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# **4 Gender equality in education, work and family**



# Wage discrimination at career entry in Switzerland: Reasons and implications

*Kathrin Bertschy*

## 1 Introduction

In recent decades, it has been apparent that the educational and occupational pathways of women and men have been converging. Women, in particular, have benefited from the expansion of education and, with respect to the achievement of general education certificates, have advanced to the same level men (Blossfeld 1985; Hradil 1999; Haeberlin et al. 2004, 32; SKBF 2010, 113). While the educational attainment gap is closing, the gender gap in the workplace stubbornly persists: with all else remaining equal, it will take another 81 years to close the workplace gender gap completely, as concluded by the newest Global Gender Gap Report (WEF 2014). The higher educational participation of women is neither represented in higher professional positions nor in wages corresponding to their qualifications (WEF 2014, Eccles 2005). In OECD (Organisation for Economic Cooperation and Development) countries, women earn 16% less on average than men in similar full-time jobs. In Switzerland, this difference averages as high as 19% (OECD 2012). Gender based wage discrimination in Switzerland is well documented for the entire workforce. According to previous analyses, “objective” factors, such as personal qualifications, seniority, work experience or (occupational) activity account for 10–12% of the wage differential between men and women. The other 8–10% remain statistically inexplicable (Sousa-Poza 2004; Dini 2010; Strub and Stocker 2010).

Economic theories (Altonji and Blank 1999) focused mainly on productivity differences related to human-capital accumulation as the main source of gender gaps in wages. Given that young women now match or surpass men in terms of educational achievements, gender differences in early career wages should no longer occur. The previously mentioned studies based on cross-section data are not able to explain at which time in work history inexplicable

wage differences arise or occur. Whether these are a result of different careers (e. g. productivity) that might not be recognizable in the data, or if they already exist at the point of entry into the labor market and thus are not a result of differences in productivity, but rather of discrimination, remains unexplained.

The Swiss longitudinal TREE Data (Transition from Education to Employment) presents a database for Switzerland that contains more detailed information on individual abilities, activities, and preferences and facilitated an analysis of gender wage differences that exist at career entry. Based on these data, this article addresses the following questions: Do women face lower wages at career entry? Are salaries for women and men influenced by formal qualifications or value orientation, and if yes, how? What is the impact of the distinct gender segregation in education and in the workforce? Does income represent a factor for the subsequent division of work within couple households?

The article is divided into three sections. The first part discusses the driving forces for income based on the existing literature (educational system, preferences, and economic theories). The second section explains the TREE data set and the empirical method applied. In the last part, the main results and conclusions are presented.

## 2 Previous literature

### *Occupational preferences, education system, and gendered school-to-work transitions*

The factors driving gender differences in the labor market are usually broadly categorized into three forces, which might be interconnected: preferences, productivity, and discrimination. Starting with preferences for career opportunities, many authors mention high gender segregation in the labor market as one of the main factors contributing to wage differences in Switzerland. In countries like France or the U.S., general education programs at the upper secondary level are common, while in German-speaking countries, vocational training at the upper secondary level is most frequent. Education focused on developing practical, technical, or occupational skills and institutional opportunities for occupational reorientation are rare. According to OECD (2009, Table c1.4) data, the vocational education rate at the upper secondary level is 71% in Austria, 65% in Switzerland and 57% in Germany. In contrast, this share is significantly lower in France and Spain (43–44%). The significance of the Swiss education system in the reproduction of gender segregation might

correlate to the central role of vocational programs at the upper secondary level, which pressures two-thirds of all school graduates into an institutionally narrow career path during adolescence. Young women choose within a smaller field of occupations than men and are strongly inspired by gender-specific occupational fields (Leemann and Keck 2005). Since girls limit themselves to typical female apprenticeships, these “preferences” lead to jobs with lower salaries in the workplace (Palamidis and Schwarze 1989:121; Granato and Schittenhelm 2001; Imdorf 2005: 263).

During the transition from education to the labor market, this concentration further increases (Buchmann and Sacchi 1998; Müller and Shavit 1998) as a consequence of men abandoning professions dominated by women (Leemann and Keck 2005: 146). Gender specific (horizontal) segregation is particularly high for Switzerland in an international context and markedly so in male-dominated professions, especially in technical, manual professions in the manufacturing area (Charles 2005: 32ff).

Apart from the preferences in choosing a specific education – which is highly guided by the perception of jobs as male or female – the educational system is another important factor contributing to career segregation in Switzerland.

Imdorf et al. (2014) showed that in regions (cantons) of Switzerland with higher rates of vocational education at the upper secondary level (which ranged between 50 and 80%); gendered job transitions for men (but not for women) are more likely. They concluded that the strong linkage between (gender-typical) educational experiences and (gender-segregated) jobs in the Swiss labor market correlates to rare opportunities for switching from a gendered program to a non-typical (e. g., mixed) one in the case of interest and/or need.

