Zeitschrift: Schweizerische Zeitschrift für Soziologie = Revue suisse de sociologie = Swiss journal of sociology

Herausgeber: Schweizerische Gesellschaft für Soziologie

Band: 29 (2003)

Heft: 3

Artikel: The gender wage gap and occupational segregation in Switzerland, 1991-2001

Autor: Sousa-Poza, Alfonso

DOI: https://doi.org/10.5169/seals-814982

The Gender Wage Gap and Occupational Segregation in Switzerland, 1991–2001

Alfonso Sousa-Poza*

1 Introduction

A number of studies on gender wage differences have been published in Switzerland in the past decade. In general, the results show that women earn less than men and that, even after controlling several factors, "unexplained" differences remain. The magnitude of these unexplained differences varies considerably. This is not surprising as the choice of control variables and methodological approaches differs substantially among studies. Different data sets are also used. As a result, estimates of these "unexplained" (and thus potentially discriminatory) differences ranging from below 10% to over 80% of the wage differential have been obtained. Needless to say, these divergent results have only increased the public controversy on this topic.

It is unlikely that researchers will be able to accurately estimate unexplained wage differences between men and women – and that they unanimously agree on them. The reason is that the methodological diversity is quite large and not always does a consensus regarding the choice of methodology exist. This lack of a clear result on the magnitude of the unexplained wage gap is unfortunate as public policy, litigation and political debate rely strongly on such estimates.

The aim of this paper is not to resolve (or contribute to) this dilemma by providing a further estimate on the magnitude of potential wage discrimination. Instead, its objective is to answer a question which is not only important for the political debate on this topic but for which one should be able to obtain a clear answer: is the gender wage gap converging or not? Considering the fact that gender differences in other aspects of the labour market such as labour force participation, education, or, for that matter, job satisfaction (see Sousa-Poza and Sousa-Poza, 2003) are converging, one would assume that the same should apply to wages. In any case, if the gender wage gap is not converging, then this implies that the rigidity in the wage gap is caused by a factor that must also be relatively time invariant.

* Alfonso Sousa-Poza, FAA-HSG, University of St. Gallen, Guisanstrasse 92, 9010 St. Gallen, Switzerland. e-mail: alfonso.sousa-poza@unisg.ch.

The author would like to thank the Swiss Federal Statistical Office for providing the data. Financial assistance from the Swiss National Science Foundation for its funding of the project "Labor Market Segmentation in Switzerland" is also gratefully acknowledged.

Analyzing the extent to which the wage gap has changed in the past decade is also interesting from the perspective of public policies relating to the legislation one equal pay and equal opportunity. As can be seen in Joshi et al. (1998) and Waldfogel (1999), Switzerland not only has one of the lowest female-to-male hourly earnings ratios, but the development of this ratio since the early 1970s has also remained virtually unchanged.[1] Flückiger and Ramírez (2000) show with annual aggregate data that the wage gap in Switzerland has declined from about 32% in 1960 to 28% in 1996, thus implying that convergence has been extremely slow in the past. Waldfogel (1999) in her analysis for the United States argues that changes in the wage gap did not occur in a vacuum – public policies in the fields of equal pay and opportunities as well as policies relating to child care and maternity leave facilitate convergence in the wage gap. With regard to the legislation equal pay and opportunity, Switzerland is (among industrialized countries) a latecomer. In 1981, article 4 of the Swiss federal constitution was amended and now explicitly states that women and men must be equally paid for equal work. This constitutional amendment gave rise to Switzerland's first equal wage and opportunity law which came into force in 1996.

A related issue is occupational segregation. The rise in women's average wages relative to men's in several industrialized countries is the result of better labour force participation with shorter interruptions and increased investments in human capital (Blau, 1998; O'Neill and Polachek, 1993). A further important aspect is that women shifted to higher-paying occupations (Blau, 1998; Sorensen, 1991). This paper will therefore also take a look at the development of occupational segregation in the past decade and the relationship between segregation and the gender wage gap.

Thus, the main contribution of this paper is twofold: first, it takes a look at the development of the gender wage gap and occupational segregation in a period of fundamental change in public policy relating to the legislation equal wage and opportunity. Second, and as opposed to Flückiger and Ramírez (2000), the trend analysis in this paper is based on microdata, which allows for a better consideration of changes in human-capital and other endowment differences between men and women.

The paper proceeds as follows: in section 2, a review of the existing studies on the Swiss wage gap and on occupational segregation is presented. Section 3 discusses the methodological issues and the data set used in this analysis. The results are presented in section 4, and section 5 concludes.

---

1 Of the 14 industrialized countries depicted in Waldfogel (1999) only Japan has a lower female-to-male hourly earnings ratio than Switzerland. See also Blau and Kahn (1992).

2 Previous Swiss studies on the gender wage gap and occupational segregation

2.1 Gender wage gap

A number of studies on the gender wage gap have been published in the past 14 years since Kugler's original analysis for Switzerland (Kugler, 1988).[2] These are presented in table 1. In general, all these studies apply the standard Oaxaca (1973) decomposition. Variations, however, exist in the estimation of the wage functions and in the data sets used.

