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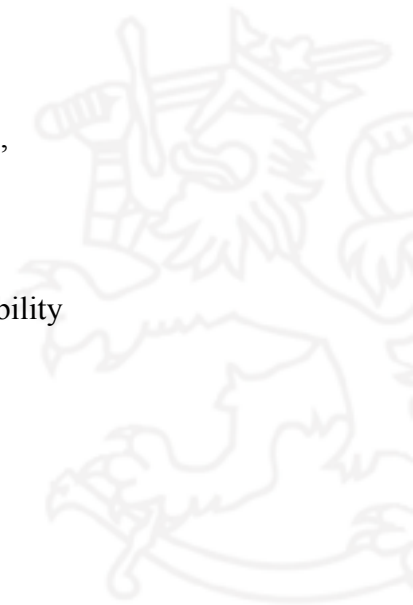
Developing Sectoral Strategies to Address Gender Pay Gaps

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Authors Pekka Laine
 A Comparison Study of the Sectoral Gender Wage Gaps
 Between the Finnish IT and Retail Sectors 1995 - 1999

Rita Asplund and Reija Lilja
IT Sector and Retail Trade Careers – Does Gender Matter?
A Gender-Specific Analysis Of Gates-Of-Entry, Wage Gaps,
Careers and Earnings Growth for Finland

Key words: Equal pay, pay equity, equality, gender wage gap, career mobility



Foreword

Promoting gender equality has a high priority at EU level. In the Member States many indicators for monitoring gender equality have been developed. The overall gender wage gap among Finnish full-time employees is about 20 per cent. About half of this gender wage gap can be explained by the fact that men and women have different backgrounds. The other half remains unexplained. Due to high gender segregation in the Finnish labour market, sector-specific analyses are important when trying to understand the persistence of gender differences in the labour market.

Together with its colleagues from Ireland, Northern Ireland and Sweden, the Equality Unit of the Ministry of Social Affairs and Health launched a project that tries to quantify the gender wage gaps in the male-dominated IT and female-dominated retail sectors and to identify common strategies to reduce them. Contrasting these two sectors can provide policy-relevant information on the working life situation and opportunities of men and women in times of rapid information technology expansion in a labour market still characterised by strong gender segregation in occupations as well as industries.

The project has received funding from the Programme relating to the Community Framework Strategy on Gender Equality (2001 - 2005). This book constitutes the Finnish contribution to this project. Dr Rita Asplund of the Research Institute of the Finnish Economy and Dr Reija Lilja of the Labour Institute for Economic Research have conducted a study on IT and Retail Trade Careers – Does Gender Matter? A Gender Specific Analysis of Gates-of-Entry, Wage Gaps, Careers, and Earnings Growth for Finland. In addition to this, a Comparative Study of the Sectoral Gender Wage Gaps Between the Finnish IT and Retail Sectors 1995 - 1999 was written by Lic. Pekka Laine of Statistics Finland.

Helsinki, January 2003

Markku Lehto
Permanent Secretary

A COMPARISON STUDY OF THE SECTORAL
GENDER WAGE GAPS BETWEEN THE FINNISH IT
AND RETAIL SECTORS 1995 - 1999

by
Pekka Laine

Research report the project
Developing Sectoral Strategies to Address Gender Pay Gaps

Executive Summary

The study concerns the Finnish IT and retail sectors' gender wage gaps. We analyse and provide a comprehensive discussion and comparison of the gender wage gaps, their determinants and development in these sectors. The study consists of two parts.

The first part is mainly descriptive by nature, consisting of an overview covering essential features and key labour market outcomes by gender in the sectors of the study. Objects of interest are, among other things, the development of proportional gender shares in each sector, the within-sector distributions of men and women by occupation and educational level, hourly wages and the overall wage gap. We discuss how the labour market has developed in these respects in Finland during the years 1995 - 1999.

The second part of the study is more statistically orientated. In this part we use the regression and Oaxaca-decomposition methods. This means that we estimate wage equations for men and women within both sectors in order to model the relationship between wages and wage-determining factors. The gender pay gap may then be statistically decomposed into two components: one due to gender differences in measured characteristics, and the other "unexplained" due to unequal returns to these characteristics (and potentially to some degree due to discrimination).

The data source of the study is the Finnish Structure of Earnings Survey (SES) data. The data set covers the years 1995 - 1999 and contains information on earnings, personal characteristics, occupation and employer for individuals and across all the sectors of the Finnish Economy. In the study we used a sub-sample covering only those employees working in the member firms of *PT* (the Employers' Confederation of Service Industries in Finland). Furthermore, only those *PT*'s member firms were studied which have their principal activity either in the IT or the retail sector.

The main findings of the study can be summarised as follows:

The retail sector is a traditional predominantly female and relatively low-paid sector while the IT sector is a predominantly male and better-paid sector. The IT sector has a clearly higher earnings level than that of the retail sector. Also the women of the IT sector earn per a working hour on average more than the men of the retail sector. Both sectors, however, show gender wage ratios favourable to men. The total gender wage gap was almost without exception smaller in the IT sector compared to the retail sector over the observation period 1995 - 1999.

Regardless of the used model specification in 1995 the part of the gap due to unequal returns to men's vs. women's same characteristics (and simultaneously to some degree, due to potentially unequal treatment) was larger in the retail sector compared to the IT sector. But by 1999 the difference between sectors in this respect seems to have vanished. Thus, in this respect between 1995 and 1999 a negative "catching-up" process as regards women's position seems to have taken place in the Finnish IT sector. However, the conclusion was not as negative when we analysed the IT sector firm panel covering only the firms included in the data set already in 1995. The outcome of this analysis showed that women's status had remained quite unchanged in these "old" IT firms and that still in 1999 the gender wage gap was significantly smaller in these firms compared to the gender wage gap estimated from all the IT sector's member firms belonging to PT in 1999. The open question is whether the structure of the "new" IT firms which have joined PT after 1995 differ in some certain way from the older member firms that could explain the much smaller growth of the gender gap amongst the old IT sector member firms of PT from 1995 to 1999?

Occupational segregation proved out to be a major determinant for the existence of the gender wage gap. The finding was common for the IT as well as the retail sector's enterprises and even for the IT sector's "old" enterprises. Furthermore, another important topic which is interlinked with occupational segregation emerged in the analysis, namely, the *potential gender differences in the career advancement prospects*. Our results indicate that in both sectors amongst the older female and male employees men have succeeded much better in getting possession of the better paying jobs and occupations. An open question is, however, whether the gender differences in career paths will remain the same as younger men and women of the current data set grow older, *i.e.*, if the gender differences in career prospects between men and women are diminishing or not.

In connection to what was said above about the IT sector's "new" and "old" PT member firms there arose in the analyses one interesting issue that might deserve to be analysed in future. The issue concerns the observation that the wage gap was wider in the PT's "new" IT firms than in those firms that were organised already in 1995. Now, if the case is that a significant portion of the PT's new member firms had already existed for several years before joining PT (in other words, becoming organised in a nationwide central employer organisation) and assuming that these by then unorganised IT sector firms did not have to follow the collective agreements of the Finnish IT sector back in 1995 (the Finnish so called "*yleissitovuus*" *i.e.* "general validity" clause), it would be very interesting to analyse further the question of into which degree women's position and pay equality do depend on firms' obligation to follow the nationwide collective agreements.

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1. INTRODUCTION

This report pertains to the multinational research project “Developing Sectoral Strategies To Address Gender Pay Gaps”. The project is financed partly by EU and (to a lesser degree) by the participating countries (Finland, Ireland, Sweden and UK (Northern Ireland)). The aim of the project is to analyse the gender pay gap in the IT, retail and food sectors (the food sector is not included in the Finnish subprojects). The analyses may then be utilised in order to develop strategies to reduce gender pay gaps in the aforementioned sectors.

The Finnish participation consists of two subprojects. The first one analyses and compares the career paths of men and women in the IT and retail sectors. This part will be carried out jointly by The Research Institute of the Finnish Economy ETLA and The Labour Institute for Economic Research. The second Finnish subproject and which this report concerns will be carried out by Statistics Finland. The subject of the last mentioned subproject (hereafter “the study”) is the gender wage gap of the Finnish IT and retail sectors.

This paper reports the results of the last mentioned subproject. We will analyse and provide a comprehensive discussion and comparison of the gender wage gaps, their determinants and their development in these sectors in Finland. The study consists of two parts.

The first part is mainly descriptive by nature, consisting of an overview covering essential features and key labour market outcomes by gender in the sectors of the study. Objects of interest are, among other things, the development of proportional gender shares in each sector, the within-sector distributions of occupational groups and educational levels by gender, hourly wages, the overall wage gap *etc.* We will discuss how the labour market has developed in these respects in Finland during the years 1995-99.

The second part of the study is more statistically orientated. In this part we can utilise such techniques as the regression and Oaxaca-decomposition methods. This means that we will estimate wage equations for men and women within both sectors in order to model the relationship between wages and wage-determining factors (education, seniority, tenure with the current employer, occupation, firm size *etc.*). The gender pay gap may then be statistically decomposed into two components: one due to gender

differences in measured characteristics, and the other “unexplained”¹ and potentially due to discrimination.

Thus the overall aim of the current study is to look into which degree there are similarities and differences between these two sectors when the interest lies in comparison of men’s and women’s labour market positions both within and between the sectors.

¹ “*Unexplained*” here means that the component cannot be explained by differences between men’s and women’s average wage-determining characteristics. Instead, *a part* of the unexplained component *may* be due to that women and men are being paid unequally for the same characteristics.

2. DATA DESCRIPTION AND DESCRIPTIVE ANALYSIS

2.1. Data description

We start by a brief summary of the analysed data and move then to consider men's and women's separate distributions of certain key determinants of individuals' earnings in both sectors. The data source of the study is the Finnish Structure of Earnings Survey (SES) data. The data set covers the years 1995-99 and contains information on earnings, personal characteristics, occupation and employer for individuals and across all the sectors of the Finnish Economy. However, we do not use the whole SES data sets in our analysis but instead concentrate on analysing a sub-sample which covers the employees working in the member firms of PT (the Employers' Confederation of Service Industries in Finland)². Another major data restriction is that we will include only those PT's member firms in our analyses which have their principal activity either in the IT or the retail sector.

2.2. Distributions for the key background variables by gender

Table 2.1 shows the absolute numbers of employees in both sectors. All the employees work in the member firms of PT.

Table 2.1 Gender frequencies and relative proportions by sector, 1995-99

	Males			Females		
	1995	1997	1999	1995	1997	1999
SECTOR						
IT	1108 (59.4%)	1721 (58.1%)	6271 (65.5%)	758 (40.6%)	1243 (41.9%)	3308 (34.5%)
Retail trade	6799 (21.8%)	11653 (24.5%)	13619 (24.6%)	24410 (78.2%)	35880 (75.5%)	41791 (75.4%)

Notes: The employment relationships covered include both part- and full-timers and also both fixed-term and permanent employment relationships. The percentages in the parentheses determine the relative male and female proportions of the corresponding sector and year.

² PT is the main central employer organisation of the Finnish private service sector and it also compiles regularly wage surveys from its members. These inquiries generally cover all organised PT employers and therefore our data set includes nearly all the employees working in the PT member firms. Statistics Finland gets afterwards the wage data from PT and combines it with wage data from other sources to a SES data set.

In both sectors the employee numbers have increased over the reference period. Furthermore, there are two considerable leaps in the employee numbers – one in each sector. The reasons for increase in the numbers of employees include at least the following: i) there has been in Finland a genuine phase of increasing employment after the extremely severe recession of the early 1990s, ii) the late 1990s have been a booming time for the Finnish IT sector, iii) previously state-owned firms have been privatised and thus they have become potential new PT members, and iv) previously unorganised firms have joined PT. Since the data consists exclusively of the PT members and as we know that the number of member firms of PT has increased during the observed time period, it means that especially the two last-mentioned reasons are of special importance to our research data. We will return to this issue later on in this study.

Another thing visible in table 2.1 (see the percentages in the parentheses) is that while the retail sector has been traditionally – and still is – predominantly female the new IT sector seems to be predominantly male dominated. The divergent gender proportions between these two sectors make them interesting subjects for mutual comparison as we want to know if the existence, and especially, the size of gender pay gaps depend on any certain sector-specific features (for example the gender distribution of the sector), or alternatively, if gender pay gaps are more or less similar irrespective of sectoral borders.

2.2.1. Occupational distributions by gender

It is well known that a notable part of the differences between men and women in the labour market is reflected in the distribution of men and women *across* jobs rather than in the distribution of men's and women's wages *within* jobs. Table 2.2 consists of the retail sector's *within-gender* percent distributions of the occupational ISCO-88 (COM)³ major groups at one digit level. A clear majority of both men and women belong to the group 5 (service workers or shop and market sales workers). The share of these occupations amongst women have stayed stable at 77-78 per cent over the reference period while the corresponding proportion amongst men has gone down by 4.6 percentage points.

³ ISCO-88 (COM) is the European Union variant of the new International Standard Classification of Occupations (ISCO-88). Eight of the ten ISCO-88 major groups are delineated with reference to four broad skill levels. These four ISCO skill levels have been defined in terms of the educational levels and categories of the International Standard Classification of Education (ISCED). Major group 2 (*Professionals*) represents the highest ISCO skill level and Major group 3 (*Technicians and associate professionals*) the second highest. Five of the eight major groups, i.e. 4, 5,6,7 and 8 are considered to be at the same skill level and are distinguished by reference to broad skill specialisation groups. Major group 9 (*Elementary occupations*) represents the lowest ISCO skill level. Finally, skill level references are not made in the definitions of two major groups (1. *Legislators, senior officials and managers* and 0. *Armed forces*), because other aspects of the type of work were considered more important as similarity criteria, i.e. policy making and management functions, and military duties, respectively (see Elias & Birch [1994], p. 3).

Another large occupational group in the retail sector are technicians and associate professionals. However, the relative share of this group amongst men is clearly larger than amongst women. Since the group consists of occupations representing higher levels of organisational hierarchy than service workers or shop and market sales workers the mean wage is bound to be higher in this group. This, in its turn, implicates that occupational gender segregation can be expected to play a prominent role in the Finnish retail sector as a determinant of the gender wage gap. Traces of occupational segregation can also be seen in the occupational group of legislators, senior officials and managers representing the highest level of organisational hierarchy. Thus, the fact that all the bold-face values of the three hierarchically highest groups belong to men marks clearly the importance of occupational segregation as a key factor for the existence and size of the gender wage gap.

Table 2.2 Retail trade sector's percent frequencies for the occupational ISCO-88 (COM) major groups by gender, 1995-99

	Males			Females		
	1995	1997	1999	1995	1997	1999
ISCO-88 (COM) MAJOR GROUPS						
1.Legislators, senior officials and managers	2.29	3.53	3.60	0.30	0.41	0.43
2.Professionals	1.97	4.89	4.50	0.75	1.32	1.43
3.Technicians and associate professionals	24.68	27.54	26.57	12.76	14.51	14.27
4.Clerks	1.59	3.00	2.38	6.88	6.28	5.55
5.Service workers and shop and market sales workers	63.36	56.51	58.76	77.38	76.04	77.03
7.Craft and related trades workers	3.81	2.63	2.41	0.36	0.23	0.25
8.Plant and machine operators and assemblers	0.26	0.09	0.39	0.30	0.09	0.22
9.Elementary occupations	2.03	1.81	1.40	1.28	1.11	0.82
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00

Notes: ISCO-88 (COM) is the European Union variant of the new International Standard Classification of Occupations (ISCO-88). In each combination of the year and the occupational group the gender having the larger relative proportion has been highlighted in bold.

Table 2.3 shows the IT sector's within-gender percent distributions of the occupational ISCO-88 (COM) major groups at one digit level. One striking difference is immediately apparent. In contrary to the retail sector the three highest levels of occupational hierarchy (ISCO-88 (COM) major groups) now account for the clear majority of both men and women. Obviously, this indicates the IT sector's technological avant-garde position. However, occupational segregation is not totally absent in the Finnish IT sector either. Both the occupational group of clerks and that of technicians and associate professionals are proportionally more strongly represented amongst women than men while the occupations belonging to the two highest levels of occupational hierarchy: Group 1. (legislators, senior officials and managers) and Group 2. (professionals) are more common amongst men. However, in contrast to the retail sector the group three

(technicians and associate professionals) seems to be proportionally more common amongst women. Thus there seems signs of occupational segregation could be found in the IT sector too but in contrast to the retail sector it occurs on a higher level of the occupational hierarchy.

This consideration shows again that the gender wage gap interconnects closely with the occupational segregation. An important topic in this connection is in which phase of women's working career occupational segregation comes into the picture. That is, is it so that young women and men start in similar jobs and tasks but men succeed better in advancing new positions guaranteeing better earnings? Or alternatively, is it so that young men enter better paying jobs from the start of their working relation?

Table 2.3 IT sector's percent frequencies for the occupational ISCO-88 (COM) major groups by gender, 1995-99

	Males			Females		
	1995	1997	1999	1995	1997	1999
ISCO-88 (COM) MAJOR GROUPS						
1.Legislators, senior officials and managers	4.69	4.30	6.20	1.32	1.77	2.96
2.Professionals	70.58	71.06	69.14	55.41	56.40	55.59
3.Technicians and associate professionals	21.39	19.70	18.88	28.23	25.10	26.27
4.Clerks	1.99	3.25	3.28	14.78	16.33	14.30
5.Service workers and shop and market sales workers	0.00	0.00	0.06	0.00	0.00	0.00
7.Craft and related trades workers	1.26	1.51	2.34	0.00	0.00	0.79
9.Elementary occupations	0.09	0.17	0.08	0.26	0.40	0.09
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00

Notes: ISCO-88 (COM) is the European Union variant of the new International Standard Classification of Occupations (ISCO-88). In each year-occupational group combination the gender with the greater value has been marked in bold.

In Table 2.4 below we can look at how men and women of certain age groups differ in their distribution over the occupational hierarchy. In the upper part of the table we see the men's occupational (ISCO-88 (COM) at one digit level) percent frequencies in four different age groups. Men seem to have concentrated into two groups among the nine occupational main groups. The group 5 (*service workers and shop and market sales workers*) dominates strongly the younger age groups but as we move towards the older age groups the proportional share of the group 3 (*technicians and associate professionals*) amongst men grows significantly. In fact, amongst the over 45 years old men the group 3 is - even though quite narrowly - largest. A further detail is that the proportional shares of the two hierarchically highest occupational groups grow steadily as we move towards the age group of the oldest employees. Thus it seems that at least among men age increases the prospects of achieving a better paying job in the Finnish retail sector.