In conclusion, preferences for apprenticeship, occupation, and participation in society play an important role in determining paths for education and career. However, it is important to recognize that these “preferences” are not the result of free choice, but, rather, are guided and/or controlled by mechanisms (values influenced by family, role models, childhood and adolescence, society, etc.) and are therefore, not self-chosen.

Preferences and productivity are linked in economic theories. Economical explanatory approaches focus mainly on productivity differences related to human-capital (education and qualification) to explain gender differences in wages. According to human capital theory (Becker 1964; Mincer 1974), differences in earnings can be explained through the difference in higher accumulation of human capital. Higher wages for men should thus be attributed to the higher qualification of these men. Reduced investment by women in their qualifications or human capital compared to their male counterparts is ex-

plained with the theory that women anticipate future familial obligations and possible interruptions to their career timelines, making long-term training appear less fruitful to them (Henneberger and Sousa-Poza 1999). According to this explanation, when making choices in the labor market, women prefer possibilities that allow them to combine both work and family life (cf. Becker et al. 1995) while men tend to be more focused on continuity in work experience and invest proportionately more in their qualifications. The gender-specific segregation of the job market, as well as related wage differentials, can be explained, according to this theory, as a result of the different economic preferences of women and men.

Economic productivity theories might explain differences in wages and working hours, but they do not provide an explanation for wage gaps, which imply that women of similar qualification and productivity are not hired and employed under the same conditions as men. Given that young women now match or surpass the educational achievements of men, gender differences in early career wages should not occur. How, then, can such differences be explained?

In contrast, discrimination theory (Becker 1971) explains wage discrimination as a result of negative preferences and prejudices against female employment. According to the discrimination model, gender earning differentials may be attributed to direct discrimination against women by employers, employees, and customers. Employers with a “taste for discrimination” against women will hire fewer than the profit-maximizing number of women. Furthermore, the model predicts that men are paid above, and women below, their marginal product (Arrow 1973). This implies that discriminating employers earn lower profits than non-discriminators. However, in a competitive market, discrimination is costly and restricts the employer’s scale and profitability. Hence, Becker (1971), Arrow (1973), among others, argue that under strong product market competition, firms may not be able to afford discrimination and will, therefore, behave in a more egalitarian fashion.

Theories of statistical discrimination (Phelps 1972; Arrow 1973; Spence 1973) utilize stereotypes, such as when employers base decisions on the average characteristics of the group to which employees belong. Wages are not related to productivity when evaluating employees, but instead on group-specific and cultural characteristics to estimate the potential for work interruption. Gender may provide information on job commitment since women, *on average*, have higher turnover rates. This theory leads to general discrimination against women, insofar as discrimination against all women is implemented in anticipation of future work interruptions (Phelps 1972).

A widespread view concerning financial decision-making is that women are more risk-averse than men: It is argued, that women, for example, have

lower preferences for variable pay systems – although this would pay off given their skills – and prefer fixed pay systems with lower salaries instead. A consequence of this stereotype is statistical discrimination, which diminishes the success of women in labor market. Whether or not risk-aversion differences between the sexes is a reality remains highly controversial in the literature. According to Schubert et al. (1999), under controlled economic conditions, women do not generally make less risky financial choices than men do. Le et al. (2011) showed that differences in risk aversion have an effect on wage differential, but explain only a small share – 12% – of wage differential.

Salary, which represents only one factor for the existing gender gap, is determined *inter alia* by the preferences of employer and employees, productivity and/or risk aversion regarding fixed versus variable wage. Just as those determinants affect the wage level (hourly wage), salary can play an important role in perpetuating gender inequalities.

Earnings can determine further gender inequalities, such as the distribution of labor between the sexes. Relative resource theories predict that an individual's working hours are affected by how their earnings compare to their partner's. Lundberg & Polak's (1993) separate-spheres-approach says that husband-wife households bargain over resource distribution, with each spouse's bargaining power determined by his or her market income. Becker's (1995) theory of specialization, or household production model, says that distribution of labor and family work among couples is affected by the hourly wages of both partners. According to Becker's (1991) theory of marital specialization, a couple can efficiently resolve the issue of household and work organization by having one partner specialize in paid work and the other focus on unpaid work. In the past, biological factors and women's disadvantages in the labor market, combined with less investment in education, meant that it was invariably efficient for women to be the ones to specialize in unpaid work. However, female education now outstrips male education. Thus, women have an increasing potential to earn more than their partners. Relative resource theories predict that if a female takes on the breadwinner role, her male partner would then specialise in household work and work fewer hours of paid work, a view that expresses a variant of the theory of specialization. Earnings determine gender roles in the labor market and at home, suggesting men will work fewer hours if their partner is the main or an equal earner (see Kanji 2013).