In Kugler (1988), data from three sources are merged: the Health Survey (SOMIPOPS), the Income and Wealth Survey (SEVS), and a supplementary survey on labour supply. A sample of about 2500 individuals is analyzed. The traditional approach is used, i. e., estimation of selectivity-corrected wage functions and then applying an Oaxaca decomposition. About 90% of the wage gap of 43% is explained in this study. As will be shown below, this relatively low unexplained difference is, compared to the subsequent studies, somewhat of an outlier.[3]

Brüderl et al. (1993) use data from the 1987 International Social Survey Program (ISSP) for their standard analysis of the wage gap. They apply Heckman's two-step approach for the estimation of wage function (although the selection term is insignificant) combined with an Oaxaca decomposition. With this data they obtain a wage gap of 80% of which about 50% can be accounted for. The main problems with this analysis ore the very small sample sizes as well as the relatively poor income data in the ISSP data set. Diekmann and Engelhardt (1995) conducted the first analysis with data from the 1991 SLFS. Using in essence the same approach as in Brüderl et al. (1993), they obtain a wage gap of 43% and an unexplained difference of about 16%.

Bonjour (1997) uses data from the first three waves of the SLFS and applies several different methodological approaches in her estimation of the wage functions and decomposition of the wage gap. These include the traditional Oaxaca decomposition based on standard wage equations corrected for selectivity bias with Heckman's two-step approach, as well as panel estimates of wage functions, and estimation of simultaneous and instrumental variable models in order to take the endogeneity problem associated with a number of right-hand variables into consideration (see also Bonjour and Gerfin, 1995; Diekmann and Engelhardt,

2 This section only reviews national studies on the wage gap. Two interesting regional studies are those of Ferro-Luzzi and Flückiger (1996) for Geneva and Zingg Schrupkowski (1994) for Zurich.

3 This is most probably due to a number of factors including the small sample size and inclusion of health differences between men and women. The sample-selection correction calculated by Heckman's two-step approach also explains an extremely large part of the wage gap (about 50%) which may be due to the relatively parsimonious participation equation and choice of exclusion restrictions (in the male sample).

1995). Depending on the methodology used, between 34% and 79% of the gender wage gap can be explained. The traditional approach explains 34 to 42% of the wage gap. The wage gap in 1993 is approximately 26%.

The main aim of Henneberger and Sousa-Poza (1998) is to analyze the possible selection bias in estimated wage-function coefficients that arises from ignoring the item non-response associated with wage data and its implications on the decomposition of the wage gap. Using data from the 1995 SLFS it is shown that, in general, no large selection bias arises when item non-responses are ignored (see also Sousa-Poza and Henneberger, 2000). With regard to the unexplained difference of the decomposition of the wage gap, values ranging from about 10 to 16% depending on specification and weighting schemes are obtained. Similar values are reported in Henneberger and Sousa-Poza (1999) which uses data from the 1997 SLFS.

One of the most comprehensive studies on the gender wage gap in Switzerland is that of Flückiger and Ramírez (2000). This study uses data from the 1994 and 1996 Swiss Wage Structure Survey (SWSS). The SWSS is a very interesting data set as it is an establishment survey and the wage data is thus considered to be very reliable. A further attractive property of this data set is that the sample size is very large (over 400'000 observations). Flückiger and Ramírez (2000) were the first to conduct a wage gap analysis with this data set. Using a standard Oaxaca decomposition they obtain a wage gap of 30% of which 40% can be explained by the regressors used in the analysis. One interesting aspect of this study is that it takes a look at the trend in the wage differences between men and women from 1960 to 1996 with official aggregate annual data.[4] They show that the wage difference in these years declined from 32 to 28%, i. e., on average about 0,1% per year. One obvious limitation of this trend analysis is the aggregate nature of the data which cannot account for human-capital changes in this time span. Nevertheless, Flückiger and Ramírez (2000) show that increases in GNP tend to reduce the wage gap, thus implying that changes in the wage gap are counter-cyclical.

In a recent study by Bonjour and Gerfin (2001), the gender wage gap of full-time employees across the whole wage distribution is analyzed with data from the first five waves of the SLFS. They show that both the wage gap and the decomposition of the wage gap are distributed unequally over the whole range of wages. More specifically, they show that the unexplained part of the wage gap is falling over the whole range of wages and that this indicates that women in low paid jobs face a high degree of wage discrimination. Furthermore, at the upper end of the wage distribution an overproportional part of the wage gap is due to different endowments of human capital. They argue that this is due to the small portion of highly educated women with long labour market experience and tenure.

4 From the so-called "Lohn- und Gehaltserhebung".

Table 1: Overview of Swiss studies on the gender wage gap

	data	analysis	wage gap (in %)	unexplained difference(in %)
Kugler (1988)	a	merging 3 data sets collected in 1981/82	43[b]	7[b]
Brüderl/Diekmann/Engelhardt (1993)	ISSP	analysis of the 1987 ISSP data set	81	38
Diekmann/Engelhardt (1995)	SLFS	analysis of the 1991 SLFS	43	16
Bonjour (1997)	SLFS	analysis of the 1991–1993 SLFS; random and fixed effects, IV and simultaneous equations models	26 [c]	9–13[c]
Henneberger/Sousa-Poza (1998)	SLFS	analysis of the 1995 SLFS; emphasis on the effect on the decomposition of the item non-response associated with wage data	29	10–16
Henneberger/Sousa-Poza (1999)	SLFS	analysis of the 1997 SLFS	24	8–11
Flückiger/Ramírez (2000)	SWSS	analysis of the 1994 and 1996 SWSS; analysis of cyclical changes in the wage gap	30	17
Bonjour/Gerfin (2001)	SLFS	pooled analysis of first 5 waves of the SLFS; analysis of wage gap across wage distribution		
Sousa-Poza (2002)	SWSS	analysis of the 1998 SWSS; analysis of the wage gap across segments; special analysis of selected industries	18–28	14–19

Notes:
– SLFS: Swiss Labour Force Survey; SWSS: Swiss Wage Structure Survey
a Data from the Health Survey (SOMIPOPS), Income and Wealth Survey (SEVS), and a supplementary Survey on Labour Supply.
b Excluding foreigners.
c Values for 1993 and based on the traditional approach.