Table 2.4 Retail trade sector's percent frequencies for the occupational ISCO-88 (COM) major groups by gender and age, 1995-99

	Male							
	age group							
	under 26		26 to 35		36 to 45		over 45	
	1995	1999	1995	1999	1995	1999	1995	1999
ISCO1								
1.Legislators, senior officials and managers	0.00	0.03	1.62	2.28	3.19	5.53	4.69	7.59
2.Professionals	0.13	0.63	1.76	4.42	2.30	6.54	3.82	7.20
3.Technicians and associate professionals	3.36	7.25	21.92	27.13	34.12	34.61	40.58	40.96
4.Clerks	0.99	0.84	1.80	2.83	1.28	2.42	2.21	3.62
5.Service workers and shop and market sales workers	91.77	88.18	66.83	59.47	52.23	45.86	40.98	35.55
7.Craft and related trades workers	1.65	1.14	4.37	2.56	4.91	3.37	4.02	2.77
8.Plant and machine operators and assemblers	0.00	0.60	0.45	0.42	0.32	0.39	0.20	0.10
9.Elementary occupations	2.11	1.33	1.26	0.89	1.66	1.28	3.49	2.22
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	Female							
	age group							
	under 26		26 to 35		36 to 45		over 45	
	1995	1999	1995	1999	1995	1999	1995	1999
ISCO1								
1.Legislators, senior officials and managers	0.02	0.02	0.27	0.32	0.40	0.92	0.41	0.53
2.Professionals	0.00	0.17	0.61	1.78	1.10	2.41	1.02	1.55
3.Technicians and associate professionals	2.49	2.80	13.78	16.46	16.19	20.94	15.40	17.53
4.Clerks	3.67	1.74	7.63	4.83	8.63	7.62	6.99	7.85
5.Service workers and shop and market sales workers	92.84	94.60	76.59	75.83	71.25	66.73	73.52	70.40
7.Craft and related trades workers	0.11	0.07	0.37	0.20	0.35	0.35	0.48	0.36
8.Plant and machine operators and assemblers	0.11	0.25	0.18	0.19	0.42	0.21	0.40	0.23
9.Elementary occupations	0.76	0.35	0.57	0.38	1.66	0.80	1.77	1.54
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Notes: ISCO-88 (COM) is the European Union variant of the new International Standard Classification of Occupations (ISCO-88).

So occupational gender segregation characterises quite strongly the overall picture of the Finnish retail sector. Of course, this short examination does not reveal the factors causing the observed differences in the way men and women are distributed between different occupations or inside the occupational hierarchy. But at least these empirical observations show that the difference between men's and women's occupational distributions grows with age. However, it must be kept in mind that we consider here cross-sectional data – *i.e.* we do not follow the same persons over their entire working career – and therefore we can not conclude with absolute certainty whether the same patterns of occupational segregation will remain the same as the younger men and women of the retail sector data grow older.

Table 2.5 below presents an identical analysis of occupational gender segregation for the Finnish IT sector as Table 2.4 presented for the Finnish retail trade sector. The upper part of the table shows again men's occupational main groups distributions in different age groups. The technological *avant-garde* character of the IT sector emerges now clearly from the fact that a very large majority of men belong to the group 2 (*professionals*) and this holds independently of the age group. Another comparatively large group is the group 3 (*technicians and associate professionals*) which covers about one fifth of all male employees of the sector. The hierarchically highest group 1 is clearly best represented amongst the men of the oldest age group even though younger men's prospects of achieving this occupational group seems to have increased between 1995 and 1999.

The group 2 dominates also the women's occupational distributions. And the group 3 is also well represented amongst women. The group 4 (clerks) is quite well represented too even though it is significantly smaller. The result that the proportional shares of the occupational groups 3, 4 and 9 diverge from the other years and age groups in the youngest age group (less than 25) in 1995 apparently mirror the unreliability related to the fairly limited number of women in the sample of that year (*cf.* Table 2.1 above).

Table 2.5 IT sector's percent frequencies for the occupational ISCO-88 (COM) major groups by gender and age, 1995-99

	Male							
	age group							
	under 26		26 to 35		36 to 45		over 45	
	1995	1999	1995	1999	1995	1999	1995	1999
ISCO1								
1.Legislators, senior officials and managers	0.00	0.50	1.31	2.76	4.29	8.66	11.50	10.14
2.Professionals	66.67	64.37	74.02	73.30	70.14	71.10	65.93	62.52
3.Technicians and associate professionals	25.00	22.69	21.00	18.42	22.70	15.66	19.03	22.27
4.Clerks	8.33	6.39	1.84	2.81	1.64	2.62	2.65	3.62
5.Service workers and shop and market sales workers	0.00	0.34	0.00	0.09	0.00	0.00	0.00	0.00
7.Craft and related trades workers	0.00	5.71	1.84	2.62	1.02	1.91	0.88	1.19
9.Elementary occupations	0.00	0.00	0.00	0.00	0.20	0.05	0.00	0.26
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	Female							
	age group							
	under 26		26 to 35		36 to 45		over 45	
	1995	1999	1995	1999	1995	1999	1995	1999
ISCO1								
1.Legislators, senior officials and managers	0.00	0.00	0.00	1.79	2.09	3.08	2.76	4.91
2.Professionals	41.18	50.51	62.46	60.48	55.40	57.26	42.07	48.38
3.Technicians and associate professionals	5.88	25.25	28.16	23.34	27.87	27.13	31.72	28.74
4.Clerks	41.18	20.20	9.39	13.21	14.63	12.22	23.45	17.37
5.Service workers and shop and market sales workers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7.Craft and related trades workers	0.00	4.04	0.00	1.09	0.00	0.32	0.00	0.36
9.Elementary occupations	11.76	0.00	0.00	0.10	0.00	0.00	0.00	0.24
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Notes: ISCO-88 (COM) is the European Union variant of the new International Standard Classification of Occupations (ISCO-88).

When regarding the career advancement prospects the hierarchically highest group 1 is especially interesting. Compared to the retail sector the women of the IT sector are represented proportionally better in the hierarchically highest group 1 (*legislators, senior officials and managers*) and their proportion has also grown between 1995 and

1999. But on the other hand, still in 1999 the proportional share of women was less than one half of that of men in the IT sector. And furthermore, the proportional share of the second highest group 2 (*professionals*) of the occupational hierarchy were clearly smaller amongst women than amongst men.

So, as a conclusion of considering the occupational distributions and how they differ between the sexes a key question seems now to be whether the occupational gender segregation as well as women's seemingly worse prospects to enter the highest occupations in the occupational hierarchy mirror the differences in the gender distributions of human capital (education, work experience *etc.*) or rather unequal career prospects between men and women. Surely, education is one of the key factors in this connection, and consequently, we will next consider educational distributions by gender.

2.2.2. Educational distributions by gender

In the previous subchapter (2.2.1) we found traces of occupational segregation in the both sectors. A logical question hereby is whether occupational segregation relates to differences in the distribution of productivity-related individual characteristics between sexes or is it rather the case that the explanation needs to be sought elsewhere – for example in unequal treatment of men and women in the labour market? This is a central question in the analysis of the gender wage gap, but at the same time, a very demanding task to analyse. One major difficulty is the fact that when we talk about productivity distribution we cannot observe the distribution itself but rather some specific factors that determine individuals productivity. Secondly, we cannot observe *all* these productivity-determining factors. Especially, more innate characteristics (ability, diligence *etc.*) are difficult to quantify and therefore they are often excluded from analyses and the consideration is instead directed to more easily quantifiable characteristics such as individual characteristics that are not innate but actively acquired (level of education, tenure *etc.*).

In any case, education is undoubtedly one of the key attributes the employer gives attention to when hiring a new person and deciding his/her wage level. As regards the wage gap, the interest lies now in what degree (if any?) the gender distributions of educational levels resemble the gender distributions of occupational levels above. If they do, then at least some part of the observed occupational segregation, and consequently, some part of the wage gap can be explained by the fact that women are less educated than men.

In the tables 2.6 and 2.7 we report the retail sector's within-gender distributions for the educational main levels. Table 2.6 covers only the years 1995-97 because the older version of the International Standard of Education (ISCED-1976) was updated and revised in 1997. The corresponding distributions for the years 1998-99 follow the

revised ISCED-1997 and Table 2.7 presents the educational levels distributions for these years.

By looking at Table 2.6 below - and as can be expected - the majority of all employees of the retail sector has relatively low level of education. Fewer than every tenth employee possesses an education higher than the second stage of the second level education (senior secondary school (Finnish “lukio”) or vocational education programmes based on comprehensive school or equivalent lasting less than four years). Apparently, in many occupations of the retail sector occupational skills are achieved through work experience rather than through extended pre-employment education. Another striking feature is that in 1995 a considerable proportion of the employees lacked any information on their education. However, in 1997 the information is more extensive and it seems that a major share of the group “non available” can be grouped into the lowest educational levels.

Table 2.6 Retail sector’s percent frequencies for the ISCED-1976 education levels by gender, 1995-97

	Males		Females	
	1995	1997	1995	1997
ISCED-1976 EDUC. LEVELS				
2 – Educ. at the 2 nd level, 1st stage	0.00	14.95	0.00	25.08
3 – Educ. at the 2 nd level, 2 nd stage	61.16	61.07	53.16	56.60
5 – Educ. at the 3 rd level(not university)	2.22	3.67	1.71	2.26
6 – Educ. at the 3 rd level(university)	2.66	6.08	1.42	2.38
7 – Educ. at the 3 rd level(post grad.)	0.00	0.05	0.01	0.01
Non available	33.97	14.18	43.70	13.68
TOTAL	100.00	100.00	100.00	100.00

Notes: 1) ISCED-1976 refers to the old version of The International Standard Classification of Education (ISCED) designed by UNESCO in the early 1970’s.

2) The ISCED-1976 levels of education and their principal contents as applied to the Finnish school system:

2 - Educ. at the 2nd level, 1st stage = comprehensive school, upper level (grades 7-9 and the voluntary grade 10).

3 - Educ. at the 2nd level, 2nd stage = senior secondary school (lukio) or vocational education programmes based on comprehensive school or equivalent lasting less than four years.

5 - Educ. at the 3rd level (not university) = professional education programmes based on comprehensive school or equivalent lasting at least four years.

6 - Educ. at the 3rd level (university) = bachelor’s and master’s degrees or equivalent, or professional education programmes at the higher institution level (engineer, forestry engineer, sea captain).

7 - Educ. at the 3rd level (post grad.) = licentiate’s and doctor’s degrees or equivalent.

3) In each year-occupational group combination the gender with the larger within-gender proportional share has been marked in bold.

Table 2.7 below shows the distributions of levels of education for men and women when the new revised ISCED-1997 is used. Comparing Tables 2.6 and 2.7 reveals that the updating of the educational classification standard complicates the comparison between the years 1995-97 (Table 2.6) and the years 1998-99 (Table 2.7). Still, the same

features are to be seen in both tables: the lower levels of education dominate in both tables and the male dominance increases when moving up the levels of educational hierarchy. The notable share of the 5B (First stage of tertiary educ., 5B programmes) level is caused by the updating of the educational classification standard: the Finnish *merkonomi*-education (the basic degree in business and admiration) has in the new revised ISCED version ISCED-1997 been categorised as a 5B-level education whereas in the old ISCED-1976 version it belonged to the level 3. Since the *merkonomi*-degree is very common among the retail sector employees the educational distribution has not really changed that much. However, it seems that from 1995 to 1999 men's head-start over women in terms of possessing a higher average level of education has still increased in the retail sector.

Table 2.7 Retail sector's percent frequencies for the ISCED-1997 education levels by gender 1998-99

	Males		Females	
	1998	1999	1998	1999
ISCED-1997 LEVELS				
1 – Primary educ.	6.29	5.32	13.37	11.36
2 – Lower secondary educ.	7.96	7.03	9.58	8.82
3 – Upper secondary educ.	44.12	42.17	43.99	44.67
4 – Post-secondary non-tertiary educ.	0.00	0.01	0.00	0.01
5B – First stage of tertiary educ., 5B programmes	21.27	22.84	15.84	16.45
5A – First stage of tertiary educ., 5A programmes	4.52	6.15	2.07	2.57
6 – Second stage of tertiary educ.	0.04	0.04	0.01	0.00
Non available	15.79	16.44	15.15	16.10
TOTAL	100.00	100.00	100.00	100.00

Notes: 1) ISCED-1997 refers to the new revised version of The International Standard Classification of Education (ISCED), as adopted by the General Conference of UNESCO at its twenty-ninth session in November 1997.

2) The ISCED-1997 levels of education and their principal contents as applied to the Finnish school system:

- 1 - Primary educ. = Comprehensive school grades 1-6 (children 7 to 12 years of age)
- 2 - Lower secondary educ. = comprehensive school, upper level (grades 7-9 and the voluntary grade 10).
- 3 - Upper secondary educ. = Upper secondary general education (lukio) or upper vocational education.
- 4 - Post secondary non-tertiary educ. = Specialist vocational qualifications.
- 5B - First stage of tertiary educ., 5B programmes = Vocational college education.
- 5A - First stage of tertiary educ., 5A programmes = Polytechnic degrees or engineer's, forestry engineer's and sea captain's qualifications obtained in vocational colleges or higher and lower university degrees or specialists in medicine, dentistry and veterinary science, general staff officer.
- 6 - Second stage of tertiary educ. = Licentiate's and doctor's degrees.

Another observation is that the proportion of employees without any information about educational level is still too large to be left disregarded. In fact, the group "non available" in Tables 2.6 and 2.7 consists into a large degree of people having the basic education only (*i.e.* comprehensive school, upper level (grades 7-9 and the voluntary

grade 10 or equivalent) or less). This is because Statistics Finland has augmented the original PT wage statistics with educational information. By using the personal identification code each employee could have been given a code from Statistics Finland's Register of Completed Education and Degrees describing the field and level of education (in compliance with Statistics Finland's revised Classification of Education 1997). However, only employees having a higher than comprehensive school education have really given an education code in the SES data set and therefore in the analyses we have considered it as reasonable to group together the group "non available" with employees having a basic education only⁴.

Turning now our attention to the IT sector and considering first the years 1995 and 1997 we see immediately in Table 2.8 that both men and women are now much more evenly distributed across educational levels. However, the largest group both amongst men and women still consists of those having the educational level of senior secondary school or vocational education programmes (2 - Educ. at the 2nd level, 2nd stage). But, unlike in the retail sector, a significant proportion of the IT sector employees do have a university degree (22-24 per cent of women and a good 30 per cent of men). The fact that the larger relative proportion of men than that of women have a university degree may explain some part of the empirical observation that a male dominance prevails amongst the hierarchically higher occupations in the IT sector too.

Table 2.8 IT sector's percent frequencies for the ISCED-1976 education levels by gender 1995-97

	Males		Females	
	1995	1997	1995	1997
ISCED-1976 education levels				
2 – Educ. at the 2 nd level, 1 st stage	0.00	5.93	0.00	7.88
3 – Educ. at the 2 nd level, 2 nd stage	41.97	45.90	42.88	45.37
5 – Educ. at the 3 rd level(non-university)	16.61	13.54	20.05	17.46
6 – Educ. at the 3 rd level(university)	31.59	30.21	24.41	22.77
7 – Educ. at the 3 rd level(post grad.)	0.54	0.46	0.13	0.08
Non available	9.30	3.95	12.53	6.44
TOTAL	100.00	100.00	100.00	100.00

Notes: See the notes of the table 2.6.

The table 2.9 refers to the IT sector in the years 1998 and 1999 and the educational classification follows the new revised ISCED-version ISCED-1997. The overall picture is quite similar to that of Table 2.8. One point which was actually visible already in the

⁴ PT, however, has given an educational code of their own for a part of employment relationships included in their wage statistics.

Table 2.8 emerges even more clearly from Table 2.9: the distributions of men and women having a first stage of tertiary education differ significantly from each other. While the employees having a tertiary *non-university-level* education are strongly represented amongst women (about the proportion of 40 %) their proportion is much lower amongst men (about 25 %). However, the gender-specific proportions turn to the opposite when we examine people who have a tertiary *university-level* education. The proportion is now higher amongst men (about 32 %) than amongst women (about 28 %). This feature can be of consequence for the size of the gender wage gap, especially, the more career advancement depends on having a university-level education.

Table 2.9 IT sector's percent frequencies for the ISCED-1997 education levels by gender, 1998-99

	Males		Females	
	1998	1999	1998	1999
ISCED-1997 levels				
10 – Primary educ.	0.36	0.40	1.18	1.30
20 – Lower secondary educ.	2.49	2.66	3.26	3.23
30 – Upper secondary educ.	35.24	33.79	21.76	21.74
40 – Post-secondary non-tertiary educ.	0.02	0.03	0.00	0.00
5B – First stage of tertiary educ., 5B programmes	24.82	24.73	40.55	40.60
5A – First stage of tertiary educ., 5A programmes	31.81	32.18	27.81	27.96
60 – Second stage of tertiary educ.	0.54	0.45	0.11	0.18
Non available	4.71	5.76	5.33	4.99
TOTAL	100.00	100.00	100.00	100.00

Notes: See the notes of the table 2.7.

The main conclusion regarding the within-gender distributions of educational levels is that in both sectors men are proportionally more educated. Therefore some proportion of the occupational gender segregation observed in a previous chapter is obviously “acceptable” due to men’s higher educational attainment. There arises, however, some additional questions we are not able to answer in this analysis. For example, why men are proportionally better represented among the employee groups in possession of the highest levels of education in both sectors? As we know that women have constantly gained the educational head-start of men in Finland during the last decades it could be reasonable to analyse in future whether men and women having the same education in fact face equal prospects of getting employment in the sectors of the current study. Finally, an important reservation concerning our examination of educational gender distributions is that we have only considered the levels of education while the fields of education have been totally disregarded. The reservation deserves to be emphasised even more as we know that even though the head-start of men have diminished as

regards the gender differences in educational levels young men and young women are still differently distributed across the entire space of the fields of education. And thus some of the observed occupational segregation, especially in the IT-sector, may be explained by the fact that technical education is still underrepresented amongst young women.

2.2.3. Distributions for the full-time Vs. part-time status by gender

One reason for the existence of the gender wage gap is often postulated to be the recurrent observation of women having more often a part-time job than men. Of course, if we compare monthly salaries the part-timers are naturally being paid less on average than the full-timers and the larger the proportion of women consisting of part-timers the larger the wage gap is, *ceteris paribus*, likely to be. But if we compare salaries per working-hour the picture is not that clear. It could be thought that part-timers are compensated for their smaller amount of hours by a little higher hourly wage. This is an empirical issue, of course, and the more unevenly men and women and part- and full-timers are distributed across occupations the more difficult the question is to analyse.