If discriminatory wage differences exist in an early stage of professional life and before starting a family, wage discrimination, together with the tax and benefit system for working parents (OECD 2012), reinforces gender inequalities in the labor market. Thus, wage inequalities have further implications on the persistence of gender inequalities that not only determine the



next generation's preferences in educational pathways, but also in choosing careers and the resulting future earning potential.

### 3 Data, descriptive statistic, method

#### *Data*

We used data from the Swiss Youth Panel and TREE (Transitions from Education to Employment <http://tree.unibas.ch>) to analyze career entry wages, wage discrimination, and salary increases within the first years on the job for individuals starting careers.

TREE is a longitudinal study based on a sample of over 6'000 young people who participated in the Programme for International Student Assessment (PISA) survey (BFS 2002; OECD 2002) for the year 2000 and left compulsory school the same year. Thereafter, until 2007, those adolescents were interviewed annually within the long-term study of TREE concerning the transition from school to profession. In 2010, a final survey focused on their occupational career took place. The TREE data is statistically representative of the gender, regional distribution, and continued education of all graduates in 2000. Within the conducted comparison of the entry wages of young women and men, we could control for a multitude of potentially wage-relevant factors including the specific education and competency of the adolescents (according to their PISA test results, their final grade(s) of apprenticeships, or education at a Gymnasium), their exact job specifications (occupation and tasks), the number of people employed by their companies, and even their value orientation and the socio-economic background of their parents.

The analyses were done with a sub-sample of 1'603 job beginners who hold secondary or tertiary education certificates and started working in full- or part-time jobs (at least 50%) between the years 2004 and 2010.

#### *Descriptive statistics*

Table 1 shows the variables used in this analysis and the descriptive statistics (for the definitions of the variables, see table A1 in Bertschy et al. (2014)). The salaries are based on data for monthly or hourly wages. The gross monthly wages are standardized to a 40-hour work week by using the data on the regular working hours per week.

Table 1: descriptive statistics (weighted sample)

Variable	Woman	Men	Total
Average wage (CHF)	3'753	4'058	3'908
Minimum wage (CHF)	2'154	2'095	2'095
Maximum wage (CHF)	14'205	18'940	18'940
Average wage within segregation class (CHF)			
Proportion of woman <30%	3'707	4'066	4'028
Proportion of woman 30%–70%	3'747	4'007	3'872
Proportion of woman > 70%	3'762	4'170	3'824
Average PISA-Reading Literacy Score (Min.:198.04, Max. 790.88)	506	474	490
Grade	4.81	4.78	4.79
Highest education certificate			
pre-vocational education	1%	1%	1%
Vocational education VET	75%	75%	75%
General or Vocational Baccalaureate	14%	17%	16%
Higher vocational education, Technical College	5%	2%	4%
University or Applied Science degree	5%	5%	5%
Work-time percentage			
Part-time 50%–90%	18%	5%	12%
Fulltime > 90%	82%	95%	88%
Value orientation			
Intrinsic	3.29	3.13	3.21
Extrinsic	3.04	3.20	3.12
Family/relationship	2.94	2.88	2.90
Firm size			
Unknown	41%	38%	40%
Firm size < 10	29%	15%	22%
Firm size 10–49	15%	24%	20%
Firm size 50–249	10%	14%	12%
Firm size > 250	5%	9%	7%
Leadership position	14%	14%	14%
Segregation: Proportion of woman by occupation	70%	26%	48%
Socio-economic status	42.04	40.29	41.15

Source: Bertschy et al. (2014, Table 1: 287)

The average standardized gross monthly wages are 3'753 CHF per month for women and 4'058 CHF per month for men. The analysis of labor market entry and the wages of career starters was carried out by using the data of the subsequent next-but-one longitudinal survey, i. e. one to two years after acquiring the education certificate on secondary level II or the tertiary level. At that point, the young adults had a maximum of two years of work experience. On average, they had been working for seven months.

A major advantage of the data set is the very detailed registration of the skills and education of the young adults. The accumulated human capital can be reproduced by the PISA Reading Literacy Score, the final grades at the conclusion of apprenticeships or education (on a scale of 4 to 6 for successfully concluded education), and the (highest) completed level of education. At career entry, around 75% of the sample had completed an apprenticeship, 16% a vocational baccalaureate (Berufsmatur) or Matura (the latter, for the time being, without further education), almost 5% a degree at a university (or a University of Applied Sciences), and nearly 4% a degree at a Technical College (Fachschule) or higher vocational education (höhere Berufsprüfung, Tertiär B).