Sousa-Poza (2002) analyzes the relationship between labour market segmentation and the magnitude of the wage differential with data from the 1998 SWSS. It is argued that a typical secondary segment is more exposed to competitive market forces and/or less likely to be embedded in large internal labour markets which should facilitate discrimination, and that this will influence the magnitude of the gender wage gap. An industry-level analysis confirms this intuition, i. e., unexplained wage differences are much smaller in the secondary than in the primary segment. Since, however, the segments defined according to skills requirements are also clearly segregated, a conceivable argument is that the wage gap is primarily attributable to segregation, i. e., men and women simply work in different labour markets which have their own supply and demand constellations. This paper thus also investigates the effect of segregation on the wage differential by analyzing wages within a specific industry, within a certain segment, and for different occupations, i. e., by analyzing a non-segregated sample of individuals. The decomposition results show that, even for such homogeneous groups of employees,

substantial unexplained wage differentials exist. This result is in accordance with the recent conclusion in Bayard et al. (1999), namely that occupational segregation cannot explain the whole wage gap.

2.2 Occupational segregation

Three studies which analyze occupational segregation in Switzerland are those of Charles (1987), Flückiger and Silber (1999), and Henneberger and Sousa-Poza (1999b).

Charles (1987) uses data from the 1980 national census ("Eidgenössische Volkszählung") and calculates Duncan and Duncan segregation index for a total of 426 occupations. Henneberger and Sousa-Poza (1999b) use data from the 1995 and 1997 SLFS to calculate the Duncan and Duncan segregation index using 2-, 3-, and 5-digit occupational codes. This study also takes a look at vertical segregation, i. e., the extent to which men and women are represented in managerial position. The index values in both Charles (1987) and Henneberger and Sousa-Poza (1999b) deviate depending on the extent of disaggregation of the occupational codes. Values ranging from 35,5 to 62,6 are obtained. In general, and due to the fact that the values depend on the level of occupational aggregation, calculating such indexes in a static setting is not very informative.

The most comprehensive analysis of segregation conducted to date in Switzerland is that of Flückiger and Silber (1999). In their analysis of occupational segregation they use several indices and census data for the years 1970, 1980, and 1990. They show that most indices indicate only a slight decrease in occupational segregation between 1970 and 1980, and a more significant decrease between 1980 and 1990. The value of the Duncan and Duncan index is 0,568, 0,558, and 0,489 for the years 1970, 1980, and 1990, respectively.

3 Data and methodological issues

Data from the first 11 waves of the Swiss Labour Force Survey (SLFS) are used. The SLFS is a nation-wide and representative survey conducted annually by the Swiss Federal Statistical Office. With telephone interviews lasting approximately 20 minutes individuals are questioned on a number of topics related to the labour-market. The first SLFS survey was conducted in 1991, and the sample size is approximately 16'000 individuals (see Bundesamt für Statistik, 1996). The SLFS has a 5-year rotating panel. We restrict our analysis to employees between the ages of 20 and 60, who are not self-employed, and who only have one job. This last restriction is important as it is difficult to establish the extent to which the reported annual wage refers to all jobs held by the respondent. Teachers are also excluded as there are certain difficulties in measuring their actual working time.

Hourly wages are defined as annual gross wages divided by annual contractual working time (excluding holidays). Hourly wages of less than 10 francs per hour were excluded as one has to assume that these low hourly wages are primarily due to coding errors.

Ideally, when conducting a longitudinal analysis one requires a set of variables that are consistently defined across all waves. Furthermore, the underlying sample should remain the same. Unfortunately, the SLFS questionnaire experienced a major revision in the 1995 and 1996 surveys that inhibits such a consistent definition. Despite efforts to create an hourly wage rate (and other variables), as well as establishing a sample that remains the same across all waves, a very large increase in the wage gap can be observed in the year 1995. Such a rise can only be explained by changes in the survey questionnaire. In order to assure consistency, the analysis of the gender wage gap will therefore split the observed time-span into two periods, namely 1991 to 1994, and 1995 to 2001.