In Table 2.10 we can see that in the retail sector a clearly higher relative proportion of women compared to men are part-timers. Depending on the analysed year the part-timers' proportion amongst women varies between 26 and 33 per cent while amongst men the corresponding proportion ranges from 15 to 19 per cent. Furthermore, the table shows that the proportion of part-timers has increased amongst both sexes during the latter part of the 1990s, even though a clear majority of both genders are still full-timers. The rise has been especially significant between the years 1997 and 1999. The most significant rise has taken place among women; the proportion of part-timers rose by over six percentage points.

Table 2.10 Retail sector's percent frequencies for the full-time Vs. part-time status by gender, 1995-99

	Males			Females		
	1995	1997	1999	1995	1997	1999
FULL-TIME/PART-TIME STATUS						
Full-time	84.54	82.81	80.86	73.63	73.15	66.94
Part-time	15.46	17.19	19.14	26.37	26.85	33.06
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00

Notes: A person is classed as a part-time employee if his/her regular weekly working hours number less than 30.

Table 2.11 IT sector's percent frequencies for the full-time Vs. part-time status by gender, 1995-99

	Males			Females		
	1995	1997	1999	1995	1997	1999
FULL-TIME/PART-TIME STATUS						
Full-time	99.55	98.20	97.91	98.55	97.83	97.91
Part-time	0.45	1.80	2.09	1.45	2.17	2.09
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00

Notes: A person is classed as a part-time employee if his/her regular weekly working hours number less than 30.

The situation in the IT sector has stayed much more stable compared to the retail sector and as can be seen from Table 2.11 both men and women in the IT sector are, almost without exception, full-timers. We shall not analyse further the reasons why the proportion of part-timers is higher in the retail sector but only note that the relatively significant proportions of the category “*non available*” and of the lower levels of education (*cf.* Tables 2.6 and 2.7 above) may indicate that many of the part-timers in the retail sector are students who are working part-time at the side of their studies.

2.2.4. Distributions for the type of employment contract by gender

In Table 2.12 one can see how men and women are distributed according to type of employment contract in the retail sector. A clear majority of both men and women have a permanent employment contract. The proportion of permanent employment relationships has even increased among both sexes towards the end of the decade. The increased proportion of permanent contracts is presumably related to a recovery of the Finnish economy from the extremely severe depression during the first half of the 1990s.

Table 2.12 Retail sector's percent frequencies for the type of employment contract by gender, 1995-99

	Males			Females		
	1995	1997	1999	1995	1997	1999
TYPE OF EMPLOYMENT CONTRACT						
Indefinite duration	88.37	89.95	93.03	87.45	91.00	93.17
Fixed-term	6.87	5.14	2.42	7.82	5.54	3.23
Trainee/Apprentice	2.28	4.91	4.55	1.56	3.46	3.59
Other (limited working ability etc.)	2.49	0.00	0.00	3.17	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00

Notes: The basic information collected by the Employers' Confederation of Service Industries in Finland did not cover all the required basic data, such as numbers of additional and overtime hours worked and earnings for these, compensation for standby duty, types of employment relationship (indefinite or fixed-term) and amounts of one-off remuneration items. In 1995 and 1998 Statistics Finland collected two sub-samples for these missing data. The sub-samples covered some one third of all the member enterprises of PT. The data collected with the samples were then imputed to apply to all employment relationships.

The emerging picture of the IT sector is even more unambiguous. Table 2.13 shows that the jobs in the IT sector are almost without exception permanent.

Table 2.13 IT sector's percent frequencies for the type of employment contract by gender, 1995-99

	Males			Females		
	1995	1997	1999	1995	1997	1999
TYPE OF EMPLOYMENT CONTRACT						
Indefinite duration	97.26	98.18	99.03	96.42	97.66	98.78
Fixed-term	2.28	1.82	0.90	2.65	2.34	1.22
Trainee/Apprentice	0.00	0.00	0.07	0.13	0.00	0.00
Other (limited working ability etc.)	0.46	0.00	0.00	0.80	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00

Notes: See the notes of table 2.12.

2.3. Men's and women's wages and gender wage ratios

After having considered some key wage determining factors and their distributions among men and women in both sectors we look next men's and women's salaries and gender wage gaps. Table 2.14 presents the average hourly base salaries of both sexes and the wage ratio of women to men in the years 1995, 1997 and 1999.

Table 2.14 Average Hourly Base Salaries for Regular Working Hours and Wage Ratios of Men and Women by Sector 1995-99

SECTOR	Female-to-Male-Wage-Ratio (%)			Average Hourly Base Wage (€)					
				Males			Females		
	1995	1997	1999	1995	1997	1999	1995	1997	1999
IT	85.43	86.82	86.35	15.65	15.63	17.86	13.37	13.57	15.42
Retail sector	80.66	75.54	75.27	9.51	10.89	11.62	7.67	8.22	8.75

Notes: The salary consists of base salary for regular working hours. The average salary is formed by summing first monthly base salaries of all the employees for each sex and sector combination separately and dividing then the sum by the sum of monthly regular working hours of the same group.

There are some “stylised facts” to notice. First, the IT sector has a clearly higher earnings level than that of the retail sector. Thus, women in the IT sector earn per working hour on average more than men in the retail sector. However, both sectors show gender wage ratios favourable to men. The situation is more equal in the IT sector and it has also remained more stable in that sector over the observation period. Maybe the most interesting observation here is that the wage gap has widened over five percentage points in the retail sector from 1995 to 1997. While the difference between the wage ratios of the two sectors was less than five percentage points in 1995, it more than doubled from 1995 to 1997. The reason for the notable widening of the gender wage gap in the retail sector cannot be answered by the descriptive analysis but requires a use of a more statistically orientated approach which we will apply later on in this study.

Table 2.15 shows the situation when in addition to the basic wage certain additional earnings supplements for regular working hours are included in the adapted salary concept. These additional components cover the following important supplements: supplements for shift, night and Sunday working hours and benefits in kind. The working hours concept still consists of regular working hours. Regarding the wage gaps, the inclusion of a wider set of earnings components had opposite consequences for the two sectors. The wage gap in the IT sector has widened between one to two percentage points whereas in the retail sector the gap is now one to two percentage points narrower than in the basic wage case. The wage gap is still, however, substantially wider in the retail sector than in the IT sector. In addition, the outcome shows once again one typical feature of wage analyses; the applied wage concept may significantly affect the conclusions to be drawn from the analysis.

Table 2.15 Average hourly salaries and the corresponding female to male wage ratios when the key supplements are included the salary concept

SECTOR	Female-to-Male-Wage-Ratio (%)			Average Hourly Base Wage (€)					
	1995	1997	1999	Male			Female		
				1995	1997	1999	1995	1997	1999
IT	84.28	85.31	85.04	16.40	16.21	18.54	13.82	13.83	15.77
Retail sector	82.37	77.39	77.02	9.96	11.50	12.24	8.20	8.90	9.43

Notes: The salary concept of the table consists of the following concepts of earnings: 1) basic earnings for regular working hours, 2) supplements for shift, night and Sunday working hours, 3) benefits in kind. The average salary is formed by summing first the aforementioned monthly salary concepts over all the employees for each combination of sex and sector separately and dividing then the sum by the sum of monthly regular working hours of the same group.

Table 2.16 shows the situation when in addition to the earnings components of the table 2.15 earnings for additional and overtime hours are included in the adapted salary concept. Furthermore, the paid working hours include now both the regular and the overtime hours. The overall picture remains the same as in Table 2.15: compared to the basic wage case (Table 2.14) the wage gap of the IT sector between one to two percentage points wider whereas in the retail sector the gap is one to two percentage points narrower. However, the wage gap remains still significantly wider in the retail sector than in the IT sector.

Table 2.16 Average hourly salaries and the corresponding female to male wage ratios when the key supplements and overtime earnings are included the salary concept

SECTOR	Female-to-Male-Wage-Ratio (%)			Average Hourly Total Salary (€)					
	1995	1997	1999	Males			Females		
				1995	1997	1999	1995	1997	1999
IT	84.27	85.08	84.87	16.46	16.33	18.75	13.87	13.89	15.91
Retail sector	82.06	77.30	76.82	10.00	11.52	12.29	8.21	8.91	9.44

Notes: The salary consists of the following concepts of earnings: 1) basic earnings for regular working hours, 2) supplements for shift, night and Sunday working hours, 3) benefits in kind, 4) earnings for additional and overtime hours worked. The average salary is formed by summing first the aforementioned monthly salary concepts over all the employees for each combination of sex and sector separately and dividing then the sum by the sum of monthly total working hours (regular working hours plus additional and overtime hours) of the same group.

Table 2.17 presents average monthly overtime earnings and the corresponding female to men ratios of monthly overtime earnings. There are several things to notice. First, the IT sector employees have significantly higher overtime earnings than the retail sector employees. The difference in overtime earnings is significant enough implying that more overtime hours are worked in the IT sector per employee than in the retail sector.

Another point is that men in both sectors have higher overtime earnings than their female co-workers. Again, the difference is so wide that it is presumably due to men doing more overtime than women in both sectors. Thus the result is also in line with previous research.

Table 2.17 Average monthly overtime earnings per employee and the corresponding female to male ratio.

SECTOR	Female to Male Ratio of Average Monthly Overtime Earnings (%)			Average monthly overtime earnings (€)					
				Males			Females		
	1995	1997	1999	1995	1997	1999	1995	1997	1999
IT	89.52	47.23	64.62	27.12	66.14	88.47	24.28	31.24	57.17
Retail sector	42.62	45.84	30.60	15.54	13.56	17.63	6.62	6.21	5.39

Notes: The average monthly overtime earnings is formed by summing monthly overtime earnings of all the employees belonging to the same combination of sex and sector and dividing the sum by the number of the same employees of that group.

When considering the development over the reference period 1995-99, the booming IT sector shows a substantial increase in the overtime hours done over the period. This applies to both sexes but here again the increase of men's overtime earnings is clearly stronger than that of women. The fact that men's overtime earnings and hours have increased much more in the IT sector than those of women can be seen distinctly by considering the corresponding female to male overtime earnings ratios. Between 1995 and 1997 the gap increased by over 40 percentage points! It seems that, for some reason, men work much more overtime than women when there is a chance and need for that. Finally, in the retail sector female to men ratio of monthly overtime earnings is even more favourable to men than in the IT sector.

Table 2.17 presented average monthly overtime earnings and the corresponding female to men ratios of monthly overtime earnings. However, looking at monthly overtime earnings alone leaves the differences between individuals' total overtime hours out of consideration. Instead, by considering both hourly and monthly overtime earnings one can see more accurately into which degree the difference between men's and women's monthly overtime earnings can be explained by men doing more overtime than women. And indeed, Table 2.18 shows that the gender averages of hourly overtime earnings (only additional and overtime hours are included in the working hours divisor) differ much less than the corresponding monthly averages. Thus it seems that men have really worked more overtime hours than women.

Table 2.18 Average hourly overtime earnings and the corresponding female to male ratios

	Female to male ratio of average hourly overtime earnings (%)			Average hourly overtime earnings (€)					
				Males			Females		
	1995	1997	1999	1995	1997	1999	1995	1997	1999
SECTOR									
IT	80.14	90.61	88.55	25.53	23.10	30.36	20.46	20.93	26.88
Retail sector	66.02	68.40	67.01	15.20	15.30	20.45	10.03	10.47	13.70

Notes: The average hourly earnings are formed by summing first monthly overtime earnings of all the employees belonging to the same sex and sector group and dividing then the sum by the sum of monthly overtime and additional hours of the same group.

We noticed above that the inclusion of supplements and overtime earnings led to opposite consequences in the two sectors as regards the gender wage gap. In the IT sector the gap widened but in the retail sector it diminished. However, looking at the female to male ratios of average hourly overtime earnings in the table 2.18 above shows that overtime earnings tend rather to narrow than to widen the wage gap in the IT sector whereas the effect is the opposite in the retail sector. Therefore it is reasonable to consider the key earnings supplements separately from other wage components in order to see their effect more distinctly. The table 2.19 presents average monthly supplements for regular working hours for men and women in each sector and during the years 1995, 1997 and 1997. Furthermore, the corresponding female to male ratios are shown in the table.

Table 2.19 Average Monthly Supplements for Regular Working Hours and the Corresponding Female to Male Ratios

	Female to Male Ratio of Average Monthly Supplements (%)			Average Monthly Supplements for Regular Working Hours (€)					
				Males			Females		
	1995	1997	1999	1995	1997	1999	1995	1997	1999
SECTOR									
IT	59.52	44.39	50.55	121.00	93.89	109.73	72.02	41.68	55.47
Retail sector	105.97	102.81	99.64	67.23	88.53	88.52	71.24	91.02	88.20

Notes: The monthly supplements include the following concepts of earnings: 1) supplements for shift, night and Sunday working hours and 2) benefits in kind. The average of monthly supplements is formed by summing first the aforementioned monthly salary concepts over all the employees for each combination of sex and sector separately and dividing then the sum by the number of employees of the same group.

The table 2.19 shows clearly how the supplements increase the gender wage gap in the IT sector and decrease it in the retail sector. The female to male ratios of the monthly supplements are much smaller in the IT sector than any of the gender wage ratios of the same sector considered before. In the retail sector the picture is totally different: the female to male ratios of the monthly supplements show that women's average monthly supplements have been even greater than those of men in the years 1995 and 1997! And in 1999 the averages of monthly supplements per employee are still practically of equal size for men and women. At the same time the amount of monthly supplements is significantly larger in both sectors when compared to that of monthly overtime earnings. Thus the final conclusion is that the effects of overtime earnings on gender wage ratios differ from the corresponding effects of supplements but the absolute magnitude of earnings supplements is larger and therefore also decisive for the sectoral gender wage gaps. In other words, the net effect tends to diminish the difference between the sectoral wage gaps.

3. ANALYSIS OF THE SECTORAL GENDER WAGE GAPS

The mere estimation of the size of the wage gap cannot give answers to such questions as what are the factors behind the observed gender gaps; or is the very existence of gender gaps a sufficient evidence of unequal treatment of women in the labour market? Instead, in order to get answers to these kind of questions we need to turn to analysing wage decompositions and that is the subject of this chapter. First we consider the retail trade sector and after that follows the same kind of analysis for the IT sector. But before going into the statistical decomposition analyses we will briefly describe the methodology to applied.

3.1. A brief description of the applied methodology

We will follow the so-called Oaxaca-decomposition approach. The following equations present two identical wage models we will estimate for both sexes separately:

$$(3.1) \quad \ln W_i^m = \sum_{k=1}^K \beta_k^m X_{ki}^m + \varepsilon_i \quad , i=(1, \dots, N^m)$$

and

$$(3.2) \quad \ln W_j^f = \sum_{k=1}^K \beta_k^f X_{kj}^f + \varepsilon_j \quad , j=(1, \dots, N^f).$$

The upper indexes ^f and ^m denote women and men, respectively and thus the equation 3.1 is the regression model for men and 3.2 the regression model for women. N^m and N^f denote the numbers of male and female employees, respectively; $\ln W_i^m$ is the natural logarithm of hourly wage for the male individual i and $\ln W_j^f$ is the same concept for the female individual j ; X_k consists of an intercept and variables, indexed by k , measuring wage-determining personal, job and other characteristics; β_k^m and β_k^f include a constant and coefficients corresponding to X_k variables, estimated from the men's and women's sub-data sets, respectively and finally ε_i and ε_j are the error terms for the male individual i and the female individual j , respectively.

Now the gender wage gap of men's and women's arithmetic means⁵ of logarithmic wages $\ln W^m - \ln W^f$ can be decomposed in the following manner:

⁵ The (unweighted) arithmetic mean of a variable X with N observations x_i ($i=1, \dots, N$) is $\bar{X} = \frac{1}{N} \sum_{i=1}^N x_i$,

where the Greek capital letter Σ ("sigma") is used to indicate the summation of x_i , i going from 1 to N . and an overbar denotes the arithmetic mean.

$$\begin{aligned}
\overline{\ln W^m} - \overline{\ln W^f} &= \sum_{k=1}^K \hat{\beta}_k^m \bar{X}_k^m - \sum_{k=1}^K \hat{\beta}_k^f \bar{X}_k^f \\
(3.3) \quad &= \underbrace{\sum_{k=1}^K (\omega \hat{\beta}_k^m + (1-\omega) \hat{\beta}_k^f) (\bar{X}_k^m - \bar{X}_k^f)}_{\text{share due to differences in gender averages of background characteristics}} + \\
&\quad \underbrace{\sum_{k=1}^K (\hat{\beta}_k^m - \hat{\beta}_k^f) ((1-\omega) \bar{X}_k^m + \omega \bar{X}_k^f)}_{\text{share due to differential returns to characteristics}}
\end{aligned}$$

where the estimated male and female parameters are weighted by the terms ω and $(1-\omega)$ respectively ($0 \leq \omega \leq 1$); and $\hat{\beta}_k^m$ is the ordinary least squares estimate of the corresponding coefficient. In some decomposition studies, the data set male and female proportions are used to weight the regression coefficients in order to approximate a “nondiscriminatory” or full data set wage structure (see Oaxaca and Ranom [1994] and Macpherson and Hirsch [1995] for an analysis of alternative wage decompositions). However, in order to avoid the situations in which a change in the gender proportions affects decomposition results between two time periods even though the male and female parameter estimates ($\hat{\beta}_k^m$ and $\hat{\beta}_k^f$) have not changed we chose to use equal weights (*i.e.* $\omega=0.5$). Thus, in each year and sector we give an equal weight on both of the two sets of parameter estimates estimated from the female and male data sets.

Now the term on the line 2, *i.e.* $\sum_{k=1}^K (\omega \hat{\beta}_k^m + (1-\omega) \hat{\beta}_k^f) (\bar{X}_k^m - \bar{X}_k^f)$, represents the “*explained*” portion of the gap, that owing to differences in the gender averages of the explanatory X_k -variables. The term on the line 3 $\sum_{k=1}^K (\hat{\beta}_k^m - \hat{\beta}_k^f) ((1-\omega) \bar{X}_k^m + \omega \bar{X}_k^f)$ represents the “*unexplained*” portion of the gender differential, that owing to differences in gender-specific coefficients estimates $\hat{\beta}_k^m$ and $\hat{\beta}_k^f$ (f =female, m =male).⁶ The both terms can be further disaggregated to examine separate contributions of a single or selected groups of explanatory X_k -variables to both the “*explained*” and the “*unexplained*” portions of the wage gap.

