discussion Paper No. 2. Nuremberg: Institute for Employment Research.

Bentz, D. und Tschannen, A. (2007): Frauenlöhne, Männerlöhne. Eine Bestandesaufnahme in der Zürcher Privatwirtschaft. statistik.info 2007/14. Statistics Canton of Zurich. Zurich.

Oaxaca Ronald (1973): Male-Female Wage Differentials in Urban Labor Markets, International Economic Review, 14/3, 693-709.

Page, R. (2011): Frauenlöhne, Männerlöhne. Lohnentwicklungen in der Zürcher Privatwirtschaft 2002 bis 2008. statistik.info 2011/02. Statistics Canton of Zurich. Zurich.

Sousa-Poza, A. (2000): Labor-Market Segmentation and the Gender Wage Differential: An Industry-Level Analysis Using Data From the 1998 Swiss Wage Structure Survey. Discussion Paper No. 75, Research Institute for Labour Economics and Labour Law, University of St.Gallen.

Statistics Office City of Zurich (2010): Lohnlandschaft Zürich. Ergebnisse der Lohnstrukturerhebung 2008. Zurich.

Strub, S. und Stocker, D. (2010): Analyse der Löhne von Frauen und Männern anhand der Lohnstrukturerhebung 2008. Aktuelle Entwicklungen in der Privatwirtschaft und Situation im öffentlichen Sektor des Bundes. Büro BASS. Bern.

Swiss Federal Statistics Office (2010): Swiss Earnings Structure Survey 2008. An Overview of Main Results. Neuchâtel.

ABSTRACT

On behalf of the Office for Gender Equality, this paper analyses the gender-specific development of the wages (median wages) and the gender wage gap (Regression analysis and Blinder-Oaxaca decomposition) in the private sector of the Canton of Zurich with data from the Swiss Earnings Structure Surveys 2002-2008.

Wages in the Canton of Zurich are generally among the highest in Switzerland. In 2008, the median wage in the private sector in the Canton of Zurich was CHF 6236. The Swiss average is 6 percent lower at CHF 5777. In the private sector of the Canton of Zurich the median wage earned by women (CHF 5221) is clearly lower than that of men (CHF 6958).

The pay gap between women and men remains large. According to 2008 salary structure data, it amounts to 25 percent in the private sector in the Canton of Zurich.

Some 64 percent of this gap is attributable to differences in education, occupational position, job requirements, employment experience and seniority. The remaining 36 percent, however, cannot be explained by means of the applied regression model and can be interpreted as potential wage discrimination of women. This means that even when there are no differences between a woman and a man with respect to the variables listed above, she earns on average 9 percent less than he does. There are considerable differences in potential wage discrimination between industries and job activities.