The distribution of the occupations is similar to the one found in the "Statistik der beruflichen Grundbildung" (BFS 2007). At first glance, the differences between men and women seem to be small; women more often have a Matura or "Tertiär-B-degree," whereas men more often completed a vocational baccalaureate (Berufsmatur). However, the women have better formal qualifications. Even though there are no big differences regarding final grades, on average, women have considerably higher Reading Literacy competences than their male classmates. The average difference of 32 points corresponds to almost half of one of the five levels of competences for reading literacy (BFS 2002: 24–25).

The distinct separation of gender within the (vocational) education becomes apparent when looking at the trained occupations. Individual educations, e.g. electrician or medical assistant, are clearly or even exclusively one-sided. Commercial apprenticeships represent the highest share: 22% of the sample have a degree as clerk. The 20 most common professional trainings and the 5 most common tertiary educations as well as the respective residual categories are integrated into the regression as dummy variables.

The distinct separation of gender within (vocational) education becomes apparent when looking at trained occupations. Individual educations, such as electrician or medical assistant, are clearly or even exclusively one-sided. Commercial apprenticeships represent the highest share: 22% of the sample have a degree as commercial clerk (kaufmännische/r Angestellte/r). The 20 most common professional trainings and the 5 most common tertiary educations, as well as the respective residual categories, are integrated into the regression as dummy variables.

The jobs of the young adults in the sample have been classified using the International Standard Classification of Occupations (ISCO). For the analysis, we used an aggregation of 24 categories. Within the sample, the job data does not necessarily have to match the education data. Thus, graduates from commercial apprenticeships can be classified in different jobs and ISCO categories accordingly. For example, they could work in company or project management, as clerks at a bank or insurance company, or in administrative positions. They could also work in an entirely different field after having left their original occupation. The aggregated ISCO categories allow a comparison of different challenging job categories.

Furthermore, the data gives information on firm size and shows if a person works in a leadership position (14% of the sample) or part-time (women [18%] more often than men [5%]). Additionally, the separation of genders in the jobs can be observed by looking at the share of women within a specific job category.

The young adults were asked about their value orientation. For example, they were asked if it is important for them to reach the following goals in the future: "Earning a lot of money, a good salary," "Having a job with good career opportunities," "Having a job that feels like you are doing something meaningful," "Getting married or cohabiting in a committed relationship," or "Having children." The categories for answering ranged from 1 (completely unimportant) to 4 (very important). From the resulting items, we generated different indices by using the principal component analysis. The indices represent intrinsic (i. e. "Having a job that feels like you are doing something meaningful") and extrinsic (i. e. "Earning a lot of money, a good salary") motivations for work as well as the value orientation regarding partnership or family.

## **Method**

We estimate an extended Mincer earnings function (Mincer 1974) for the analysis of wage differentials. According to the Mincer earnings function, potential wage differentials can be explained by differences in human capital. Besides the principal explanatory factors, such as experience and education, an extended equation involves further variables of influence, particularly socio-demographic traits of the persons and variables related to employment. The measurement of the gender wage gap for entry-level female professionals is done with counterfactual decomposition. This method was developed by Blinder and Oaxaca (both 1973) and presently qualifies as the standard method for measuring the gender wage gap (Jann 2008: 149). The wage equation for men is used as the reference wage equation (meaning, the equation "without" discrimination).

Table 2: Regression estimates (selection)<sup>(a)</sup> and decomposition of wages

	[1]	[2]	[3]	[4]	[5]	[6]
	Training/ educational pathways controlled	Total Training/ educational pathways and professional activities controlled	Training/ educational pathways controlled	Women Training/ educational pathways and professional activities controlled	Training/ educational pathways controlled	Men Training/ educational pathways and professional activities controlled
Gender (Woman)	-0.057 ***	-0.047 ***	0.005			-0.001
Experience	0.000	0.000	0.000	0.000	0.000	0.000
Experience (square)	0.000	0.000	0.000	0.000	0.000	0.000
School type (Upper)	0.029 **	0.031 **	0.019	0.009	0.027 **	0.037 **
PISA Reading Literacy Score	0.000	0.000	0.000	0.000	0.000	0.000
Grade	0.001	0.011	-0.013	-0.025	0.004	0.021
Highest education degree (Reference = Vocational education VET)						
General or Vocational Baccalaureate	0.008	0.006	0.008	-0.003	0.010	0.017
Higher vocational education, Technical	0.314 ***	0.260 ***	0.340 ***	0.273 ***	0.297 ***	0.273 ***
University or Applied Science degree	0.366 ***	0.283 ***	0.395 ***	0.277 ***	0.357 ***	0.311 ***
Most frequent 20 vocational tracks and 5 tertiary education (a)						
Age	-0.013 **	-0.015 ***	-0.016 *	-0.014	0.000	-0.006
Age (square)	0.000 **	0.000 ***	0.000 *	0.000	0.000	0.000
Migration background	0.048 **	0.033 *	0.047 **	0.030	0.047	0.036
Partnership	0.017	0.018	0.010	0.005	0.031	0.041
Socio-economic status	0.000	0.000	0.001	0.001 *	-0.001	-0.001
Value orientation: Intrinsic	-0.010	-0.011	0.011	-0.001	-0.024 *	-0.025 *
Value orientation: Extrinsic	0.012	0.012	0.009	0.006	0.004	0.010
Value orientation: Family/relationship	0.000	0.000	-0.005	-0.007	0.008	0.009
Occupational activities (ISCO-categories) (a)						
Firm size (Reference < 10)	0.039	0.020	-0.040	-0.055	0.129 **	0.094 *
Firm size unknown						