⁶ Actually, each estimated coefficient of any wage-determining factor characterising an individual’s productivity or her/his job (education, occupation, work experience *etc.*) can be interpreted as a kind of “shadow price” of that characteristic. Thus, if the estimated coefficients of the same characteristic diverge depending on whether the coefficient was estimated from a male or from a female data set, we can suspect that men and women are not remunerated at the completely equal rate for the same characteristic. Note, however, that the estimates can be quite variable and change often simultaneously with the model specification.

3.2. Decompositions of the Finnish retail sector

In Table 3.1 (page 38) we present Oaxaca decompositions for the Finnish retail trade. The first thing to consider is the total wage gap between men's and women's logarithmic hourly mean wages and the way it evolves over the observation period. The total wage gap is found on the first row (row 1) of the table and shows an increase of 3.6 log percentage points⁷ in the total gap from the year 1995 to 1999⁸. Moving down the table we find how this increase in the wage gap can be decomposed into two parts: one (row 2) due to changes in the average characteristics of men and women and the second (row 3) due to changes in the way men and women, respectively, are remunerated for their individual and other characteristics *i.e.* the portion of the gap dependent on the estimated parameters.

⁷ The logarithmic change of y and x (*i.e.* $\log_e(y/x) = \log_e y - \log_e x$) is often called *the log change*. We follow here Törnqvist *et al* (1985, p. 45) and call the log changes (or differences) multiplied by 100 ($100 \log_e(y/x)$) *log percentages* and their units *log percentage points*.

⁸ It must be kept in mind that we decompose a logarithmic ratio of men's *geometric* mean hourly wage to women's *geometric* mean hourly wage *i.e.* the wage gap can be written as follows:

$$\overline{\ln W^m} - \overline{\ln W^f} = \ln \left(\frac{\underline{W^m}}{\underline{W^f}} \right),$$

where underbars indicate *geometric* means (the *geometric* mean of a variable X

with N observations x_i ($i=1, \dots, N$) is $\underline{X} = \sqrt[N]{\prod_{i=1}^N x_i} = \left\{ \prod_{i=1}^N x_i \right\}^{\frac{1}{N}}$, where the Greek capital letter Π ("pi") is used

to indicate the product of successive values x_i , i going from 1 to N). Note also that both the arithmetic mean logarithmic wages (overbars) and geometric mean wages (underbars) present in the wage ratio above have been calculated using individuals as weights. Thus, the wage gaps presented in the decomposition tables 3.1. and 3.2 differ from those of Chapter 2 in which mean wages were calculated by using working hours as weights and the wage gaps were calculated from *arithmetic* mean wages. In addition and as opposed to the current Chapter 3, in Chapter 2 the wage gaps were calculated as ratios of women's mean wage to men's mean wage. And finally, the Oaxaca decompositions presented in Tables 3.1 and 3.2 has been calculated using a smaller number of employees than that of the original data because of necessary data set restrictions.

Table 3.1 Oaxaca Decompositions for the Finnish Retail trade sector 1995-99

	year			
	1995		1999	
	Model		Model	
	A	B	A	B
(1) Total log wage gap	0.145	0.145	0.181	0.181
<i>of which amount due to</i>				
(2) differential distributions of characteristics	-0.025	0.063	0.007	0.085
(3) differential returns to characteristics	0.170	0.082	0.173	0.096
<i>Differences due to characteristics</i>				
(4) Age	-0.020	-0.014	-0.012	-0.008
(5) Tenure	-0.002	-0.001	0.000	-0.000
(6) Regular hours	-0.004	-0.012	-0.002	-0.011
(7) Firm size	-0.006	-0.004	-0.006	-0.004
(8) Permanent job	0.001	0.000	0.000	0.000
(9) Education	0.007	0.004	0.028	0.011
(10) Occupation		0.089		0.098
<i>Differences due to parameters</i>				
(11) Intercept	-0.380	-0.189	-0.262	-0.211
(12) Age	0.433	0.219	0.369	0.274
(13) Tenure	0.006	-0.007	0.027	0.009
(14) Regular hours	0.086	0.057	0.036	0.009
(15) Firm size	-0.001	-0.004	0.011	0.001
(16) Permanent job	0.021	0.003	-0.002	0.024
(17) Education	0.006	0.007	-0.005	-0.007
(18) Occupation		-0.004		-0.002
<i>Model diagnostics</i>				
(19) R ² of the men's model	0.284	0.573	0.424	0.670
(20) R ² of the women's model	0.167	0.384	0.235	0.472
(21) Number of employees in the men's model	6766 (6799)	6288 (6799)	13427 (13619)	13042 (13619)
(22) Number of employees in the women's model	24082 (24410)	23558 (24410)	41209 (41791)	40117 (41791)

Notes: * Number of employees in calculations after data restrictions (the corresponding unrestricted original number of employees in the parentheses below).

(1) The dependent variable: logarithm of monthly base wage per regular monthly working hours (in addition to base wage the following earnings and working time concepts were included: 1) benefits in kind, 2) shift, night and Sunday work supplements.

(2) The explanatory variables: intercept, square of age, number of regular monthly working hours, indicators for education (1995 data: ISCED 76 2-digit code and 1999 data: ISCED 97 2-digit code), number of employees in the employer firm, indicator for fixed-term employment contract, tenure (number of years in the current firm's service), indicators for detailed job titles.

(3) Data restrictions: 1) only those employees included who neither entered nor left the local unit during the reference month (Basis2=1), 2) 4.20 € (25 FIM) < the hourly wage < 67.27 € (400 FIM).

(4) Only those job title and education classes were used which had at least 2 observations for both sexes.

(5) The data refers to the situation in each year's October.

In this connection the estimated models A and B need some clarification. As can be seen in Table 3.1 we have estimated two models for both years. The essential difference between the models A and B is that only the model B is estimated using indicator variables which capture the detailed (*i.e.* narrowly defined) occupation titles included in our SES data set (originally the adopted occupational classification was developed and used by PT - the main employer organisation in the Finnish service sector). The rest of the variables are the same in both model specifications and they were chosen on the basis that we included only those variables in the both model specifications whose coefficient estimates deviated statistically significantly from zero (the two-sided Student's *t*-test and the level of significance of 0.05) at least in either of the model specifications in each year. However, the indicator variables denoting individuals' education and occupational titles were the exceptions here: the decision of whether to include the indicator variable corresponding to a certain education or job title – and consequently, the individuals possessing the same education or job/occupation – in the estimated regression model was made on the different basis, namely, that there needed to be at least two persons amongst both men and women who had that specific education or job title. Because of these unavoidable data restrictions, it followed that the number of employees in each separate regression model estimation tended to be smaller than in the original data set. And as the composition of employees varied from estimation to estimation depending on whether the detailed job titles were included or not it is natural that the statistical significance of the estimated parameters tended to vary too.

So, regarding the two models A and B it can be seen immediately that the inclusion of job titles is of primary importance to our decomposition analysis. In the both years 1995 and 1999 the portion of the gap (row 3) explained by the unequal rates of returns (*i.e.* rewards) to individuals' wage-determining characteristics reduced by about one half of its previous size (17.0 to 8.2 and 17.3 to 9.6 log percentage points in the years 1995 and 1999, respectively). Another detail emphasising the importance of occupations is to be found at the bottom of the table 3.1 where the significant increase in R^2 (the portion of variation of individuals' wages explained by the estimated model) following the inclusion of detailed job titles underlines the central role the individual's occupation/job play for her/his wage-level.

When starting to examine each variable's independent individual effects it can be seen that individuals' age belongs to the most important determinants in our decompositions. The negative differentials between men's and women's average ages (row 4) means that women are on average older than men in the Finnish service sector. And as age has a positive effect on the individual's wage it follows that the negative average age differential decreases the wage gap. When looking "the other side of the coin", that is, the returns to age (row 12) the picture is quite different. Age tends to increase a man's salary much more rapidly than that of a woman endowed with the identical characteristics. Notice also the important role that detailed job titles have here too. That

is, when controls for detailed occupations are added to the model the share of the differential explained by the unequal returns to age is substantially diminished (row 12). Note also that the notable share of the effect coming from men's lower intercept term (row 11) is related to the fact that the returns to age favour very strongly men and therefore the difference between the men's and women's intercept terms estimates indicating the (in this connection admittedly quite artificial!) "zero years of age" level has such a large negative value.⁹

The role of narrowly defined job titles is so significant that it needs to be analysed in some further detail. Actually, the question of how to take into account the role of occupation in wage decompositions is very crucial. On the one hand, and as we have just seen, occupation explains so large a part of variation between individuals' wages that it just cannot be ignored in a gender gap analysis. On the other hand, one has to be very careful when interpreting the role of job/occupation for the gender gap. The observation that including controls for occupation led to a substantial decrease in the share explained by the unequal returns to age (row 12) at the same time that the share explained by men and women having been distributed differently between jobs (row 10) rose to the more than half of the total gap (e.g. in 1995 8.9 log percentage points of the total 14.5 log percentage points) indicates significant *occupational segregation*. Furthermore, since we analyse cross-sections here and since it seems that age captures to a large extent the effect of occupation in the model A it can be concluded that the older men of the current data set have succeeded much better in advancing during their work career than the older women.

Of course, on the basis of the conducted analyses we cannot say anything exact about the reasons behind these different career paths of older men and older women of the Finnish retail sector. Neither can we say if the gender differences in career paths will remain the same as younger men and women of the current data set grow older, *i.e.*, if the gender differences in career prospects between men and women are diminishing or not. But in any case, it is important to understand that the resulting decrease in the portion due to differential returns to wage-determining individual characteristics after having added controls for occupation does not mean that the unequal treatment of women *vis-à-vis* men can only be found in the remaining part of the gender gap explained by differential male and female parameters. In fact, if occupational segregation can, at least partly, be explained by men's and women's unequal possibilities to enter certain jobs or occupations then a part of the portion of the gender gap explained by gender differences in distributions across jobs is due to unequal

⁹ If we had measured age by a variable in which, say, sixteen (the age at which compulsory schooling ends in Finland) had been first subtracted from each individual's age, both the part of the wage gap due to the difference between men's and women's intercept terms (row 11) and due to the difference between men's and women's estimated coefficients of age (row 12) would have been smaller (and the first part might have even turned positive!). This is, however, merely a technical question and has no effect on the validity of our decomposition results. In fact, the same remark concerns the other continuous independent variables in the model: *i.e.* "tenure" (row 13) and "regular hours" (row 14), as well.

treatment of women. Thus, unequal treatment of women may be hidden not only in differential returns to characteristics but also in differential gender distributions of background characteristics.

Even though age is clearly the most significant individual variable in explaining the part due to differential returns to wage-determinants, the role of the number of *regular hours* (14) deserves some notice too. The significance of regular hours was at its height in 1995 but declined then towards 1999. The interpretation of the positive difference between male and female coefficients is somewhat ambiguous. In any case, we can say that as a woman's and a man's numbers of regular hours increase by the same amount the man's wage grows proportionally more. It seems also that regular hours capture some variation between the average hourly wages of different jobs. This can be seen from the fact that the effect of regular hours diminishes when narrowly determined job titles are included in the model (specification B). It may be the case that the jobs paying higher hourly wages are often connected with a larger number of regular monthly hours and thus the observation of regular hours having a more important effect on increasing men's hourly wages may actually reflect men's better prospects in advancing along the career path.

After analysing the part of the gap due to differential returns to characteristics the consideration of the part due to gender-differentials in background characteristics helps us to explain more precisely the reasons for the significant rise in the retail sector's gender gap (row 1) between 1995 and 1999. Here the role of educational gender-distributions (row 9) seems to be important as an auxiliary explanatory factor for the rise in the total gender gap. Looking at the row 9 it can be seen that between 1995 and 1999 the effect of men and women being differently distributed across the entire space of levels and fields of education (here the 2-digit ISCED code) has increased. In other words, over the observation period 1995 to 1999 the proportion of men having such a level and/or field of education which increases one's probability to achieve a better paid job has risen more than the corresponding proportion amongst the women of the same sector. This has had its own effect on the observed increase in the overall gap. Notice also the role of occupational gender-distributions (row 10). After including detailed job titles into the model the effect of differences in the educational gender-distributions diminish but the part due to men being in better paid occupations increases the total gap quite significantly. Thus it seems that a part of the increase in the total gender pay gap can be explained by men's improved educational attainments which, in its turn, may explain some of the increased occupational segregation too. Another question is then why men are so well represented amongst the most educated employees in the retail sector?

Thus concluding the central findings with regard to the Finnish retail sector, the gender pay gap of the Finnish retail sector grew by 3.6 log percentage points between 1995 and 1999. The inclusion of detailed job titles proved to be of primary importance to our

decomposition analysis. After inclusion of detailed job titles the fraction of the gap explained by the unequal rates of returns to individuals' wage-determining characteristics reduced almost to half of its previous size in the both years 1995 and 1999. Along with occupation, age emerged as another very important determinant for the observed wage gap tending to increase a man's salary much more rapidly than that of a woman endowed with the identical characteristics. Furthermore, we observed that including controls for occupation led to a substantial decrease in the share explained by the unequal returns to age. This combined with the finding that more than half of the total gap could be explained by men and women being distributed differently across jobs indicates significant *occupational segregation*. The observation that men's educational attainments seems to have improved evidently explains some of the significant increase of the total gender pay gap and men's improved education may also explain some part of the observed increase in occupational segregation. In any case, occupational segregation is major factor behind the existence of the retail sector's total wage gap. Furthermore, the fact that we used a cross-sectional data combined with the finding of age picking some of the effect of occupation in the model A (with no controls for occupation) indicates that amongst the older female and male employees men have succeeded much better in getting possession of the better paying jobs and occupations. Thus women's unequal gender advancement prospects cannot be excluded as an potential explanatory factor for the retail sector's total gender wage gap.

3.3. *Decompositions of the Finnish IT sector*

Next, we will turn to decompositions of the Finnish IT sector. Table 3.2 shows a similar Oaxaca decompositions table to that of Table 3.1 above, except now we will analyse the IT sector's employees. Following the same route as before we start by considering first the total wage gap between men's and women's logarithmic hourly mean wages. Now the gap (row 1) differs between the models even if the decompositions concern the same year. The explanation for this can be found on rows 21 and 22 at the bottom of the table: namely, the inclusion of controls for occupation has led to a substantial decline in the number of female employees in the model specification B. Especially in 1995, the number of female employees decreased by 20 percent (from 737 to 582) while the number of male employees decreased by 7.6 per cent (from 3276 to 3043). The following effect on the gender wage gap was quite significant: it declined from 17.4 log percentage points to 11.2 log percentage points.

When comparing the development of the gender wage gap (row 1) between the years 1995 and 1999 we find that the gaps corresponding to the two models A and B have gone through opposite developments. According to the model A the gender gap in the Finnish IT sector has declined from 17.4 log percentage points to 15.7 percentage points but according to the model B the gap has in fact increased from 11.2 log percentage points to 13.4 percentage points. These are so drastic differences that some clarification

is, quite obviously, needed. An apparent reason is that the inclusion of occupations has led to exclusion of such occupations and jobs in which occupational segregation is most significant. Evidently, some female dominated and simultaneously low paid jobs has been excluded from the analysis of the model B. Essential in this respect is that the decrease in the number of women due to model specification was significantly larger in 1995 than in 1999. While the number of women declined by 20 percent (from 737 to 582) in 1995 as occupation was added to the model the corresponding decrease was only eight per cent (from 3308 to 3043) in 1999.

Again, moving down the table 3.2 we find how the estimated wage gaps can be decomposed into two parts: one (row 2) due to the change in the average characteristics of men and women and the second (row 3) due to changes in the way men and women, respectively, are remunerated for their individual and other characteristics *i.e.* the portion of the gap dependent on the estimated parameters.

Regarding the rows 2 and 3 it can be seen that the inclusion of job titles is of the primary importance to our IT sector decompositions too. The most drastic change took place in 1995: the portion of the gap (row 3) explained by the unequal rates of returns to individuals' wage-determining characteristics reduced almost to the third of its previous size (14.3 to 5.4 percentage points)! Yet, in 1999 the change was very significant too: the portion declined by over a half of its previous size (17.5 to 7.9 percentage points). Identical for both specifications was the result that the part of the gender wage gap explained by gender differences in returns to characteristics (row 3) grew between 1995 and 1999. Thus, even after controlling occupation, it still seems that the probability for women to encounter unequal treatment in the IT sector may have grown from 1995 to 1999.

Table 3.2 Oaxaca Decompositions for the Finnish IT sector 1995-99

	year			
	1995		1999	
	Model		Model	
	A	B	A	B
(1) Total log wage gap	0.174	0.112	0.157	0.134
<i>of which amount due to</i>				
(2) differential distributions of characteristics	0.031	0.058	-.018	0.055
(3) differential returns to characteristics	0.143	0.054	0.175	0.079
<i>Differences due to characteristics</i>				
(4) Age	0.018	0.008	-.023	-.014
(5) Tenure	0.000	0.000	-.001	-.000
(6) Regular hours	0.001	-.000	-.000	-.001
(7) Firm size	0.001	-.000	0.000	0.000
(8) Permanent job	0.000	-.000	0.001	-.000
(9) Education	0.010	-.007	0.004	-.000
(10) Occupation		0.058		0.070
<i>Differences due to parameters</i>				
(11) Intercept	0.025	-.468	0.060	-.095
(12) Age	0.114	0.241	0.384	0.205
(13) Tenure	0.008	-.001	-.009	-.006
(14) Regular hours	0.215	0.407	-.081	0.034
(15) Firm size	-.021	-.021	-.065	-.035
(16) Permanent job	-.014	-.017	0.006	0.021
(17) Education	-.184	-.072	-.120	-.003
(18) Occupation		-.014		-.041
<i>Model diagnostics</i>				
(19) R ² of the men's model	0.336	0.625	0.309	0.626
(20) R ² of the women's model	0.406	0.653	0.328	0.667
(21) Number of employees in the men's model	1063 (1108)	1010 (1108)	6227 (6271)	6128 (6271)
(22) Number of employees in the women's model	737 (758)	582 (758)	3276 (3308)	3043 (3308)

Notes: * Number of employees in calculations after data restrictions (the corresponding unrestricted original number of employees in the parentheses below).

(1) The dependent variable: logarithm of monthly base wage per regular monthly working hours (in addition to base wage the following earnings concepts are included: 1) benefits in kind, 2) shift, night and Sunday work supplements.

(2) The explanatory variables: intercept, square of age, number of regular monthly working hours, indicators for education (1995 data: ISCED 76 2-digit code and 1999 data: ISCED 97 2-digit code), number of employees in the employer firm, indicator for fixed-term employment contract, tenure (number of years in the current firm's service), indicators for detailed job titles.

(3) Data restrictions: 1) only those employees included who neither entered nor left the local unit during the reference month (Basis2=1), 2) 4.20 € (25 FIM) < the hourly wage < 67.27 € (400 FIM).