The development of wages is analyzed by estimating pooled wage functions. More specifically, the natural logarithm of the hourly wage rate is regressed on the following control variables: gender, experience, experience squared, tenure, tenure squared, education (2 variables), supervisor, establishment size (3 variables), foreigner status, industry (6 variables). Furthermore, the development of the wage gap is established by, first, including a year variable with values ranging from 1 to 4 for the analysis of 1991 to 1994, and from 1 to 7 for the analysis of 1995 to 2001. The coefficient of this variable will reveal any possible trends. Second, year dummy variables are included, the reference year being 1991 and 1995 for the periods 1991 to 1994, and 1995 to 2001, respectively. In order to control for individual heterogeneity, random effect models using the unbalanced panel are also estimated. With the estimated coefficients, standard wage decompositions can be undertaken in order to decompose the difference in average log wages between men and women. The approach taken here is a simplified Oaxaca (1973) decomposition where the restriction imposed is that the coefficients be the same for men and women. Such a specification was implemented by Groshen (1991). The same results can also be replicated by using gender-specific coefficients with different weighting approaches.[5]

Occupational segregation is analyzed by calculating the standard Duncan and Duncan (1955) index for all years. This index has a value equal to zero if there is no segregation and o one if the segregation is complete. In the case of occupational sex segregation, the index measures the proportion of women (or men) who would have to change their occupation if there was to be no segregation. Thus, a value equal to 0,4 implies that 40% of women or men would have to change their occupation in order to eliminate segregation. As is well known, this

5 The choice for this simpler approach is primarily driven by the fact that estimation of the standard errors of the unexplained differences is much easier.

index depends on the level of disaggregation of the occupations analyzed: the more disaggregated, the higher the index value. In this paper, two and three-digit ISCO occupational codes are used.

4 Results

4.1 The gender wage gap

Log hourly wages for men and women and the gender wage gap in the years 1991 to 2001 are presented in table 2 and figures 1 and 2. As can be seen, the average wages increased quite substantially in the years 1991 to 1994. Furthermore, this increase was very similar for both men and women, i. e., the gender wage gap remained quite constant at about 23%. In 1995, a large increase in the wage gap which can be observed has to be ascribed to the major revision of the SLFS in that year. During the recession years, i. e., between 1995 until 1999, wages remained very flat. Furthermore, in this period the wage gap declined slightly from 0,272 to 0,261. Thus, the general picture presented by these descriptive statistics is that, if at all, only minor changes in the wage gap took place.

Table 2: The gender wage gap in hourly wages, 1991–2001

year	males	females	difference
1991	3.529	3.295	0.234
1992	3.602	3.372	0.230
1993	3.637	3.402	0.235
1994	3.659	3.427	0.232
1995	3.617	3.345	0.272
1996	3.633	3.355	0.278
1997	3.620	3.365	0.255
1998	3.630	3.365	0.265
1999	3.637	3.390	0.247
2000	3.671	3.418	0.253
2001	3.704	3.443	0.261

Note:
All gender differences are significant at the 1% level.

Figure 1: Trends in hourly wages for men and women, 1991–2001

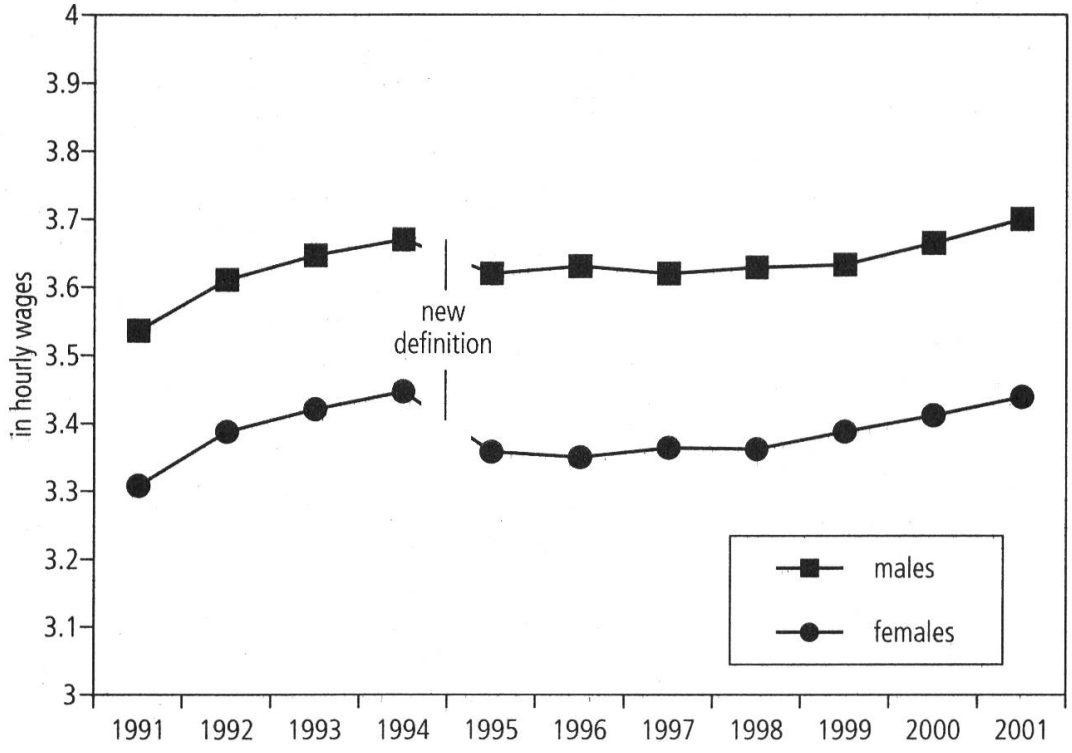
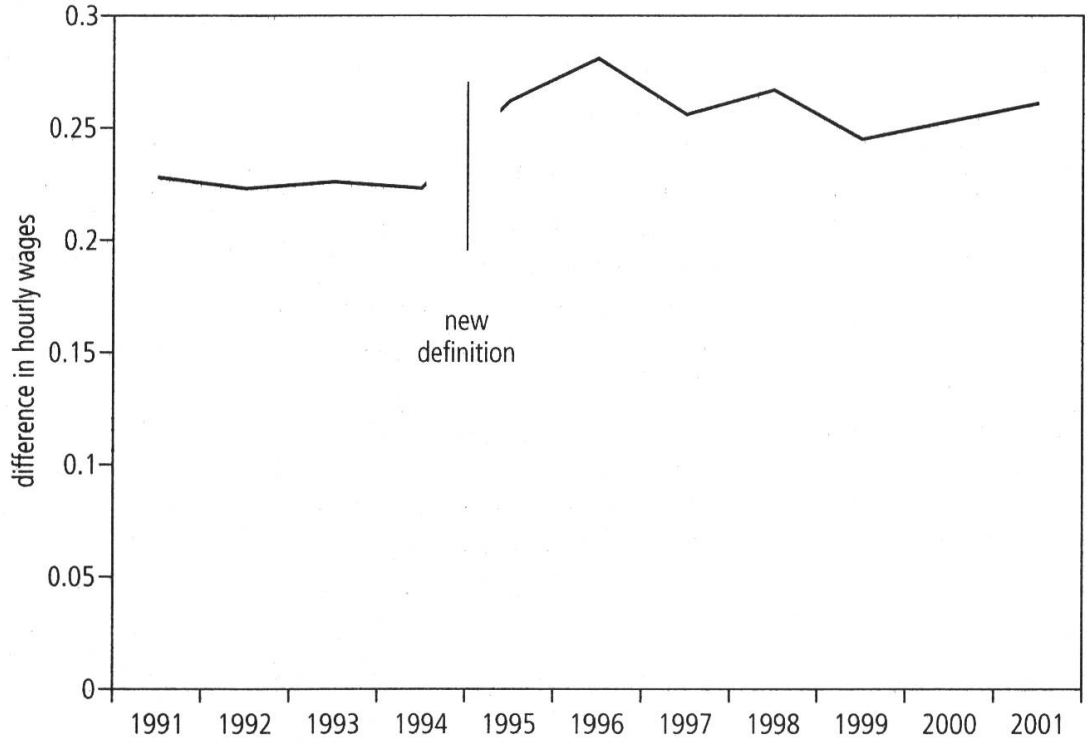