Firm size 10-49	0.041 ***	0.034 **	0.023	0.011	0.068 ***	0.059 **
Firm size 50-249	0.029	0.027	0.017	0.013	0.055 *	0.048
Firm size > 250	0.083 ***	0.072 ***	0.075 ***	0.078 ***	0.110 ***	0.096 ***
Leadership position	0.003	-0.006	-0.013	-0.013	0.011	0.003
Proportion of woman by occupation	0.000	0.000	-0.001 ***	-0.001	0.000	0.001
Work-time percentage (Parttime 50%–90%, Reference: Fulltime)	0.053	0.051 **	0.051 **	0.043 **	0.126	0.132 **
Year of analysis ( $\alpha$ )	9.601	9.903 ***	10.402 ***	10.132 ***	7.721 ***	8.553 ***
Constant						
Anzahl (N)	1603	1603	982	982	621	621
R <sup>2</sup> adjusted	0.549	0.57	0.545	0.597	0.549	0.569
AIC	-1841.5	-1923.6	-1168.4	-1266.6	-717.2	-727.4
			Training/educational pathways controlled (Standard Error)		Training/educational pathways and professional activities controlled (Standard Error)	
Estimated average wage	Men [CHF]	[CHF]	3976	(36.778)	3976	(35.725)
	Women [CHF]	[CHF]	3677	(26.926)	3677	(25.425)
Difference	[%]	[%]	7.82%	(0.012)	7.82%	(0.011)
Decomposition	[%]	[%]	1.83%	(0.017)	0.50%	(0.019)
	Unexplained [%]	[%]	5.99%	(0.019)	7.33%	(0.020)

Note: (a): Additionally controlled variables: 20 most common trained occupations and 5 tertiary degrees; employment classified in 25 categories according to ISCO; year of analysis (2004–2007, 2010); language region (German, French, Italian speaking part) (see Bertschy et al. 2014, table 2; page 290 and table A1; page 303). Weighted estimation (participation probability). The estimates lead to robust variances. Source Bertschy et al. (2014: 290)

## 4 Results

Table 2 shows the estimation results of the pooled Ordinary Least Squares (OLS) estimation as well as the estimation for both sexes separately. The first column (estimations 1, 3, 5) shows the estimation results with controls of education/trainings completed, the second column (estimations 2, 4, 6) show the results with the additional control of professional activities carried out. According to the estimated equation, gender explains 4.7% to 5.7% of gross wage differentials. However, these estimations do not reflect that the endowment effects between the sexes not only differ, but can also have different effects on wages.

The separate regression estimates of gross wages for women and men are used for the decomposition of wage differentials into an explained part (endowment effects) and an unexplainable share of wage difference (see Table 3).

By controlling for endowments, the effective wage difference is 7.8% or 300 CHF per month. Twenty-three percent of the differences (1.8% of 7.8%) can be explained with the variables controlled and the choice of training/education. By controlling not only for the trainings completed, but also for the professional activities carried out, the explained portion drops to 7% of the wage differential. The rest of the difference remains unexplained and corresponds to the percentage, women should earn more to be paid the same as their male counterparts; commonly referred to as wage discrimination. In our model, the estimated wage discrimination is around 7.3%.

Significant explanatory factors are, in addition to gender; acquired training, (upper) secondary school type, company size, occupational categories, age, year of entry into the labor market, and region. Taking all factors into account, their influence on wage may provide 60 percent of the variation in women's wages and 57 percent of the variation in men's wages (see R-squared in Table 2, estimates [4] and [6]). Regarding the endowment effects, the trainings completed and the professional activities carried out have a crucial impact on wage level, whereas formal qualifications and competences (reading competences, final grades) do not have a significant impact. The influence of individual factors often differs between men and women (i. e. different coefficients or different significance). For example, the upper secondary school type reflects a higher wage for men (school type with advanced requirements). Regarding the size of the company, higher wages can be achieved in companies with a higher number of employees. This effect is higher for men, whereas for women it can only be manifested for companies with more than 250 employees.

It is not surprising that completed training and professional activities have a significant impact on wages. What is surprising, however, is that “productivity”-variables like formal qualifications and skills (reading skills, final grades) do not have any direct impact on wages.