(4) Only those job title and education classes were used which had at least 2 observations for both sexes.

(5) The data refers to the situation in each year's October.

As regards to the individual variables' separate effects the importance of the detailed or narrowly defined job titles emerges strongly again. Note that the effect of occupation for male and female holders of the same occupation (row 18) is actually favourable to women. The segregation of genders into different jobs and occupations, however, tends to widen the gender wage gap (row 10) much more significantly.

The unequal returns to men's respectively women's age are still the most important determinant of the gender gap. However, unlike in the case of retail sector above, the effect of age on the wage gap is not as unambiguous in the IT sector. Note especially that the consequences of adding controls for occupation turned out to be opposite in 1995 and 1999: in 1995 the part of the gender gap due to differential returns to age even increased after including detailed job titles in the model; but in 1999 the consequences of adding occupation as an explanatory variable in the wage model B were similar to those of the retail trade analysis above, namely, the part of the wage gap due to differential returns to age diminished after having added controls for detailed occupational categories in the model specification. The 1995 year's exceptional interaction between age and occupation comes, quite probably, from the fact that the inclusion of occupation in the model specification B led to a 20 per cent reduction in the number of female employees in 1995.

As can be expected, formal education has an important role in such sector as the IT sector which is characterised by rapid technological change. And indeed, we see this in Table 3.2 too where – in contrast to the retail sector results of Table 3.1 - the gender differences in the returns to education are quite visible. The row 18 shows that women have been remunerated - *ceteris paribus* – even better than men for their educational attainments in the Finnish IT sector during the observation period. In 1995 controls for occupation only diminish this for women favourable difference but in 1999 the difference actually disappears after having included controls for occupation. Two things needs to be paid attention to here. Firstly, the empirical observation that controls for occupation diminish the difference of the returns to education between men and women may again be connected with occupational segregation which, in its turn, tends to widen the gender wage gap. Secondly, the towards women favourable returns to education seem to have become noticeably smaller in 1999.

As we know that the Finnish IT sector grew rapidly during the latter part of the 1990s with the consequence that the number of firms and employees in the corresponding PT data set also grew significantly, it may be interesting to try to analyse whether the observed changes in the sectoral wage gap depend on the inclusion of new firms in the data set, or alternatively, whether the same kind of developments can be found by considering only those firms that belonged to the data set already in 1995. The table 3.3 shows a similar presentation of the decompositions results than Table 3.2 but this time only the firms already present in the data set in 1995 are included in the analysis.

The total wage gap can be seen again on the row 1 of Table 3.3. And indeed, following only the panel of the same firms between 1995 and 1999 changes the picture of the development of the men's and women's positions in the Finnish IT sector. The main outcome seems to be a significant decrease in the gender wage gap independent of the model specification: according to the model A the gap has decreased by 5.9 log percent points and according to the model B the decrease was 4.5 log percentage points.

When considering the reasons for the decrease in the wage gap we see (*cf.* the row 2 in Tables 3.2 and 3.3) that in the case of Model A (*i.e.* no controls for occupation) the main explanation is the decrease in the part due to differential returns to characteristics by 4.4 log percentage points (from 17.5 to 13.1). Comparing the rows 11-18 of Tables 3.2 and 3.3. we see in more detail what are the factors leading to this change. In many of the wage determinants there have occurred such shifts in the estimated female and male parameters that have decreased the part of the wage gap arising from unequal remuneration of the background variables (row 3). The largest changes in this respect are found in age, regular hours and education.

When we move to the model specification B and the set of narrowly defined occupations is added into the model the part explained by unequal returns to background characteristics (row 3) diminishes again remarkably. At the same time the individual effect of men and women being distributed differently across occupations (row 10) increases the wage gap by 3.5 log percentage points. However, the change in the effect of unequal returns to age (row 12) from positive to negative eliminates the effect of divergent occupational distributions between the two genders with the consequence that the total gender gap decreases by 4.8 log percentage points to only 6.7 log percentage points. So again, it seems to be the case that before inclusion of occupations into the model a part of their effect on the gender gap is captured by age. And therefore even in the case of the sub-data set covering only the older firms it seems that *occupational segregation* remains an important explanatory factor for the gender wage gap.

Table 3.3 Oaxaca Decompositions for the Finnish IT sector 1995-99. Only the firms belonging to the data set already in 1995 included

	year			
	1995		1999	
	Model		Model	
	A	B	A	B
(1) Total log wage gap	0.174	0.112	0.115	0.067
<i>of which amount due to</i>				
(2) differential distributions of characteristics	0.031	0.058	-.016	0.016
(3) differential returns to characteristics	0.143	0.054	0.131	0.052
<i>Differences due to characteristics</i>				
(4) Age	0.018	0.008	-.021	-.014
(5) Tenure	0.000	0.000	0.000	0.000
(6) Regular hours	0.001	-.000	-.002	-.004
(7) Firm size	0.001	-.000	0.001	0.001
(8) Permanent job	0.000	-.000	0.000	0.000
(9) Education	0.010	-.007	0.005	-.002
(10) Occupation		0.058		0.035
<i>Differences due to parameters</i>				
(11) Intercept	0.025	-.468	0.425	0.298
(12) Age	0.114	0.241	0.218	-.059
(13) Tenure	0.008	-.001	-.008	-.011
(14) Regular hours	0.215	0.407	-.290	-.132
(15) Firm size	-.021	-.021	-.053	-.013
(16) Permanent job	-.014	-.017	0.020	0.038
(17) Education	-.184	-.072	-.181	-.024
(18) Occupation		-.014		-.046
<i>Model diagnostics</i>				
(19) R ² of the men's model	0.336	0.625	0.293	0.654
(20) R ² of the women's model	0.406	0.653	0.315	0.668
(21) Number of employees in the men's model	1063	1010	3317	3188
(22) Number of employees in the women's model	737	582	1807	1567

Notes: The results concerning 1995 are the same as in Table 3.2. The results concerning 1999 have been calculated using only those firms which belonged to the PT data set already in 1995. Otherwise, see the notes of Table 3.2.

All in all, the overall picture of the gender pay gap of the Finnish IT sector and its development between the years 1995 to 1999 seems to be the following: The Finnish IT sector has grown significantly over the observation period 1995-99 both because the older firms included already in the 1995 data set have increased their number of employees and also because new firms have joined PT. When we consider the developments of the Finnish IT sector over the period using both the old and new member firms there arises two different developments in opposite directions. First, according to the model A the total gap has even diminished between the considered years. But, on the other hand, when we consider the part of the gender wage gap due to unequal returns to characteristics it shows a distinct change in favour of men. The main reason for this for women unfavourable change is the increased difference between men's and women's returns to age. After inclusion of detailed occupations into the model (the model specification B) the conclusion is not as unambiguous. However, the specification B entails a data restriction of women by 20 percent which may weaken its reliability. So it seems that we cannot exclude completely the possibility that there has been a negative "catching-up" process going on in the Finnish IT sector during the latter part of the 1990s as regards the women's labour market position *vis-à-vis* that of men between the Finnish IT and retail sectors.

The conclusion is not as negative if we analyse the firm panel covering only the firms included already in the data set in 1995. And finally, one common central feature of the both analysed sets of the IT sector's enterprises is that occupational segregation is a major determinant for the very existence of the gender wage gap. In this connection one thing we have not analysed here is the issue into which degree the new and older firms in the current IT data set differ from each other. And furthermore, what might be the main differences then. Thus a promising direction for further research might be to analyse potential differences between the structures of PT's new and old member firms.

3.4. Comparison of the wage gaps between the Finnish retail and IT sectors

After having analysed the retail and IT sector's wage decompositions separately we move next to a comparison of these two sectors. Our main interests as regards the decompositions of wage differences can be summed up in the following three questions/issues:

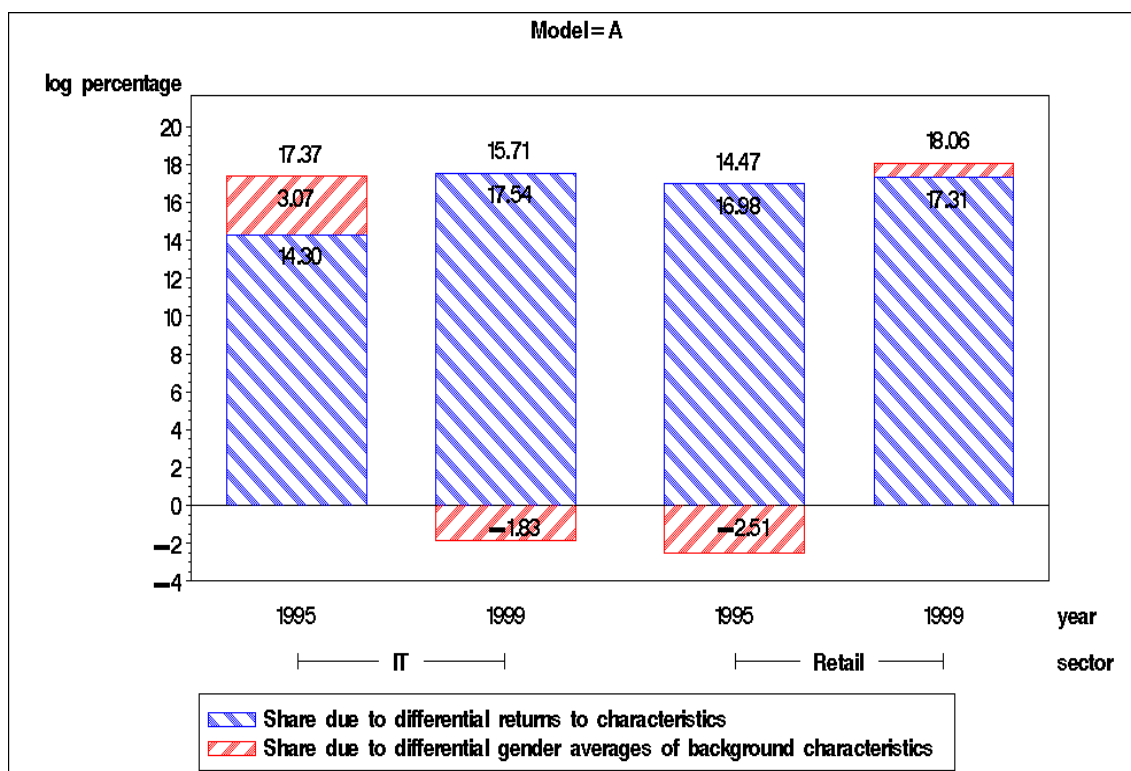
- a) We want to know whether the gender wage gap and its structure differ between the sectors?
 - b) The second question relates to the portion of the wage gap explained by differential returns to characteristics. Thus we want to know whether the portions due to differential remuneration rates differ between the retail sector and the IT sector?
-

- c) The third issue relates to the stability of the decompositions results when the model specification changes – *i.e.*, when the model is augmented with narrowly defined job titles. We will compare sectoral decompositions with no controls for occupation (model specification A) with decompositions in which detailed job titles are included (model specification B).

We start by looking at Figure 3.1 which shows the main “building elements” of the wage decompositions based on the model specification with no occupational controls (decomposition of the model A corresponding to Tables 3.1 and 3.2 above). The figure consists of four separate vertical bars so that the two first bar in the left present the wage gap and its main elements for the IT sector in 1995 and 1999, respectively, and then follows the bar for the retail sector decomposition of 1995 and lastly the bar at the far right of the figure shows the retail sector’s wage gap with its main elements for 1999. Each bar consists of two segments: the one with right-slanting lines shows the portion of the gap explained by the aggregated effect of differences in gender averages of all the background variables (the so called *explained* part); and the second segment with left-slanting lines shows the aggregated effect of the part due to differential returns of all the background characteristics (the so called *unexplained* part). The figures above each bar denote the total gender gap and the figures inside the bars denote the share of the corresponding segment of the total gap. Note that there are two segments with right-slanting lines which have negative values meaning that women possess on average a larger proportional share of all the wage-determining characteristics.

The first issue is the absolute size of the sectoral gaps showing opposite developments in the two sectors. While in 1995 the IT sector’s total wage gap was almost three log percentage points larger than the retail sector’s total gap (17.37 and 14.47 log per cent respectively) the situation had changed to the opposite by 1999 when the IT sector’s wage gap had decreased being more than two log percentage points smaller than the retail sector’s gap (15.71 and 18.06 log per cent respectively). The main reason for the change in the relative sizes of the sectoral gaps into the reverse order is the substantial change in the distribution of the background characteristics (right-slanting lines) in the IT sector: between 1995 and 1999 the portion due to differential gender averages changed in favour of women by almost five log percentage points (3.07 log percentage points of 1995 *vis-à-vis* (minus) -1.83 log percentage points of 1999) in the IT sector. When looking at Table 3.2 (row 4) we see that the reason for that the portion due to differential gender averages changed in favour of women is the increased average age of women. The average age of the women working in the IT sector increased significantly during the observation period with the result that in 1999 the average age of women was clearly higher than that of men. This change was so large that it outweighs even another opposite result that the portion due to differential returns to characteristics (left-slanting lines) actually changed in favour of men by over three log percentage points (from 14.30 to 17.54) between 1995 and 1999. Instead in the retail sector, the portion due to differential gender averages did change in favour of men by about three log percentage points from (-2.51 to 0.7) over the same years.

Figure 3.1 Comparison of the IT and the retail sector decompositions – no controls for occupation



Notes: For explanations of the concepts see Tables 3.1 and 3.2. above.

Thus, as regards the composition and the development of the sectoral wage gaps it seems that the main story of Figure 3.1 is the following: the major share of the both sectors' total gender gap can be explained by differential returns to characteristics between men and women. In 1995 this "unexplained" part of the gender wage gap - including potentially a part due to differential treatment of men and women - was larger in the retail sector than in the IT sector (16.98 log percentage points and 14.30 log percentage points respectively). But 1999 the difference between sectors seems to have vanished (17.31 log percentage points and 17.54 log percentage points respectively). In this respect between 1995 and 1999 a negative "catching-up" process regarding women's position seems to have taken place in the Finnish IT sector. However, the development of the *total* wage gap of the IT sector was the opposite: it diminished by 2.9 log percentage points between 1995 and 1999.

Instead, the change in the order of magnitude of the two sectors' wage gaps between 1995 and 1999 depends more on the change in the sectoral gender distributions of the background characteristics. The key factor here was the change in the retail sector's average ages by gender so that by 1999 women's average age had become clearly higher than that of the men of the same sector.

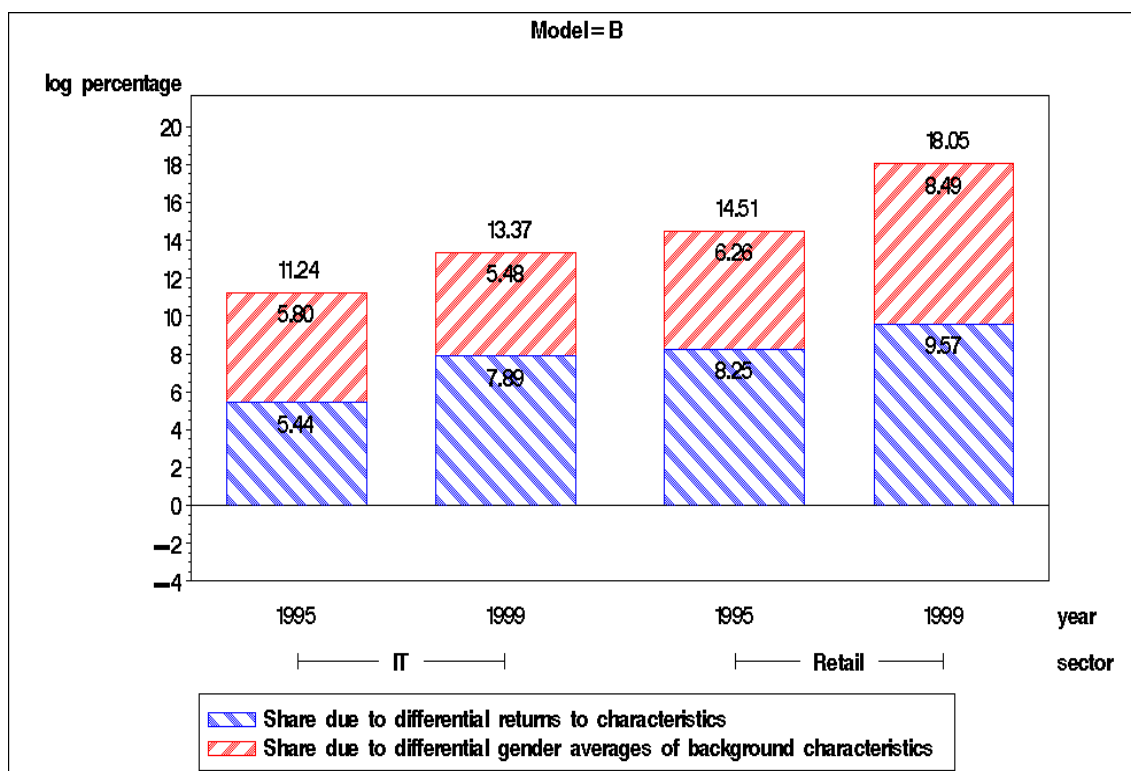
There are some reservations, however, one has to keep in mind when interpreting the decomposition results shown in Figure 3.1 above. Firstly, as was discussed in Chapter 2 and can be seen in Table 3.2 (rows 21 and 22), the number of employees in the analysed data set increased from under 2000 in 1995 to over 9000 in 1999. The reason for this increase is that the number of firms have increased substantially in the used IT sector data over the observation period. Thus the increase in the part of the total gap explained by differential returns to characteristics may indicate changes in the composition of our IT sector data set rather than that the treatment of women would have turned more unequal during the later part of the 1990s. In other words, the augmentation of the IT sector data with new firms seems to have changed the gender gap of the IT sector in favour of men but since many of the firms included in the 1999 year's data were not included in the IT sector data already in 1995 we cannot say what was the men's and women's respective situation in these firms in that year.

We presented, however, in Table 3.3 wage decompositions restricting to only those firms that were PT members already in 1995 and therefore also belonged to that year's data set. The main outcome of this sub-analysis was that the wage gap seemed to be smaller in this case than when PT's new and old member firms were analysed together. The gender difference in the returns to background variables was also somewhat smaller in the old member firms. Occupational segregation, however, seemed to be a central explanatory factor for the existence of the wage gap in the both groups of IT firms. It needs to be emphasised that one has to be careful with interpreting these observations since we did not conduct any further analysis of whether the composition of the old and new member firms differs from each other in some such aspect which might offer an explanation for the divergent wage gaps between the two sub-samples of the Finnish IT sector firms.