Figure 2: Trend in the gender wage gap, 1991–2001



Tables 3 and 4 show the results of the regression analysis. For the sake of clarity, only the trend variables are shown. In the years 1991 to 1994 no significant changes in the gender wage gap can be observed. This may be due to the relative short time-span under consideration.

Table 3: Pooled OLS wage regressions 1991–1994

	without controls	with controls	without controls	with controls
male x year	0.0002 (0.005)	0.007 (0.004)		
male x 1992			–0.003 (0.016)	–0.005 (0.014)
male x 1993			0.0008 (0.016)	–0.017 (0.014)
male x 1994			–0.0009 (0.016)	–0.017 (0.014)
N	25'155	25'005	25'155	25'005
adj. R^2	0.073	0.372	0.074	0.344

Notes:

Control variables include: gender, experience, experience squared, tenure, tenure squared, education (2), supervisor, establishment size (3), foreigner status, industry (6). In the first set of regressions, a year variable with values from 1 to 4 was included, whereas in the second set 3 dummies for each year were included, and the reference year being 1991. In the table only the interaction terms with gender are presented. Results are corrected for heteroskedasticity. Standard errors in parentheses.

* Significant at the 5% level.

** Significant at the 1% level.

a Dummy variables

The results for the years 1995 to 2001 show a significant decline in the wage gap, even after including the usual control variables. Nevertheless, the downward trend in the wage gap is very flat – should this convergence rate remain at this level, it would take approximately 68 years before the wage gap of 0,27 in 1995 be eliminated. In table 5, the results of a random effects model for the period 1995–2001 are depicted. As can be seen, little changes even after controlling for individual heterogeneity.

In table 6, the unexplained wage gap obtained by an Oaxaca-type decomposition is shown. Once again, it can be seen that the changes mentioned in the SLFS survey in the years 1995 and 1996 have an influence on the obtained results. In general, however, the unexplained wage gap remained fairly constant at approximately 0,10 in the years 1991 to 1994 and then increase to about 0,14 in the years 1996 to 2001. On average, between 50 and 60% of the wage gap cannot be accounted for by the specification used in this study. The large increase

Table 4: Pooled OLS wage regressions, 1995–2001

	without controls	with controls	without controls	with controls
male x year	–0.004* (0.002)	–0.004** (0.001)		
male x 1996			0.005 (0.013)	–0.035** (0.011)
male x 1997			–0.019 (0.013)	–0.048** (0.011)
male x 1998			–0.008 (0.012)	–0.031** (0.011)
male x 1999			–0.026* (0.012)	–0.039** (0.011)
male x 2000			–0.020 (0.013)	–0.033** (0.011)
male x 2001			–0.011 (0.012)	–0.029** (0.011)
N	45'472	45'275	45'472	45'275
adj. R^2	0.110	0.356	0.111	0.307

Notes:

Control variables include: gender, experience, experience squared, tenure, tenure squared, education (2), supervisor, establishment size (3), foreigner status, industry (6). In the first set of regressions, a year variable with values from 1 to 7 was included, whereas in the second set 6 dummies for each year were included, the reference year being 1995. In the table only the interaction terms with gender are presented. Results are corrected for heteroskedasticity. Standard errors in parentheses.