### ***Do different values and different risk preferences cause gender wage differentials?***

Different values and readiness to assume a risk for the variable portion of wage are likely to only have an indirect effect on wage differentials at career entry. Men with a strong intrinsic motivation for work, who feel that “Having a job that feels like you are doing something meaningful” is “very important,” earn around 5% less than those who find it “rather unimportant.” In contrast, a distinct extrinsic motivation for work does not have an impact on wage levels, for women or for men. Different behavior of men and women in wage negotiations – a factor that is often pointed out and mentioned to explain inexplicable wage differentials – cannot be proofed with the data. However, there exists no significant difference among the value systems of young adults: Asked about their values and their motivation for work, such as whether a good salary or good career opportunities represent a very or less important role, there are no significant differences between sexes. However, the results should not be interpreted in a way in which those values do not play a role at all. As confirmed by empirical analysis, it cannot be excluded that value systems can be decisive factors even before choosing a career. From the beginning, with the choice of educational pathways, or later, with the choice of employer, women (or men) with distinct preferences for family can choose options from which they could expect better reconciliations of family time and work.

Additionally, gender differences and preferences for risk are unlikely to explain wage differentials at career entry. The argument, for example, that women have less preference than men for variable pay systems – although such would be beneficial, given their skills – and prefer fixed pay systems with lower salaries instead, is not reflected in different value systems. Furthermore, this argument remains highly controversial in the literature. Even if women would have weaker preferences for variable pay systems, and therefore would prefer fixed pay systems with lower salaries instead, those factors are not likely to explain wage differentials at career entry. On one hand, as shown in data from the Swiss earnings structure survey (BFS 2012), variable wage components are ten times as high in mid- and senior level positions than in lower positions. Therefore, variable wage components are expected to only be relevant at later career stages. On the other hand, according to empirical



studies, differences in risk aversion can only explain a small portion of wage differentials (Le et al. 2011).

The first conclusion of our analysis is that wage discrimination is not the result of different career paths, but already exists at career entry. “Productivity” variables, like formal qualifications and skills, do not have any direct impact on wages. Also, values and risk preferences are unlikely to influence the wages at career entry.

### ***Impact of occupational segregation***

We wanted to know if strong occupational segregation impacts starting wages and unexplainable wage differentials. We performed the same analysis separately for typically female, gender-mixed, and typically male jobs. Occupations with a female representation of 70% or more were defined as typically female professions and those with a share of 70% or more men as typically male professions.<sup>1</sup> As can be concluded from the descriptive statistics in Table 1, average wages at career entry are significantly lower in female-typical occupations (3'824 CHF per month) than in those that are typically male (4'028), and slightly lower than in gender-mixed occupations (3'872). Women, on average, earn more in typically female occupations, than on average in mixed or typically male occupations, but still earn less than men in all three categories. Men even achieve significantly higher incomes than women in typically female occupations.

The wage gap in the data used can be explained, to a great extent, by the fact that women “choose” trainings or occupations that are paid less in the labor market. In other words, for occupations with a comparatively high proportion of women, on average, lower incomes are paid. This well-known effect is also confirmed by the data (see Table 1, Average wage within segregation class: Total).

However, the results of the regression analyses, applied separately for the different segregation levels of occupations (see Table 3), show that in accordance with their training and skills, women in particular earn less in gender-mixed occupations. With the variables controlled, 6.3% of 7.1% of the differences cannot be explained. This effect also persists not only the trainings, but also when the professional activities are controlled. However, in the male-

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1 Examples of jobs with a women share below 30% are: mechanic, electrician, gardener, computer scientist, etc. Gender-mixed professions include baker, retail employee, or teacher at secondary schools. Whereas female-typical jobs, for example, are infant teacher, clerk, medical assistant, etc. The classification is based on the Swiss Census for the year 2000. The distribution of women and men in the sample (unweighted) is as follows: male-typical occupations (number of men: 359/number of women: 79), gender-mixed occupations (182/322), typically female occupations (80/590)

typical occupations, with an 8.9% wage gap, the unexplainable part of the wage differential decreases from 6.3% to 3.1% if, in addition, professional activities are taken into account. This indicates that within male-typical jobs, women focus more on professional activities and work content that is paid a lower wage. However, decomposition results are not significant here.

In the female-typical occupations, however, men on average earn 360 CHF per month more than women. Because of their training, men should achieve higher wages – about 14.5% more (decomposition A). The negative unexplained share reveals that the wage differential should be higher due to the endowment variables. With the additional control of professional activities, this discrimination effect of men in the typically female occupations is no longer significant (decomposition B) and can be explained by the fact that men take over activities and work content that is better paid within female-typical occupations.