The second reservation concerns the model specification. Consideration of R^2 -indicators of model fit in Tables 3.1 and 3.2 (rows 19 and 20) shows that the explanation power of the model with no controls for occupations is quite modest especially for the women of the retail sector. The question is now to which degree the modest explanation power weakens the reliability of the decompositions results.

One way to approach this issue is to consider what consequences the inclusion of detailed job titles have for the explanation power of the models and for the stability of decompositions. In Figure 3.2 we present decompositions results after having added controls for detailed job titles used by PT (the main employer organisation of the Finnish service sector and the collector of the current service sector data). The major difference now between the decompositions of Figures 3.1 and 3.2 is that the addition of job titles into the model (B) has led to a very significant increase in the proportional size of the part of the wage gap due to gender differences in the background characteristics (right-slanting lines). This shows again the importance of narrowly defined job titles as determinants for individuals' wages. The inclusion of job titles led also to a very clear increase in the explanatory power of model specifications as can be seen in Tables 3.1 and 3.2 (rows 19 and 20).

Figure 3.2 Comparison of the IT and retail sector decompositions – with controls for detailed occupation categories



Notes: For explications of the concepts see Tables 3.1 and 3.2. above.

The overall picture is now much more heterogeneous: while the total gender gaps differ much more both between the years and between the sectors, the sizes of the portions due to differential returns to characteristics do not diverge that much from each other. There is, however, one exception, namely, the portion of differential returns to characteristics is only 5.44 log percentage points in the IT sector in 1995. Thus, as mentioned already, it seems that amongst all the combinations of the analysed sectors and years the faintest indications of unequal between-gender pay policy could be found in those IT firms which belonged to the SES data set already in 1995. In 1999 the wage gap was still much smaller in the IT sector than in the retail sector but the part of the gap due to differential returns to characteristics had moved much closer to that of the retail sector (7.89 log percentage points in the IT sector *vis-à-vis* 9.57 log percentage points in the retail sector).

Therefore on the basis of Figures 3.1 and 3.2 a few things may seem quite evident, namely, in both years 1995 and 1999 there was in the Finnish IT sector a clearly smaller absolute wage gap than in the Finnish retail sector when the occupationally most segregated jobs and occupations were excluded from the analysis. In addition, when comparing returns to characteristics between 1995 and 1999 there seems to have taken place a process leading to a much more stronger resemblance between the two sectors than before. However, the reservations we earlier discussed has to be kept in mind: especially the finding that the wage gaps of the older and newer member firms diverge

from each other. Another important fact is that the number of female employees was quite small in the model specification B of the 1995 year's IT sector estimation may weaken the reliability of the performed wage decomposition. And indeed, when looking, for example, the large change in the effect of regular working hours (the row 14 of Table 3.2) it is reasonable to regard our results concerning the Finnish IT sector of 1995 with some caution.¹⁰

Finally, the part of the gap due to gender differences in men's and women's distributions between jobs is of primary importance and its interpretation is at least as important as it is ambiguous. In any case, we can say that again in this analysis we can see the common feature of many earlier studies that a very significant part of the gender gap is caused by the fact that men and women are very differently distributed between jobs and that the predominantly male jobs guarantee their holders -independently of gender- better earnings than for the holders of the predominantly female jobs. Thus, occupational segregation proved to be one of the key factors explaining a large fraction of the both sectors' wage gaps.

¹⁰ We are well aware of the identification problems of estimating the separate contributions of explanatory (especially categorical) variables within the framework of the Oaxaca decompositions (see *e.g.* Oaxaca and Ransom (1999)). Therefore, when interpreting the decompositions results the main focus should be directed on the aggregate portions due to differential returns to characteristics and due to differences in the gender averages of the background characteristics which are not disturbed by these identification problems.

4. SUMMARY AND CONCLUSIONS

This report forms of a comparative study of the gender wage gaps of the Finnish Retail and IT sectors. The main subject of the study is to analyse into which degree there are similarities and differences between these two sectors in terms of men's and women's labour market position, especially as regards gender differences in wages and salaries. The analyses may then be utilised in order to develop strategies to reduce gender pay gaps in the aforementioned sectors.

The data source of the study is the Finnish Structure of Earnings Survey (SES) data. The data set covers the years 1995-99 and contains information on earnings, personal characteristics, occupation and employer for individuals and across all the sectors of the Finnish Economy. In the study we used a sub-sample covering only those employees working in the member firms of *PT* (the Employers' Confederation of Service Industries in Finland). Furthermore, only those *PT*'s member firms were studied which have their principal activity either in the IT or the retail sector.

In the first part of the report we present an overview study in the form of a descriptive data analysis covering central features and key labour market outcomes by gender in the sectors of the study. Objects of interest are, among other things: the development of proportional gender shares in each sector, the gender distributions of the key wage-determining background characteristics (education, occupation, full-time *Vs.* part-time employment contract, type of labour contract (permanent *Vs.* fixed-term contract)), gender averages of hourly wages and the overall wage gap. We try to clarify how the developments and potential differences between the IT and retail sectors have developed in these respects during the years 1995-99. In this connection we also discuss such important factors explaining the existence of the gender wage gap as occupational gender segregation and gender differences in the working career prospects.

According to the descriptive data analysis the main "stylised facts" as regards the labour market outcomes of the IT and retail sectors are the following:

- 1) The retail sector can be characterised as a traditional predominantly female and relatively low-paid sector while the IT sector seems to be a predominantly male and better-paid sector.
 - 2) The IT sector has a clearly higher earnings level than that of the retail sector. Also the women of the IT sector earn per a working hour on average more than the men of the retail sector.
 - 3) Both sectors, however, show gender wage ratios favourable to men.
-

- 4) The wage gap is wider in the retail sector and the difference between the sectoral wage gaps has also grown between 1995 and 1999.
- 5) The effect of different supplements of regular working hours (supplements for shift, night and Sunday working hours and benefits in kind¹¹) tends to narrow the difference between the sectoral wage gaps because the initially smaller IT sector gap gets wider while the larger retail sector gap diminishes. The effects of the overtime earnings and the corresponding overtime hours are, instead, opposite to the effects of the above mentioned supplements with a tendency of widening the difference between the sectoral wage gaps (due to the smaller IT sector gap getting still smaller at the same time as the larger retail sector gap gets wider). The effect of the supplements listed above is, however, clearly stronger than the effect of overtime earnings leading to the net effect of a diminished difference between the retail and IT sectors' wage gaps.
- 6) The consideration of groups of occupational and educational hierarchies shows clearly the IT sector's technological avant-garde position. While the three highest levels of occupational hierarchy (the one-digit ISCO-88) account for the clear majority of both men and women in the IT sector a clear majority of both men and women belong to the group 5 (service workers or shop and market sales workers) in the retail sector. Similarly, the highest levels of education account for a much larger fraction of the IT sector's employees than of the retail sector's employees.
- 7) Our study shows again that the gender wage gap interconnects closely with the *occupational segregation* which appears to be one of the key factors for the existence and size of the gender wage gap in both sectors.
- 8) Occupational segregation, in its turn, is interlinked with *career advancement prospects*. According to our descriptive data analysis in both the IT and the retail sectors men's prospects of getting a hierarchically higher and consequently better paying job seems to grow clearly faster with age than those of the women of the corresponding sector.
- 9) However, in both sectors men are proportionally more educated. Therefore some part of the occupational gender segregation observed in both sectors is obviously "acceptable" due to men's higher educational attainment. There arises, however, some further questions, such as, why in both sectors the larger proportion of men compared to that of women belong to the employee groups possessing the highest

¹¹ The supplements for shift, night and Sunday work are paid because of the extra inconvenience of working during late or Weekend hours. And, of course, we don't mean to say that these supplements would not be well-deserved. The point here is only that when measuring the wage difference between any two groups (men and women, ethnical groups *etc.*) the adopted wage concept do count (the point seems trivial, but nevertheless, we think it is worth reminding). The same remark applies to overtime hours and earnings as well.

levels of education? Knowing that the difference between men's and women's educational attainments have narrowed significantly in Finland over the last decades the question arises whether the most educated men and the women in fact face equal prospects of getting employment in the Finnish IT and retail sectors. However, in this connection an important reservation needs to be kept in mind, namely, in the descriptive analysis only the levels of education were considered and the fields of education were left disregarded. In other words, it can be the case, especially in the IT sector, that some part of the observed occupational segregation may still mirror boys' greater tendency to choose a technical or engineering education.

However, estimation of the size of wage gaps cannot give answers to such questions as what are the factors behind the observed gender gaps; or which of the single factors are the most important in explaining the gender gaps, or whether some part of the observed gender gaps can be interpreted as being due to the unequal treatment of women in the labour market? In order to shed light on these issues we need a different approach and consequently in the current study we also conducted statistically more sophisticated wage decompositions analyses. The adapted approach consisted of calculating so-called Oaxaca wage decompositions. There were two phases in the statistical analysis. First we estimated separate wage equations for men and women within both sectors for the years 1995 and 1999 in order to model the relationship between wages and wage-determining factors (education, tenure with the current employer, occupation, firm size *etc.*). Each estimated gender pay gap was then statistically decomposed into two components: one due to gender differences in measured characteristics, and the other "unexplained" and potentially due to discrimination.

The main findings as regards the calculated *Oaxaca decompositions* in our study can be summarised as follows:

With regard to the total sectoral wage gaps:

- 1) Vital for the comparison of the sectoral total gender pay gaps was whether the effect of detailed job titles was controlled for or not.
- 2) When *no controls for occupation* were included and the employees working in the occupationally most segregated occupations were also included in the analysis, the sectoral total wage gaps showed opposite developments. In 1995 the IT sector's total wage gap was almost three log percentage points *larger* than the retail sector's total gap.¹² By 1999 the situation had changed to the opposite, so that the IT sector's

¹² The opposite result of Table 2.15 that the 1995 retail sector wage gap was larger than the corresponding IT sector gap results from the fact that the wage gaps presented in Table 2.15 were calculated from the weighted *arithmetic* means of hourly wages using *working hours as weights*. Instead, the wage gaps presented in the decomposition tables 3.1, 3.2 and 3.3 were calculated from the weighted *arithmetic* means of the *logarithmic* hourly wages by using *individuals as weights* which explains why they differ from the wage gaps of Table 2.15.

wage gap was now more than two log percentage points *smaller* than the retail sector's gap.

- 3) The *inclusion of detailed job titles* into the analysis entailed exclusion of the occupationally most segregated jobs and occupations as well as their holders. After this change of the model specification and the corresponding modification of the analysed employee group the total wage gap was substantially smaller in the Finnish IT sector than in the Finnish retail sector in both years 1995 and 1999.

With regard to the main components of the sectoral wage gaps:

- 4) The main components of the sectoral gender wage gaps (fractions due to differential returns and to differential gender averages of the back ground characteristics) were strongly dependent on whether detailed job titles were taken into account or not.
- 5) With *no controls for occupation* in the model the major share of the both sectors' total gender gap was due to differential returns to characteristics between men and women.
- 6) When *controls for occupation were included* the portion due to differential returns to characteristics declined to correspond about 50-60 % of the total gender gap in both sectors.
- 7) *Regardless of the used model specification* in 1995 the part of the gap due to potentially unequal treatment was larger in the retail sector compared to the IT sector. But by 1999 the difference between sectors seems to have disappeared. In this respect between 1995 and 1999 there seems to have been a negative "catching-up" process as regards women's position in the Finnish IT sector. However, the conclusion is not as negative if we analyse the IT sector firm panel covering only the firms included in the data set already in 1995. The question is now whether the structure of the new IT firms which have joined PT after 1995 differ in some certain way from the older member firms that could explain the much smaller growth of the gender gap amongst the old IT sector member firms of PT from 1995 to 1999?

With regard to the effects of single factors:

- 8) Along with occupation, *age* emerged in both sectors as another key determinant for the observed wage gap tending to increase a man's salary much more rapidly than that of a woman endowed with the identical wage-determining characteristics (tenure, level of education, number of monthly regular working hours, number of employees in the employer firm, type of employment contract (permanent *Vs.* fixed term)).
 - 9) In both sectors the inclusion of controls for occupation led to a substantial decrease in the share explained by the unequal returns to age (as well as to other wage-
-

determining characteristics). This combined with the finding that in both sectors more than half of the total gap could be explained by men and women being distributed differently across jobs emphasises the important role of *occupational segregation* as a determinant of both sectors' gender wage gaps.

- 10) The same kind of mechanism was suspected operating also in the case of education and the number of regular hours – the only two other variables in addition to age having any greater significance with respect to the part of the gender gap explained by the differential returns to wage-determining characteristics. In fact, in the IT sector women's educational attainments seemed to be remunerated better than those of men in 1995.
- 11) In addition, the fact that we used a cross-sectional data together with the finding of age picking some of the effect of occupation when no controls for occupation were included indicates that amongst the older female and male employees men have succeeded much better in getting possession of the better paying jobs and occupations. This observation seems to hold for both sectors. The open question is into which degree this result mirrors the potential inequality between men's and women's career advancement prospects.

As a conclusion of the conducted comparison study of the Finnish IT and retail sectors we can say that we found indications of a negative “catching-up” process in terms of women being paid less than men for the similar characteristics in the Finnish IT sector between 1995 and 1999. While in 1995 the fraction of the gender wage gap due to differential returns to employees' characteristics was clearly larger in the retail sector as compared to the IT sector the sectoral gaps had moved much closer to each other by 1999.

However, the following reservation concerning the observed increase in the part of the Finnish IT sector's gender wage gap due to unequal returns to characteristics has to be kept in mind. Namely, the number of employees working in the IT sector firms which belong to PT has grown significantly over the observation period 1995-99 both because the older firms included already in PT's 1995 data set have increased their number of employees and also because new firms have joined PT. Knowing this we estimated also the wage gap from the sub-sample consisting exclusively of those firms that already in 1995 belonged to PT. The outcome of this analysis showed that women's status had remained quite unchanged in these “old” firms and that still in 1999 the gender wage gap was significantly smaller in these firms compared to the gender wage gap estimated from all the member firms belonging to PT in 1999. So it seems that there is now two alternative explanations for the observed increase in the part of the IT sector's wage gap due to unequal returns. Either this “unexplained” part has really widened in the IT sector's new firms or alternatively the part was as wide (or even wider!?) in those firms already back in 1995. In any case, lacking the essential information on these newer firms we are simply unable to say anything exact about the gender pay gap of the newer

IT firms in 1995 (we do not even know which of these firms existed by then!). In any case, the analysis concerning these potential differences between PT's new and old member firms might offer quite an interesting direction for further research.

In connection to what was said above about the IT sector's "new" and "old" PT member firms there is a further issue that might deserve to be analysed in future. The issue concerns the question of how long the "new" firms, for the first, have existed and, for the second, how long they have belonged to PT (in other words, been organised in a nationwide central employer organisation). If the case is that a significant portion of these firms have existed for several years and assuming that the unorganised IT sector firms were not obliged to follow the collective agreements of the Finnish IT sector back in 1995 (the Finnish so called "*yleissitovuus*" i.e. "general validity" clause), it would be very interesting to analyse further the question of into which degree women's position and pay equality really depend on firms' obligation to follow the nationwide collective agreements.

In addition, there is a further reservation concerning the general results of the IT sector that needs to be kept in mind. Namely, the number of female employees was quite small in the model specification B of the 1995 year's IT sector estimation which may weaken the reliability of the performed wage decomposition. And indeed, when looking, for example, the large change in the effect of regular working hours it is reasonable to regard our results concerning the Finnish IT sector of 1995 with some caution. After exclusion of the occupationally most segregated occupations the IT sector of 1995 showed least indications of unequal treatment between men and women. However, since the exclusion of the most segregated occupations led to a 20 per cent decrease in the number of female employees of the IT sector in 1995 it is unclear *how reliable* the conclusions regarding the 1995 year's IT sector finally are.

Finally, *occupational segregation* proved out to be a major determinant for the very existence of the gender wage gap. The finding was common for the IT as well as the retail sector's enterprises. Furthermore, another important topic which interlinks with occupational segregation emerged in our analysis, namely, the *potential gender differences in the career advancement prospects*. Our observations that gender differences in returns to age favoured very significantly men and that amongst the older employees in both sectors men seemed to have been more successful in entering better paying jobs seem to indicate that women do not necessarily face completely equal prospects in entering better paying posts. A key question with regard to occupational segregation and the gender-specific career advancement prospects is in which phase of women's working career occupational segregation comes into the picture. That is, is it so that young women and men start in similar jobs and tasks but men succeed better in advancing new positions guaranteeing better earnings? Or alternatively, is it so that young men enter better paying jobs from the start of their working relation? Since our data is of cross-sectional type – i.e. we do not follow the same persons over their entire

working career –we can not say with certainty whether the patterns of occupational segregation will remain the same as the younger men and women working in either of the studied sectors grow older. In order to analyse further this issue it would require a detailed panel data analysis - a good and consistent direction for further research.¹³

¹³ In fact, Rita Asplund and Reija Lilja, the researchers of the other Finnish subproject in relation the Finnish participation in the current project “Developing Sectoral Strategies To Address Gender Pay Gaps”, do focus on men’s and women’s career advancement projects.

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IT SECTOR AND RETAIL TRADE CAREERS – DOES GENDER
MATTER?

A GENDER-SPECIFIC ANALYSIS OF GATES-OF-ENTRY,
WAGE GAPS, CAREERS AND EARNINGS GROWTH FOR
FINLAND

by
Rita Asplund and Reija Lilja

Research report the project
Developing Sectoral Strategies to Address Gender Pay Gaps

Executive Summary

The study focuses on recruitment and mobility patterns in the IT and retail trade sectors of the Finnish economy in the period 1995 to 2001. Contrasting these two sectors with respect to recruitment patterns, career opportunities, and exit patterns can add to our understanding of the working life situation of men and women in times of rapid information technology expansion in a labour market still characterised by strong gender segregation in both occupations and industries.

Despite representing the opposite extremes of the service sector in terms of pay and skill levels, the recruitment behaviour in IT and retail trade firms, as well as the composition of the recruits, reveals interesting similarities from a gender perspective. A major common feature is that the gender gap in starting wages increases with the age of the recruits. While being quite moderate among young recruits, the male–female wage gap is notably large among older recruits, with the time trend pointing to a further widening rather than a narrowing of wage differentials. Dividing the observed gender wage gaps into two components, one due to different characteristics and one due to unequal returns to these characteristics, shows that the gender differences in both characteristics and the returns to these characteristics are considerably larger among older than among young recruits. The first phenomenon is due to notable gender segregation among older recruits and especially when it comes to hierarchical positions. The latter originates in older female recruits generally receiving lower returns for key pay-determining characteristics. Moreover, growing differences in the rewarding of similar characteristics stand out as a major explanation for the widening trend in the gender wage gaps of older recruits.