* Significant at the 5% level.

** Significant at the 1% level.

a Dummy variables

Table 5: Pooled random effects wage regressions, 1995–2001

	without controls	with controls	without controls	with controls
male x year	–0.003** (0.001)	–0.004** (0.001)		
male x 1996			–0.003 (0.005)	–0.014 (0.010)
male x 1997			–0.017** (0.006)	–0.024* (0.011)
male x 1998			–0.016** (0.008)	–0.035** (0.012)
male x 1999			–0.013* (0.006)	–0.025 (0.013)
male x 2000			–0.018* (0.007)	–0.016* (0.016)
male x 2001			–0.021** (0.008)	–0.020 (0.021)
N	28'314	28'203	28'314	28'203
R^2	0.114	0.336	0.117	0.322

Notes:

Control variables include: gender, experience, experience squared, tenure, tenure squared, education (2), supervisor, establishment size (3), foreigner status, industry (6). In the first set of regressions, a year variable with values from 1 to 7 was included, whereas in the second set 6 dummies for each year were included, the reference year being 1995. In the table only the interaction terms with gender are presented. The random effects model was estimated for individuals that participated in three or more waves of the SLFS. Standard errors in parentheses.

* Significant at the 5% level.

** Significant at the 1% level.

a Dummy variables

in 1995 is primarily due to that survey's special (and unrepresentative) sample selection. Thus, very little movement in unexplained wage gaps can be observed.

Table 6: Unexplained wage differential, 1991–2001

Year	unexplained wage differential		unexplained wage differential as a percent of wage gap
1991	0.129	(0.004)	55
1992	0.118	(0.004)	51
1993	0.102	(0.004)	43
1994	0.108	(0.004)	47
1995	0.177	(0.003)	65
1996	0.139	(0.004)	50
1997	0.129	(0.004)	51
1998	0.143	(0.003)	54
1999	0.143	(0.003)	58
2000	0.148	(0.003)	58
2001	0.147	(0.003)	56

Note:

Unexplained wage differentials are calculated by an Oaxaca-type decomposition. Wage equations include the following control variables: gender, experience, experience squared, tenure, tenure squared, education (2), supervisor, establishment size (3), foreigner status, industry (6). Standard errors in parentheses.

4.2 Labour market segregation

Perhaps one of the most ubiquitous arguments for the existence and persistence in the gender wage gap is occupational segregation. A number of studies analyze the relationship between segregation and the wage gap (e. g., Bayard et al., 1999; Carrington and Troske, 1998; Fields and Wolff, 1995; Flückiger and Silber, 1999; Groshen, 1991; Petersen and Morgan, 1995). Recent studies appear to indicate that the wage gap cannot fully be explained by segregation (e. g., Bayard et al., 1999).

The aim of this section is twofold: first, the development of occupational segregation in the past decade with the standard Duncan-Duncan segregation index is analyzed. A second aim of this section is to investigate the relationship between hourly wages and occupational segregation.

In table 7, the Duncan-Duncan segregation index is presented for the years 1991 to 2001. The index was calculated with a 2-digit and a 3-digit occupational code. As can be seen, the index has remained remarkably constant in the past decade. Approximately 40% of all women (or men) would have to change their

occupation in order to eliminate occupational differences between genders. The fact that occupational segregation has remained very constant does suggest that traditions or gender preferences regarding occupational choice take time to change. As was mentioned above, Flückiger and Silber (1999) show that occupational segregation decreased only marginally between 1970 and 1980, and then somewhat more substantially in the following decade. The results in table 7 seem to suggest that no downward trend in segregation exists.

Table 7: Duncan-Duncan segregation index, 1991–2001

year	2-digit occupation code	3-digit occupation code
1991	0.417	0.429
1992	0.420	0.431
1993	0.413	0.426
1994	0.421	0.434
1995	0.397	0.409
1996	0.396	0.408
1997	0.389	0.401
1998	0.386	0.397
1999	0.391	0.411
2000	0.406	0.417
2001	0.414	0.424

Table 8 shows the results of wage functions that include dummy variables depicting the extent of occupational segregation. In the first column, the regression results from wage functions that include all controls except regressors for occupational segregation are shown (see table 4). In the second column, the results of regressing hourly wages on the four dummy variables depicting occupational segregation are shown. The reference category is a 40–60% male proportion in a specific occupation. These variables are calculated with the 2-digit occupational code (the results, however, do not change when carried out with the 3-digit code). The interesting point to note is that both male and female dominated occupations have lower hourly wages than the reference category. In the absence of any other control variables, this negative effect is, however, stronger in the female than in the male dominated occupations. In the last two columns control variables are included. Despite the obvious multicollinearity problems, a gender dummy was also included. As in, for example, Bayard et al. (1999) or Groshen (1991), the aim of such an approach is to see whether controlling for occupational segregation reduces the wage gap. As can be seen in table 8, this is clearly not the case. The same conclusion is reached in Bayard et al. (1999). This result is interesting since

it questions the extent to which future changes in occupational segregation will directly influence the gender wage gap. Flückiger and Silber (1999) using data from the 1992 SLFS come to a similar conclusion: unexplained wage differentials computed with the Oaxaca methodology in typical male and typical female professions are very similar.[6]