Table 3: Decomposition of wage differentials due to segregational level of occupations

				Segregational level of occupations (Std. Err)					
				Male-typical, Women share < 30)		Gender-mixed, Women share 30–70%		Female-typical, Women share >70%	
Educational pathways controlled [A]	Estimated average wage	Men	[CHF]	3983	(44.859)	3939	(54.888)	4044	(110.458)
		Women	[CHF]	3642	(80.407)	3667	(41.877)	3686	(36.905)
		Difference	[%]	8.9%	(0.025)	7.1%	(0.018)	9.7%	(0.029)
	Decomposition	Explained	[%]	2.6%	(0.034)	0.8%	(0.025)	23.8%	(0.061)
		Unexplained	[%]	6.3%	(0.036)	6.3%	(0.024)	-14.5%	(0.055)
Educational pathways and professional activities controlled [B]	Estimated average wage	Men	[CHF]	3983	(44.241)	3939	(53.951)	4044	(112.716)
		Women	[CHF]	3642	(79.967)	3667	(42.109)	3686	(33.742)
		Difference	[%]	8.9%	(0.025)	7.1%	(0.179)	9.3%	(0.029)
	Decomposition	Explained	[%]	5.9%	(0.042)	0.8%	(0.025)	24.7%	(0.108)
		Unexplained	[%]	3.1%	(0.042)	6.4%	(0.024)	-15.4%	(0.106)

Not significant results are presented in italics (Significance level 5%). Source: Bertschy et al. (2014, Table 3: 293)

Looking at concrete examples in the data, it becomes clear that within female-typical occupations, such as social worker or primary school teacher, men fill comparatively well paid positions. Men often specialize within those same professions to activities with better salaries. For example, in the commercial sector, men take or get jobs with more responsibility or auditing activities. Additionally, women occupy niche activities in male-dominated occupations. For instance, they engage in administrative or sales activities with-

in the metal construction industry, even though they have technical training which qualifies them for better paid activities, or they work as data processing assistants, despite having training as a computer scientist.

These gender niches within the professions have been repeatedly pointed out in the research (see, for example, Heintz et al. 1997; Krüger 2001). It is likely that these niches are even more pronounced in reality, but the database does not provide more detailed information. Focusing on niche activities – self chosen or allocated – probably provides another reason for unexplained wage differentials. This observation indicates that the discriminatory wage differentials might be slightly overestimated. It also leads to another question: Why and how are these niches chosen by young women and men or allocated (by firms, social attitudes, prejudices, etc.)? It seems economically inefficient for women to procure education and career training if they do not work in the jobs or activities they are qualified for.

Our second conclusion is that in high gender-segregated occupations, women chose (or are allocated to) niche activities that are paid less, even if their training qualifies them for better paid activities. Men do the contrary. Unexplainable wage differentials of 7.3% at career entry might be slightly overestimated.

### ***Wages as a determinant for further gender inequalities***

From an economic point of view, and with regard to an optimal allocation of human resources, it is questionable that women do not work in activities their training enables them for, and instead escape into niches. The lower incomes of women at career entry also cause economically problematic dynamic trends. Earnings determine gender roles and participation rate in the labor market. This has been shown, for example, by Kanji (2013) and can determine further gender inequalities. If individuals in a partnership efficiently resolve the issue of household and work organization by having one partner specialize in paid work and the other focused on unpaid (house) work, and the distribution of labor and family work is affected by the hourly wages of both partners (Becker, 1995), it is still more likely, that the woman would reduce her working hours, even if she has an increasing potential to earn more than her partner due to her educational achievements. As a result of wage discrimination at career entry, women automatically start at a disadvantage. Furthermore, by establishing a family unit, division into traditional gender roles is more likely, as is an increase in wage inequality within the career (see e. g. Bispinck et al. 2008).

We saw in our analysis that young female professionals differ little from their male colleagues in their value orientation with respect to family/kids

and in extrinsic or intrinsic motivation for work. No significant correlations between value orientation and real achieved wage can be determined. However, the actual division of labor in practice equals social norms (e.g. in the division of household work and employment in couple relationships) rather than the expressed value orientations. Further analyses of a sub-sample<sup>2</sup> of those respondents that live in couple relationships show that women carry out a significantly higher share of family and household work, even when working full-time, including those women who earn more than 50% of household income.

In relative comparison, those women who execute a high workload and/or have a preference for full-time employment, carry out a lower share of the incurred household work. The greater the value orientation for family/children or if a woman already has children (true for 13% of the sample), the greater is her share of the housework. For the men, the same preferences lead to the opposite effect. The share of housework the men are carrying out, according to their own assessment, decreases when they report a stronger value orientation for family/children or if they already have children. For the women, those correlations also remain in the multivariate observation (not so for the men). There is a relationship between the division of labor within the family and the real incomes of women. A comparison of the data for career entrants in 2006 (entering the labor market before 2007) with the data in 2010 shows that women who had an above average income (compared to the other women) and/or recorded a high proportion (>50%) of the household income at the entry level, also had a more balanced division of housework with their partner four years later, i.e. on average they carry out a smaller share of housework than other women, but still more than their partner.