Earnings growth over career as a whole is notably higher among young recruits than among older recruits in both sectors. During the first 5 years of employment, the gender wage gap narrows slightly in the IT sector but widens in the retail trade. The level of external mobility is higher in the retail trade than in the IT sector, mainly due to the high share of young – and mobile - recruits working on a part-time basis in the retail trade. In both sectors, young recruits are more mobile than their older colleagues. There are no overall gender differences in the propensity to change employers within the IT sector or retail trade. Furthermore, in the IT sector there appears to be no overall gender difference in promotion propensities either. In the retail trade, gender matters. Despite having similar backgrounds women have a lower propensity to be promoted than men. Mobility has a marked influence on wage changes and thus on the development of gender wage gaps. In both sectors a new recruit who changes employers receives higher wage increases than a similar colleague who remains employed in the same workplace.

Young recruits benefit more from employer change than older recruits. In the retail trade promotions are a very important mechanism for earnings growth. New recruits who are promoted receive substantially higher wage increases than their otherwise similar colleagues who are not promoted. The fact that female recruits have lower promotion probabilities than men means that the overall effect from promotions is that gender wage gaps tend to widen over time in the retail trade. In the IT sector promotions have no effect on wage increases among young recruits. Among older recruits women receive higher remuneration from their promotions than men.

All in all, the analysis points to conspicuous weaknesses in the labour market situation of women that reduce or even mitigate their opportunities to participate in the IT-revolution and to ascend the career paths it offers. Encouraging girls to enter IT-related educational fields will not suffice unless contemporaneous measures are undertaken to improve equal opportunities in the IT labour market. In addition it is necessary to continue to promote gender equality in female-dominated sectors, in which most women work, which is well illustrated by the results concerning the retail trade.

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1. INTRODUCTION

The information technology (IT) and retail trade sectors can be regarded as interesting extremes when it comes to men and women in the labour market. The retail trade is traditionally a female-dominated sector located at the lower end of the pay scale of private business services. Its workforce has, on average, a low education, and the career opportunities are rather limited. Moreover, the sector has undergone quite dramatic structural changes due to increased competition, and this has affected both the type of working tasks performed and the kind of job contracts offered, especially to new recruits. The IT sector, in contrast, represents a male-dominated, rapidly expanding, well-paid sector, with notable career paths especially for young, highly educated and well-trained people. The technological level is high and fast moving.

Contrasting these two sectors can provide policy-relevant information on the working life situation and opportunities for men and women in times of rapid information technology expansion in a labour market still characterised by strong gender segregation in both occupations and industries. Of particular importance is the question whether there is an obvious risk of facing a gender division in the IT sector and its close domains similar to that found in more traditional sectors.

The present study focuses on recruitment and mobility patterns in the IT and retail trade sectors of the Finnish economy in the period 1995 to 2001. More precisely, it compares the gender distribution of the new recruits of firms engaged in the two sectors, the career opportunities of men and women within the sectors and their eventual flow out from the sectors. Differences in recruitment patterns, career opportunities within the sector, and exit patterns can provide crucial information on both the supply of and the demand for labour in the IT and retail trade sectors, and also on the importance of gender-specific differences in individual and job characteristics in these processes.

The analysis can add to our understanding of the segregation processes still in force in the labour market. Equally importantly, it can identify potential weaknesses in the labour market situation for women that might reduce their opportunities to participate in the IT-revolution and to utilise the career opportunities it offers. Having access to such knowledge definitely promotes the success of policies aiming to improve equal opportunities in the labour market, as the mobility aspect usually stands out as a major reason behind the gender pay differentials observed.

The study is organised as follows. The next chapter provides a brief presentation of the basic data of the study and the subsets created for the various analyses undertaken and reported in the subsequent chapters. Chapter 3 explores the recruitment patterns of firms engaged in IT and the retail trade. The new recruits are investigated and compared with respect to their individual and job characteristics as well as their entry wage levels. Chapter 4 deepens this analysis by turning the focus on the careers of male and female recruits and the corresponding patterns of earnings growth. Chapter 5, finally, draws together and discusses the main findings of the study.

2. DATA

This empirical study uses register data collected by the Employers' Confederation of Service Industries in Finland (ECSIF) from the years 1995 – 2001. The data set covers all employees in ECSIF member firms in the retail trade and the IT services sector. It is based on a survey conducted among ECSIF member firms each year in October. At present, the employees of ECSIF member firms represent about 70% of all employees in the retail trade and 52% of all employees in the IT services sector in Finland.

The ECSIF data set is optimal for comparing the retail trade and IT sectors, since the background characteristics of the employees – both personal and job related - have been defined in a similar manner in the two sectors. This is a feature that other sector-specific data sets do not usually have. A common comparison point is particularly important when comparing gender differences across sectors.

The present study focuses on new recruits. Since the original data set includes all employees in ECSIF member firms over a period of seven years, it is possible to identify each year's new recruits and to follow these individual recruits over time as long as they are employed in one of the ECSIF member firms. This allows for the creation of cross-section data sets for static analysis as well as for panel data sets for dynamic analyses. The total number of observations in the ECSIF data set is reported in Table 2.1 for the years 1995 – 2001.

Table 2.1 ECSIF data set in the IT and retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001
Total employment	2 010	2 056	2 722	7 733	8 663	8 927	10 219
Total number of recruits	262	337	594	1 402	1 507	1 300	1 320
Share in total employment, %	13.0	16.4	21.8	18.1	17.4	14.6	12.9
Retail trade							
Total employment	33 326	33 364	44 681	46 936	52 726	50 795	54 790
Total number of recruits	4 275	5 923	7 260	8 854	10 761	10 271	12 229
Share in total employment, %	12.8	17.8	16.2	18.9	20.4	20.2	22.3

Table 2.1 shows that among ECSIF member firms, the number of employees has increased fourfold in the IT sector and 64% in the retail trade. Only part of this increase can be attributed to the overall employment growth in these sectors. Over the years 1995 – 2001 employment grew about 15% in the retail trade and just over 40% in IT services. Thus a large part of the observed employment growth is related to a growing number of firms joining the Employers' Confederation of Service Industries in Finland.

The 1995 data set comprises 1,212 firms in the retail trade and 37 firms in the IT sector. By 2001, the number of member firms in the retail trade rose to 1,274 and in IT to 54, representing growth rates of 5% and 46%, respectively.

In the subsequent empirical analyses, the new recruits are divided into two groups: young recruits, who are under 30 years of age, and older recruits, who are 30 years of age or more. Young recruits, who due to their age have relatively short work experience, can be thought of as representing labour market entrants. This is, of course, only a rough approximation. Older recruits, in contrast, primarily represent employees who have already established themselves in the labour market. By comparing these two groups it is possible to examine whether the younger generation is treated differently to the older one when it comes to the recruitment and promotion practices of the retail trade and IT service firms. This distinction is especially important from a gender perspective. The numbers of young and older recruits are given in Table 2.2.

Table 2.2 Total number of young and older recruits in the IT and retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001
Number of young recruits	66	69	230	598	669	590	632
Number of older recruits	196	268	364	804	838	710	688
- share of all recruits, %	74.8	79.5	61.3	57.3	55.6	54.6	52.1
Retail trade							
Number of young recruits	2 964	3 534	5 347	6 315	7 666	7 141	8 166
Number of older recruits	1 311	2 389	1 913	2 539	3 095	3 130	4 063
- share of all recruits, %	30.7	40.3	26.3	28.7	28.8	30.5	33.2

It appears from Table 2.2 that the IT sector has, over the years, increased its number of older recruits to almost one-half of all new recruits. In the retail trade, on the other hand, the share of young recruits has persistently been high: throughout the observation period around 60–70% of the new recruits of retail trade firms have been younger than 30.

To study the earnings growth of new recruits a panel data set was created, whereby each recruit was followed for 5 years or (if the recruit appeared in the data for less than 5 years) as long as he or she remained employed in one of the ECSIF member firms. The follow-up period of 5 years was chosen in order to also guarantee a sufficient number of observations for the latter years of the observed employment period, for which less data points are available. The basic dynamic data set was created from the 7 annual cross-sections as follows. Information on

- the 1st year of employment was collected from data sets 1995 – 2001
- the 2nd year of employment was collected from data sets 1996 – 2001
- the 3rd year of employment was collected from data sets 1997– 2001
- the 4th year of employment was collected from data sets 1998 – 2001
- the 5th year of employment was collected from data sets 1999 – 2001.

In other words, the maximum number of observations (and years) for each career phase has been used to create this unbalanced panel data set. Table 2.3 gives the total number of observations for the 5-year panel.

Table 2.3 Number of observations in the created 5-year panel data set

IT sector	1	2	3	4	5
Total number of recruits	6 293	3 668	2 115	1 017	313
Number of young recruits	2 658	1 470	807	347	70
Number of older recruits	3 635	2 198	1 308	670	243
- share of all recruits, %	57.8	59.9	61.8	65.9	77.6
Retail trade					
Total number of recruits	51 065	23 263	12 483	6 681	3 581
Number of young recruits	34 707	14 396	7 002	3 392	1 626
Number of older recruits	16 358	8 867	5 481	3 289	1 955
- share of all recruits, %	32.0	38.1	43.9	49.2	54.6

Note: 1, 2, 3, 4 and 5 refer to, respectively, the 1st, 2nd, 3rd, 4th and 5th year of employment. See text for more details.

Table 2.3 shows that the number of employees remaining in the sample diminishes considerably towards the 5th year. There are two reasons for this. First, every year there are employees who leave ECSIF member firms, which reduces the number of employees in later years. Second, the number of observations diminishes over time due to the way the unbalanced panel data is constructed: new recruits from the 2001 data set are included only in the first panel-year, new recruits from the 2000 data set are included in the first two panel-years, and so forth. So, in later panel-years recruits from the most recent surveys are not present. This means that Table 2.3 does not provide a basis for calculating survival rates from the data, that is, the share of new recruits who have remained in employment each year. This would require that one could, at least in principle, follow each individual for the whole period of 5 years. For this purpose, another type of panel data was constructed.

To study the mobility of recruits four pair-wise data sets were created. Each pair-wise data set is constructed in such a way that information on the status of the employee is known for both the first and the second year of comparison. This allows the external as well as internal mobility of new recruits at different phases of their careers to be studied.

Information from the original annual data sets was used in the following way in the pair-wise comparisons:

- **1 → 2**
 - for the first year of comparison (1) data sets 1995-2000 were used;
 - for the second year of comparison (2) data sets 1996-2001 were used.
- **2 → 3**
 - for the first year of comparison (2) data sets 1996-2000 were used;
 - for the second year of comparison (3) data sets 1997-2001 were used.
- **3 → 4**
 - for the first year of comparison (3) data sets 1997-2000 were used;
 - for the second year of comparison (4) data sets 1998-2001 were used.
- **4 → 5**
 - for the first year of comparison (4) data sets 1998-2000 were used;
 - for the second year of comparison data (5) sets 1999-2001 were used.

Table 2.4 Number of observations in the pair-wise panel data sets

IT sector	1 → 2	2 → 3	3 → 4	4 → 5	Total
Total number of recruits	5 096	2 852	1 367	422	9 737
Number of young recruits	2 094	1 115	479	111	3 799
Number of older recruits	3 002	1 737	888	311	5 938
- share of all recruits	58.9	60.9	65.0	73.7	61.0
Retail trade					
Total number of recruits	43 079	18 970	9 428	4 813	76 290
Number of young recruits	29 875	11 893	5 350	2 400	49 518
Number of older recruits	13 204	7 077	4 078	2 413	26 772
- share of all recruits	30.7	37.3	43.3	50.1	35.1

It is evident that in later years there are fewer observations available for the pair-wise comparisons, since each individual needs to have remained in the data at least until the first year of comparison, and – at least in principle – could have stayed in the data until the second year of comparison. External mobility can be studied if the individual has exited from the data in the second year of comparison, and internal mobility if he or she has remained in the data until this point in time. Table 2.4 reports the total number of observations in these pair-wise data sets.

The table shows that the number of observations in the last pair-wise comparisons drops; this is partly due to the exit behaviour of employees and partly due to the construction of the data. The share of older recruits increases towards the end of the panel period in both sectors because of higher exit rates among young recruits.

It appears from the above data descriptions that the ECSIF data provides a good basis for the extensive analysis of the retail trade and IT services as well as for comprehensive comparisons between the two sectors. With this data set it is possible to analyse in a comparable manner both cross-sectional snapshots of firms' recruitment behaviour and external and internal mobility of new recruits over their careers in the two sectors.

3. KEY CHARACTERISTICS OF NEW RECRUITS, THEIR GATES-OF-ENTRY AND WAGE GAPS

This chapter describes selected key characteristics of individuals who have been recruited into firms engaged in, respectively, the IT sector and retail trade over the years 1995 to 2001. An individual is recorded as a new recruit if the current employment relationship started during the year in question; that is, if the individual's tender is shorter than one year.¹⁴ The personal characteristics focused on are basic, apart from applying a gender perspective throughout the descriptive analysis, a distinction is made between younger and older recruits and, furthermore, between recruits differing in their levels and fields of educational attainment. The job-related characteristics cover the working time (full-time versus part-time), wage level, working tasks and hierarchical position of the IT and retail trade jobs occupied by these new recruits.

3.1 Does the "recruiting age" of women matter?

As was evident from Chapter 2, the total number of individuals identified in the data as new recruits has grown markedly in both sectors between 1995 and 2001. This was noted to be due to employment growth but also to the overall structure of the data used, particularly to the turnover of the firms covered by the data, with the entry rate having notably exceeded the exit rate. With a growing number of firms included in the data evidently the probability of new recruitment also increases. Which one effect dominates is impossible to judge based on the present data. In addition, the tendency to change employers has also become more frequent over the reference years. The recovery boosted job mobility¹⁵ and also resulted in skill shortages¹⁶ in certain industries, including IT.

The absolute number of recruited women has grown steadily in both sectors. In the retail trade the number of female recruits has increased at much the same pace as the total number of new recruits: only minor year-to-year variations occur in the persistently very high share of women in the growing number of new recruits of retail trade firms (Table 3.1). This female dominance in firms' recruitment behaviour explains why the retail trade has maintained its position as a strongly female-dominated sector. In the IT

¹⁴ Because of the construction of the data used (see Chapter 2 above), it is not meaningful to try to distinguish between individuals recruited within the sector and individuals hired from outside the sector. Analysing and comparing young and older recruits, however, provides a kind of approximation as to how individuals recruited from outside the sector (young recruits with little work experience) and those recruited within the sector (older recruits with considerable work experience) differ from each other.

¹⁵ For a description of labour mobility within and between manufacturing and services in Finland, see, for example, Asplund (2001a).

¹⁶ See a recent study by Pelkonen (2002).

sector, in contrast, the recruitment of women shows a tendency to increasingly lag behind that of men, which is reflected in a substantial drop in the share of women among the new recruits of IT firms. The recovery of the female share during the past few years is due to an overall decline in new recruits within the sector, but with the number of female recruits having remained roughly unchanged. This, in turn, might indicate clear changes in the composition of new recruits, possibly linked to the turbulence faced by the IT sector in recent years. Whether or not such compositional changes have occurred will become evident when turning to the characteristics of the jobs into which the new recruits have been hired.

Table 3.1 New recruits in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001
Total number of recruits	262	337	594	1 402	1 507	1 300	1 320
Share of women, %	47.7	40.7	41.9	32.4	31.3	36.5	36.0
Share in total employment, %	13.0	16.4	21.8	18.1	17.4	14.6	12.9
Retail trade							
Total number of recruits	4 275	5 923	7 260	8 854	10 761	10 271	12 229
Share of women, %	77.3	75.4	72.9	74.6	75.9	75.6	77.8
Share in total employment, %	12.8	17.8	16.2	18.9	20.4	20.2	22.3

Tables 3.2 and 3.3 split the total number of new recruits into those younger than 30 years-of-age and those older than this. The older recruits can be expected to have, on average, a higher education and/or longer work experience either from the sector in question or from some other sector. Accordingly, younger and older recruits are likely to also differ substantially with respect to the jobs they enter. Moreover, previous research of the Finnish labour market points to increasing gender differences in both wage gaps and career opportunities with age and education (Lilja 1996, 1999; Vartiainen 2002). It is, therefore, justified to carry out the descriptive analysis not only from a gender perspective but also in view of the age of the new recruits.

A comparison of the two tables reveals a substantial shift in IT-sector recruitment towards younger age groups. From a female point-of-view this is a problematic trend, as young women seem to be less competitive – for one reason or another – than their older counterparts when it comes to IT-sector jobs: women make up a substantially lower share among the young recruits. In the retail trade, on the other hand, the share of women is approximately the same among younger and older recruits, for which reason the shifts in recruitment patterns between differently aged recruits are irrelevant from a gender perspective – at least at this rough level of comparison.

Table 3.2 Young recruits (age < 30) in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001
Total number of young recruits	66	69	230	598	669	590	632
Share of women, %	50.0	24.6	37.0	24.6	26.6	31.5	27.7
Share in total employment, %	3.3	3.4	8.4	7.7	7.7	6.6	6.2
Share of all recruits, %	25.2	20.5	38.7	42.7	44.4	45.4	47.9

Retail trade							
Total number of young recruits	2 964	3 534	5 347	6 315	7 666	7 141	8 166
Share of women, %	76.7	74.4	72.7	74.3	75.7	75.0	76.7
Share in total employment, %	8.9	10.6	12.0	13.5	14.5	14.1	14.9
Share of all recruits, %	69.3	59.7	73.7	71.3	71.2	69.5	66.8

Table 3.3 Older recruits (age ≥ 30) in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001
Total number of older recruits	196	268	364	804	838	710	688
Share of women, %	46.9	44.8	45.1	38.2	35.1	40.7	43.6
Share in total employment, %	9.8	13.0	13.4	10.4	9.7	8.0	6.7
Share of all recruits, %	74.8	79.5	61.3	57.3	55.6	54.6	52.1

Retail trade							
Total number of older recruits	1 311	2 389	1 913	2 539	3 095	3 130	4 063
Share of women, %	78.6	76.9	73.5	75.4	76.5	77.0	80.2
Share in total employment, %	3.9	7.2	4.3	5.4	5.9	6.2	7.4
Share of all recruits, %	30.7	40.3	26.3	28.7	28.8	30.5	33.2

To sum up, age does not seem to matter when it comes to the retail trade. The high share of females among new recruits is repeated among both younger and older recruits of retail trade firms. The persistently strong flow of women into retail trade jobs, in turn, offers an explanation of the persistently high overall share of women in the sector. Still in 2001, three out of four employees in the retail trade were women. In the IT sector, in contrast, the share of women among new recruits has come down substantially. This seems to be due to a shift in the recruitment behaviour of IT firms towards youths, among which women stand out as less competitive than their male counterparts. As a consequence the overall share of women in IT services has also declined, from 42% in 1995 to 34% in 2001 based on the data used in the present study.