Table 8: Pooled random effects wage regressions with occupational segregation regressors, 1995–2001

	all controls excl. segregation	only controls for segregation	only controls for segregation incl. gender	all controls incl. segregation
male [a]	0.219** (0.010)		0.275** (0.007)	0.234** (0.007)
proportion male in occupation: 0–20% [a]		−0.059** (0.007)	−0.037** (0.007)	−0.033** (0.007)
proportion male in occupation: 21–40% [a]		−0.084** (0.005)	−0.072** (0.005)	−0.072** (0.005)
proportion male in occupation: 61–80% [a]		−0.022** (0.005)	−0.040** (0.005)	−0.038** (0.005)
proportion male in occupation: 81–100% [a]		−0.034** (0.005)	−0.081** (0.005)	−0.089** (0.005)
N	28'203	28'314	28'314	28'203
R^2	0.322	0.048	0.165	0.363

Note:

Control variables include: gender, experience, experience squared, tenure, tenure squared, education (2), supervisor, establishment size (3), foreigner status. Occupational segregation measure is based on the 2-digit code. The random effect model was estimated for individuals that participated in three or more waves of the SLFS. Standard errors in parentheses.

* Significant at the 5% level.

** Significant at the 1% level.

a Dummy variables

5 Conclusions

The wage gap has been converging in the past decades in several industrialized countries. This is the case in the United States and in other Anglo-Saxon countries, most notably in New Zealand and Canada. The convergence in the United States

6 A further interesting point presented in Flückiger and Silber (1999) is that the wage gap in typical male or female occupations is smaller than for the whole sample, but that the unexplained part (in percentage terms), however, is larger.

has been particularly impressive, with a reduction of the wage gap from 0,50 to 0,36 between 1975 and 1987 (see Blau and Kahn, 1994). In several other industrialized countries the gender wage gaps declined sharply in the 1970s and 1980s and have now levelled out at a relatively high average female-to-male hourly earnings ratio. This is the case in the Nordic countries and in Australia. In a few continental European countries such as France, Belgium and Germany the wage gap has remained very constant in the past decades, yet at a relatively high level (see Waldfogel, 1999).

Switzerland is one of the few industrialized countries in which the wage gap is not only comparatively large but changes in this gap have for all practical purposes not taken place. The analysis in this paper shows that, although a negative trend in the wage gap can be observed, this trend is very flat. More specifically, if the wage gap continues to decline at the current rate, then it will take another 68 years before the wage gap is eliminated. The results in this paper also show that the unexplained part of the wage gap, i. e., that part which cannot be attributed to differences in human-capital and other endowments, has also remained very constant in the past years.

It is often claimed that the gender wage gap is – at least partly – caused by occupational segregation. Since occupational choice is assumed to be either voluntary or a result of customs and traditions which are largely invariant to policy measures, this explanation for the existence of the gender wage gap has often been used in public discourse as an argument for laissez-faire policies. In this paper, it is noted that occupational segregation has not changed very much in the past decade. Moreover, occupational segregation does not appear to influence the wage gap, i. e., one cannot assume that future changes in occupational segregation will reduce the wage gap. This conclusion is in line with other recent research (see Bayard et al., 1999) and it strengthens arguments in favour of more active policy measures for equal opportunity.

The obvious question that follows this analysis is whether the current rate of change will remain constant in the future. Most likely not. As has been argued by Waldfogel (1999), changes in the wage gap do not "occur in a vacuum". Public policies dealing with equal opportunities and equal wages, and also policies devoted to child-care and maternity leave, have an influence on the wage gap. In Switzerland, legislation dealing with equal opportunities and equal wages was only effectively passed in the 1990s. In issues such as maternity leave or the public provision of child-care facilities, Switzerland has undertaken very little, yet political debate on these issues is omnipresent and one can expect results in the near future. These measures will most probably, in due course, increase the rate at which the wage gap converges.

6 References

Bayard, K.; J. Hellerstein, D. Neumark, and K. Troske (1999), New Evidence on Sex Segregation and Sex Differences in Wages From Matched Employee-Employer Data, *NBER Working Paper,* no. 7003.

Blau, F. D. (1998), Trends in the Well-Being of American Women, 1970–1995, *Journal of Economic Literature*, 36, 112–165.

Blau, F. D. and L. M. Kahn (1992), The Gender Earnings Gap: Learning from International Comparisons, *AEA Papers and Proceedings*, 82, 533–538.

Blau, F. D. and L. M. Kahn (1994), Rising Wage Inequality and the U.S. Gender Gap, *AEA Papers and Proceedings*, 84, 23–28.

Blinder, A. (1976), Wage Discrimination: Reduced Form and Structural Estimates, *Journal of Human Resources*, 18, 436–455.

Bonjour, D. (1997), Lohndiskriminierung in der Schweiz: Eine ökonometrische Untersuchung, *Berner Beiträge zur Nationalökonomie,* Bd. 83, Bern / Stuttgart / Wien: Paul Haupt.

Bonjour, D. and M. Gerfin (1995), Einkommensungleichheit zwischen Frauen und Männern. Eine ökonometrische Analyse der Schweizer Arbeitskräfteerhebung: Kommentar, *Schweizerische Zeitschrift für Volkswirtschaft und Statistik*, 131, 701–710.

Bonjour, D. and M. Gerfin (2001), The Unequal Distribution of Unequal Pay – An Empirical Analysis of the Gender Wage Gap in Switzerland, *Empirical Economics*, 26, 407–427.