Analysis of wage developments in the first five years of work experience (2005–2010) shows that a traditional distribution of paid and domestic work seems to be quite economically efficient from the perspective of young households. Men's increase in salary turns out to be significantly higher than the one for women: The (standardized) gross monthly wages of men (as well as the real wages) rise by an average of 7.8%, the wages of women by only 6.4%.<sup>3</sup> Thereby, the average wage gap increases again by almost 7% over five years. This difference in wage developments between young male and female professionals can neither be explained with their formal qualifications nor with part-time employment, which is more common among women. The same dif-

2 Employees in 2010 living in a relationship that, in addition to the information on their own earnings, also answered questions about household income and the distribution of housework (n = 572).

3 In a 2-sample t-test the null hypothesis of identical wage development is rejected at a significance level of less than 1% (n = 256). Almost identical results in the development of real wages (N = 262, the null hypothesis is rejected at significance level of <5%)

ferences are also apparent if we only compare full-time employed women and men.<sup>4</sup>

Theories in which the partner with the higher income is less active in the household, and more active in the labor market, are supported. Even more so when we assume that this unequal division of labor will be reinforced over time due to different statistically unjustifiable wage developments for men and women and also that the majority of young professionals in couple households quickly divide the paid and house work according to the traditional pattern.

## 5 Conclusion

Our analysis shows that wage discrimination is not the result of different career paths, but already exists at career entry. "Productivity" variables like formal qualifications and skills do not have any direct impact on wages. Also, different values (e. g. extrinsic or intrinsic work orientation) or different risk preferences are unlikely to influence the wages at career entry. We conclude that the early wage discrimination is partly due to the persistent gender segregation in the Swiss labor market and education system, which stimulate early gender-typed occupational career decisions. Findings show a wage discrimination of 7.3% at career entry. Young women have lower earnings due to lower salaries in traditional female occupations and because of wage discrimination in gender-mixed occupations as well as in typically male professions. In highly segregated jobs, women in typical male-jobs often "choose" or get allocated to specific work contents that go together with lower compensation; men do the contrary in typical female-jobs. These niche activities are economically inefficient because training qualifies women for better paid activities. Young women do not choose or are not allocated to these activities they have trained for.

### *Possible reasons for early wage gaps?*

Unexplainable wage differentials at career entry might be slightly overestimated, and also within our data set. However, the majority of the inexplicable differences in wages are likely the result of discrimination. One possibility is the so-called "statistical" gender discrimination. Companies assume that,

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4 The null hypothesis of identical wage development is rejected at a significance level of <5% (n = 223).

sooner or later, women tend to reduce their working hours. From the start, these companies consciously or unconsciously pay lower salaries to women, assign them lower paying jobs, or do not admit them the same development in wages as for men. In sociological and economic theory, this effect is referred to as statistical discrimination, because a specific behavior (the one of the companies) is derived from observed probabilities (women reduce their employment more often than men due to parenting). This behavior of the companies discriminates against all women, including those not complying with this assessment and those not intending to reduce their workload, with or without children.

Generous family-friendly policies, such as long maternity leaves and/or part-time work protections, made it possible for more women to work. But they can also enforce statistical discrimination: Women are more likely to work in low segment, lower paid jobs and less likely to be managers in countries with generous family-friendly policies, as shown by Blau and Kahn (2013) in a study comparing 22 countries. To avoid statistical discrimination, policies should be devised gender neutral. This is apparent in countries/regions including Iceland, Sweden and Quebec where parental leave policies encourage both men and women to take time off for a new child. Apart from measures against education and labor market segmentation, gender-neutral state policies could thus help to close the early gender wage gap. Secondly, solidarity among men is also likely to play a role. In sociological theory, this behavior is known as discrimination theory, which states that “the same” or “the like” is preferred. As there are many more men than women in superior positions and as such, men more often make employment or wage decisions, they may prefer applicants or employees with similar characteristics, for example. This preferential treatment can also be unconsciously done.

### *Implications*

Implications of gender wage gap on work and family and the persistence of gender inequalities can be manifold. In order to maximize household-production, young professionals in couple households quickly divide the paid and house work according to the traditional pattern. Analyses with TREE-Data show that young couples divide household labor and paid work based on hourly wages. An unequal division of labor will be reinforced over time due to the different, statistically unjustifiable wage developments for men and women. From an economic point of view, and with regard to an optimal allocation of human resources, this development is economically inefficient. The lower incomes of women at career entry also cause these economically problematic

dynamic trends. The interaction of all these effects is jointly responsible for the persistence of gender inequalities.

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