Brüderl, J.; A. Diekmann, and H. Engelhardt (1993), Einkommensunterschiede zwischen Frauen und Männern in der Schweiz, *Schweizerische Zeitschrift für Soziologie*, 19, 573–588.

Bundesamt für Statistik (1996), *Die Schweizerische Arbeitskräfteerhebung (SAKE): Konzepte, methodische Grundlagen, praktische Ausführung*, Bern: Bundesamt für Statistik.

Carrington, W. J. and K. R. Troske (1998), Sex Segregation in U.S. Manufacturing, *Industrial and Labor Relations Review*, 51, 445–464.

Charles, M. (1987), Geschlechterspezifische Arbeitsmarktsegregation in der Schweiz, *Schweizerische Zeitschrift für Soziologie*, 13, 1–27.

Diekmann, A. and H. Engelhardt (1995), Einkommensungleichheit zwischen Frauen und Männern. Eine ökonometrische Analyse der Schweizer Arbeitskräfteerhebung, *Schweizerische Zeitschrift für Volkswirtschaft und Statistik*, 131, 57–83.

Diekmann, A. and H. Engelhardt (1995b), Konsequenzen alternativer Modellspezifikation – Eine Antwort auf die Kritik von Bonjour und Gerfin, *Schweizerische Zeitschrift für Volkswirtschaft und Statistik*, 131, 711–716.

Ferro-Luzzi, G. and Y. Flückiger (1996), *Analyse des inégalités entre les femmes et les hommes sur le marché du travail à Genève*, Rapport n°3 de l'Observatoire universitaire de l'emploi, Série de publications du LEA No 8, Genève: Université de Genève.

Fields, J. and E. N. Wolff (1995), Interindustry Wage Differentials and the Gender Wage Gap, *Industrial and Labor Relations Review*, 49, 105–120.

Flückiger, Y. and Z. Ahmad (1996), *Analyse économique des causes des inégalités salariales entre hommes et femmes en Suisse*, Rapport scientifique final, Programme national de recherche 35 "Femmes, droit et société", Berne: Fonds national suisse de la recherche.

Flückiger, Y. and J. Ramírez (2000), *Analyse comparative des salaires entre les hommes et les femmes sur la base de la LSE 1994 et 1996*, Observatoire Universitaire de l'Emploi, University of Geneva.

Flückiger, Y. and J. Silber (1999), *The Measurement of Segregation in the Labor Force*, Heidelberg: Physica-Verlag.

Groshen, E. L. (1991), The Structure of the Female/Male Wage Differential: Is it Who You Are, What You Do, or Where You Work?, *Journal of Human Resources*, 26, 457–472.

Henneberger, F. and A. Sousa-Poza (1998), Estimating Wage Functions and Wage Discrimination Using Data from the 1995 Swiss Labour Force Survey: A Double-Selectivity Approach, *International Journal of Manpower*, 19, 486–506.

Henneberger, F. and A. Sousa-Poza (1999a), Geschlechtsspezifische Lohndiskriminierung. Neueste Evidenz von den Mikrodaten aus der Schweizerischen Arbeitskräfteerhebung, *Schweizerische Zeitschrift für Soziologie*, 25, 259–279.

Henneberger, F. and A. Sousa-Poza (1999b), Frauen und Männer am Schweizer Arbeitsmarkt, *Soziale Sicherheit. Zeitschrift für Arbeitsmarkt- und Sozialpolitik*, 48, 18–21.

Joshi, H.; P. Paci, and J. Waldfogel (1998), What do We Know About Unequal Pay?, in: Joshi, H. and P. Paci (eds.), *Unequal Pay*, Cambridge: MIT Press.

Kugler, P. (1988), Lohndiskriminierung in der Schweiz. Evidenz von Mikrodaten, *Schweizeri-sche Zeitschrift für Volkswirtschaft und Statistik*, 124, 23–47.

Oaxaca, R. (1973), Male Female Wage Differentials in Urban Labor Markets, *International Economic Review*, 14, 693–709.

Petersen, T. and L. A. Morgan (1995), Separate and Unequal: Occupation-Establishment, Sex Segregation and the Gender Wage Gap, *American Journal of Sociology*, 101, 329–365.

Sousa-Poza, A. (2002), Labor Market Segmentation and the Gender Wage Gap: An Industry-Level Analysis For Switzerland, *Cahiers Economiques de Bruxelles*, 45, 91–118.

Sousa-Poza, A. and Henneberger, H. (2000), Wage Data Collected by Telephone Interviews: An Empirical Analysis of the Item Nonresponse Problem and its Implications for the Estimation of Wage Functions, *Swiss Journal of Economics and Statistics*, 136, 79–98.

Sousa-Poza, A. and A.A. Sousa-Poza (2003), Gender Differences in Job Satisfaction in Great Britain, 1991–2000: Permanent or Transitory?, *Applied Economic Letters*, 10, 691–694.

Waldfogel, J. (1999), Understanding the 'Family Gap' in Pay for Women with Children, *Journal of Economic Perspectives*, 12, 137–156.

Zingg Schrupkowski, Tarja C. (1994), *Geschlechtsspezifische Lohndifferenzen. Eine kritische Analyse der Theorie und Empirie unter besonderer Berücksichtigung der Sozialisations effekte*, Schriftenreihe des Instituts für empirische Wirtschaftsforschung der Universität Zürich, Bd. 31, Winterthur: Schellenberg.