3.2 *Are relatively more women recruited into part-time jobs?*

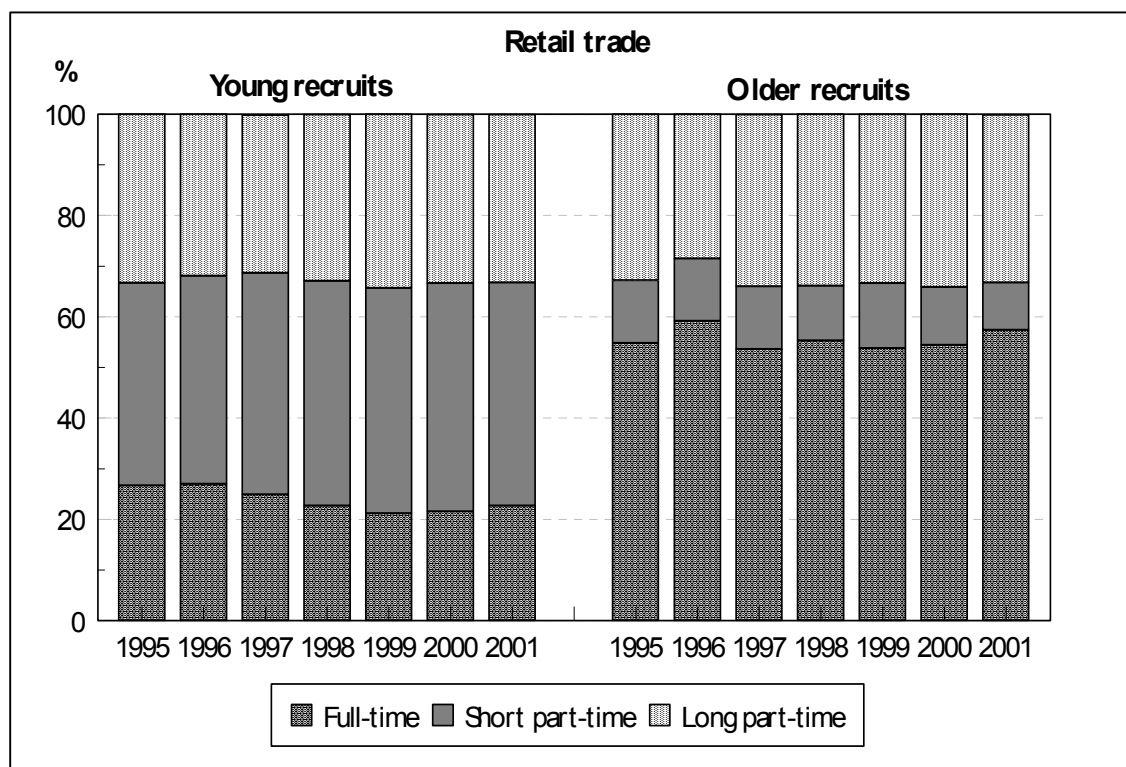
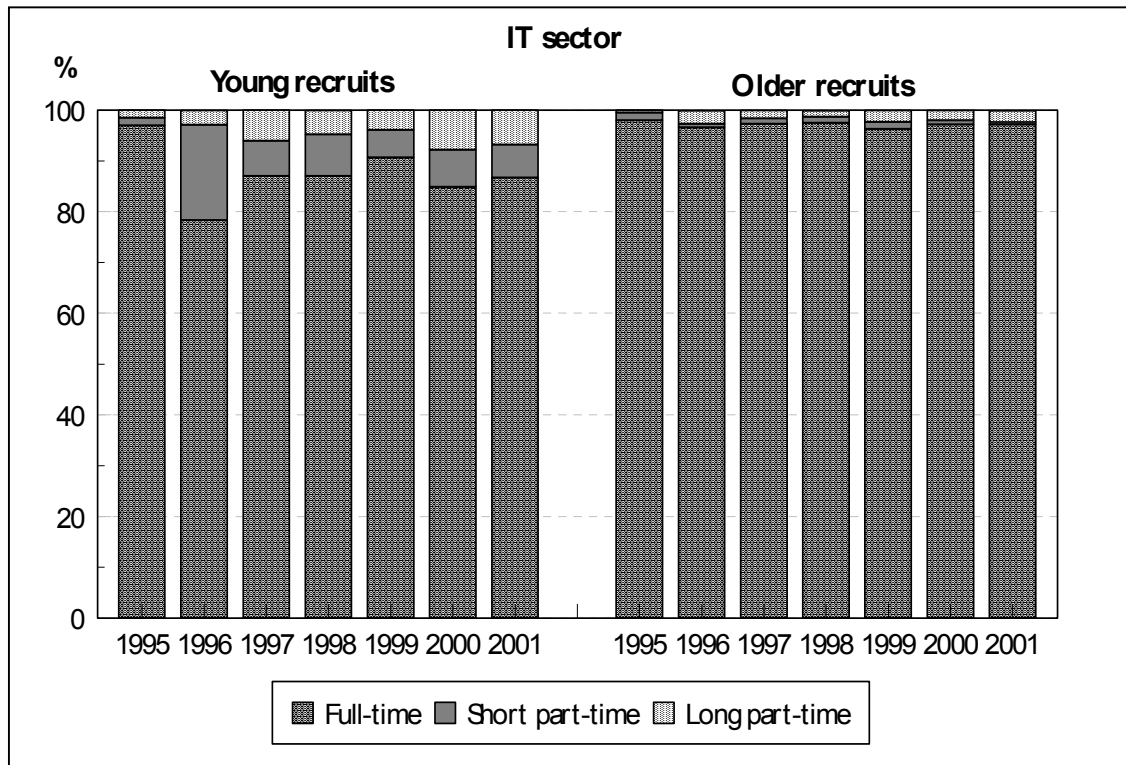
The working time, measured as the number of weekly working hours, varies considerably and especially among retail trade employees.¹⁷ It is, therefore, of interest to distinguish not only between full-time and part-time employees but, furthermore, between those working short part-time and those working long part-time. According to Finnish retail trade collective agreements part-time workers are those who work less than 35 hours per week, a definition adopted also in the present study. Long part-time employment refers to a working week of between 20 and 34 hours. In short part-time jobs, the number of weekly working hours is less than 20.

Figure 3.1 gives the overall distribution in IT and the retail trade of, respectively, young and older recruits across the three working time arrangements. The IT sector offers mainly full-time jobs, especially to older recruits among whom part-time jobs are rare. In the retail trade, in contrast, young recruits are employed primarily on a part-time basis, and more often on short than on long part-time contracts. Moreover, the dominance of short part-time jobs among young recruits has strengthened over the years, while the share of full-time jobs has declined. Much the opposite situation prevails among older recruits; the trend has been for the share of full-time jobs to increase while the share of short part-time jobs has declined. The share of long part-time jobs is much the same as among young recruits, showing little variation over time.

The percentage shares of women among the young and older recruits employed on, respectively, a full-time, short part-time and long part-time basis are reported in Table A3.1 of the Appendix. The female dominance in the retail trade results in a high percentage share of women in all three working time alternatives, but with women nevertheless facing a notably higher incidence (risk) of being employed on a part-time contract instead of a full-time contract. Among older recruits over 90% of new part-time contracts concern women. In the IT sector, the most conspicuous outcome is a clearly higher incidence of full-time contracts for women among the older recruits. Compared to their older colleagues, young women thus face a more disadvantageous position not only when it comes to being hired by IT firms but, if recruited, also regarding their possibilities of being hired on a full-time rather than a part-time basis.

¹⁷ In the retail trade just over one-half are employed on a full-time basis, with the share being even lower among women. In the IT sector, in contrast, most jobs are based on a full-time contract, also among women.

Figure 3.1 Distribution of young and older recruits across full-time, short part-time and long part-time job contracts in IT and the retail trade, 1995 – 2001



An alternative way of examining the occurrence of full-time, short part-time and long part-time contracts among women is to adjust their percentage shares in the respective working time category with their overall share among, respectively, young and older recruits in the two sectors. This relative risk or concentration ratio displays whether the flows of female recruits into the different working time arrangements have been similar to or different from those of their male counterparts. This indicator can also say something about the time trend as it is gleaned from year-to-year variations in the overall share of women among the total number of recruits.

Table 3.4 Concentration of full-time, short part-time and long part-time contracts for women among young and older recruits in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001
<i>Young recruits</i>							
Full-time contracts	1.00	0.90	0.99	1.08	0.98	1.01	1.03
Short part-time contracts	n.a.	0.94	1.69	0.50	1.04	0.59	0.97
Long part-time contracts	n.a.	n.a.	0.39	0.42	1.30	1.31	0.67
<i>Older recruits</i>							
Full-time contracts	0.98	0.96	0.99	0.99	0.96	0.99	0.99
Short part-time contracts	n.a.	n.a.	n.a.	1.57	1.90	0.82	n.a.
Long part-time contracts	n.a.	2.23	1.11	1.31	2.10	1.58	1.15
Retail trade							
<i>Young recruits</i>							
Full-time contracts	0.85	0.84	0.85	0.79	0.83	0.82	0.86
Short part-time contracts	1.04	1.04	1.03	1.04	1.02	1.04	1.03
Long part-time contracts	1.08	1.08	1.07	1.09	1.08	1.07	1.06
<i>Older recruits</i>							
Full-time contracts	0.86	0.87	0.84	0.83	0.84	0.84	0.88
Short part-time contracts	1.18	1.20	1.14	1.17	1.16	1.17	1.14
Long part-time contracts	1.17	1.19	1.21	1.22	1.19	1.19	1.16

Source: Table A3.1 of the Appendix.

For the IT sector the concentration ratios of full-timers are the only meaningful numbers in Table 3.4 as very few are recruited on a part-time basis. The series reveal no substantial difference between men and women with respect to the flow of new recruits into full-time contracts (most numbers are very close to or equal to 1). No time trend is discernible, either. This holds for young as well as older recruits. In the retail trade, on

the other hand, despite their dominance women are clearly under-represented among recruits employed on a full-time basis. Moreover, the magnitude of this under-representation is approximately the same among young and older recruits. Instead the recruited women are over-represented among part-timers, and even more so in the category of older recruits. This pattern has remained roughly unchanged over the investigated years.

In conclusion, in the male-dominated IT sector women seem to be offered full-time jobs much to the same extent as men. But this finding is, of course, only to be expected in view of the fact that few are recruited in the IT sector on a part-time basis. In the female-dominated retail trade sector, in contrast, women tend to be hired on a full-time basis to a disproportionately lesser extent than their male colleagues. Hence, the answer to the question posed in the sub-title is yes, but only for the retail trade.

This outcome raises the question of whether the high share of part-time jobs in the retail trade and the female over-representation in them reflect a strong preference among these women for part-time work arrangements or whether working part-time in the retail trade is mainly involuntary. Results reported in a recent study indicate that the latter contention is closer to the truth: of the wholesale and retail trade sales personnel working part-time in 2000, some 45% would have preferred a full-time job (Santasalo 2001). Moreover, this is a considerably higher share than the average 35% involuntary part-time employment characterising the Finnish workforce as a whole. Based on these findings it may, finally, be hypothesised that the high frequency of part-time jobs in the retail trade, a substantial part of which represents involuntary part-time arrangements, contributes strongly to the persistent female-dominance of the sector and the notable gender segregation that prevails within (cf. Dolado et al. 2002).

3.3 Do women start out from lower wage levels?

The data set allows individual hourly wages to be calculated, which means that the subsequent wage comparisons are not distorted by individual variations in the number of hours worked. Hourly wages are calculated from information on each individual's normal monthly earnings and normal weekly working hours. The assumption then is that these weekly working hours are repeated each and every week of the month. The validity of this assumption, however, correlates negatively with the length of the regular working time. More precisely, the fewer the total number of normal weekly working hours, the less likely it is that the individual has regularly worked for exactly the same number of hours as in the week covered in the data. Hence, for part-timers and especially for those working short part-time, the probability of overestimated or underestimated hourly wages is notably higher than for full-timers. Average hourly wages are, therefore, reported separately for full-timers and all part-timers. Moreover, part-time employees recorded as normally working for less than four hours per week are excluded from the wage calculations.

While the IT sector represents a high-pay industry, the retail trade belongs to the category of low-pay industries. Indeed, the average hourly wage of full-time retail trade employees amounts to only around 60% of the average hourly wage of full-time IT employees. The overall wage gap between the two sectors has, on average, been slightly larger among women than among men. The gender gap in average hourly wages within the two sectors was approximately the same in 1995, with the average hourly wage of full-time women amounting to some 82% of the average hourly wage of full-time men. By 2001, the gender wage gap had narrowed somewhat in the IT sector, but increased by several percentage points in the retail trade. These differences in relative wages should be kept in mind when assessing the wage comparisons of the new recruits reported in this and subsequent sections.

Table 3.5 Relative hourly wages of new recruits in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001	Av. 95/01
All new recruits on	89	92	83	85	88	88	87	87
- full-time contracts	89	95	83	85	88	89	89	88
- part-time contracts	60	76	84	88	85	79	74	78
Retail trade								
All new recruits on	90	96	89	90	89	91	91	91
- full-time contracts	90	101	89	88	87	89	91	91
- part-time contracts	94	96	94	97	96	96	96	96

Note: The average hourly wages of, respectively, all, full-time and part-time recruits are related to the average hourly wages of the corresponding categories in total employment.

Table 3.5 shows that in general new recruits enter at an hourly wage level that is lower than the prevailing average hourly wage in the sector. The gap between average starting wages and average sector wages has persistently been slightly smaller in the retail trade (9% on average compared to 13% in the IT sector). This pattern holds for those having entered full-time jobs and even more so for those having entered part-time jobs. The average starting wage in retail trade part-time jobs is, in effect, very close to the average hourly wage of retail trade part-timers. In the IT sector, in contrast, part-time jobs are entered at a wage level that is substantially below the average wage level of the sector's part-timers. No conspicuous time trend is discernible.

Tables 3.6 and 3.7 report on the corresponding wage ratios for new recruits younger and older than 30 years-of-age. Splitting the new recruits according to their age reveals tremendous differences in average starting wages. The lower-than-average starting wages reported for new recruits in Table 3.5, above, are in both sectors almost entirely attributable to the relatively low wage levels that young recruits tend to enter on. Older

recruits have, on average, started at wage levels that have been very close to or occasionally even higher than the average wage level of the sector, irrespective of whether they have been hired on a full-time or a part-time basis.

Table 3.6 Relative hourly wages of young recruits in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001	Av. 95/01
All young recruits on	65	62	67	73	73	72	75	70
- full-time contracts	66	66	67	71	72	72	77	70
- part-time contracts	n.a.	71	84	88	82	73	72	78
Retail trade								
All young recruits on	85	87	84	88	86	86	86	86
- full-time contracts	80	82	77	79	77	77	78	79
- part-time contracts	92	93	92	97	96	96	95	94

Note: The average hourly wages of, respectively, all, full-time and part-time young recruits are related to the average hourly wages of the corresponding categories in total employment. n.a. indicates that the cell contains less than six observations in total.

The average starting wage of young people recruited into IT firms is notably below the sector's average wage level, although Table 3.6 reveals a clear catch-up trend with the wage gap being some ten percentage points smaller in 2001 than in 1995. The corresponding wage gap in the retail trade was still some 10 percentage points smaller in 2001, showing no clear trend in either direction. This, however, turns out to be the outcome of opposite time trends among full-time and part-time recruits. While the relative wage position has improved among young people having entered part-time jobs, the reverse has occurred among those having started in full-time jobs.

Table 3.7 Relative hourly wages of older recruits in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001	Av. 95/01
All older recruits on	97	100	93	95	100	102	98	98
- full-time contracts	97	101	93	95	100	101	98	98
- part-time contracts	n.a.	84	83	89	93	109	83	90
Retail trade								
All older recruits on	99	109	102	97	98	100	101	101
- full-time contracts	100	113	104	97	97	100	101	102
- part-time contracts	99	102	99	97	99	99	101	99

Note: The average hourly wages of, respectively, all, full-time and part-time older recruits are related to the average hourly wages of the corresponding categories in total employment. n.a. indicates that the cell contains less than six observations in total.

Table 3.8, finally, compares the average hourly wages of women and men in the different recruitment categories being studied. Two main conclusions may be drawn based on the table. Firstly, the gender wage gap in starting wages is notably smaller among young recruits, and this difference between young and older recruits is more pronounced in the retail trade than in the IT sector. Indeed, the wage gap turns out to be smallest among young recruits in the retail trade but largest among the sector's older recruits, albeit in recent years very close to that of older recruits in the IT sector.

In other words, the male–female gap in starting wages tends to increase with age. The individual's age, in turn, generally correlates positively with the acquired human capital and thus with the wage level. This is also evident from Table 3.9, which reports on the relationship between average hourly wages of young and older recruits by gender. Older recruits tend to enter noticeably higher-paid jobs. However, the wage premium of older recruits over younger recruits is notably higher among men, which points to male employees having, on average, steeper age–wage profiles compared to their female colleagues. This difference between male and female recruits, which stands out strongly in both sectors, causes the tendency of the gender wage gap to widen with the age of the recruits. Furthermore, this pattern has been strengthened by the fact that the wage premium of older female recruits over younger female recruits has shrunk quite considerably in the IT sector over the 7-year period investigated, from 34% in 1995 to 17% in 2001.

Table 3.8 Average hourly wages of women relative to those of men among young and older recruits in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001	Av. 95/01
<i>Young recruits</i>								
All female recruits on	79	90	90	93	86	90	90	88
- full-time contracts	78	92	90	92	85	90	88	88
- part-time contracts	n.a.	101	90	122	91	86	99	98
<i>Older recruits</i>								
All female recruits on	83	82	90	86	78	75	77	82
- full-time contracts	85	85	90	87	79	77	77	83
- part-time contracts	n.a.	n.a.	n.a.	67	43	32	68	53
Retail trade								
<i>Young recruits</i>								
All female recruits on	97	101	99	99	99	97	99	99
- full-time contracts	91	97	93	96	95	93	94	94
- part-time contracts	100	103	101	98	100	97	100	100
<i>Older recruits</i>								
All female recruits on	84	75	78	81	82	78	76	79
- full-time contracts	84	75	78	82	81	79	77	79
- part-time contracts	98	97	89	93	98	89	89	93

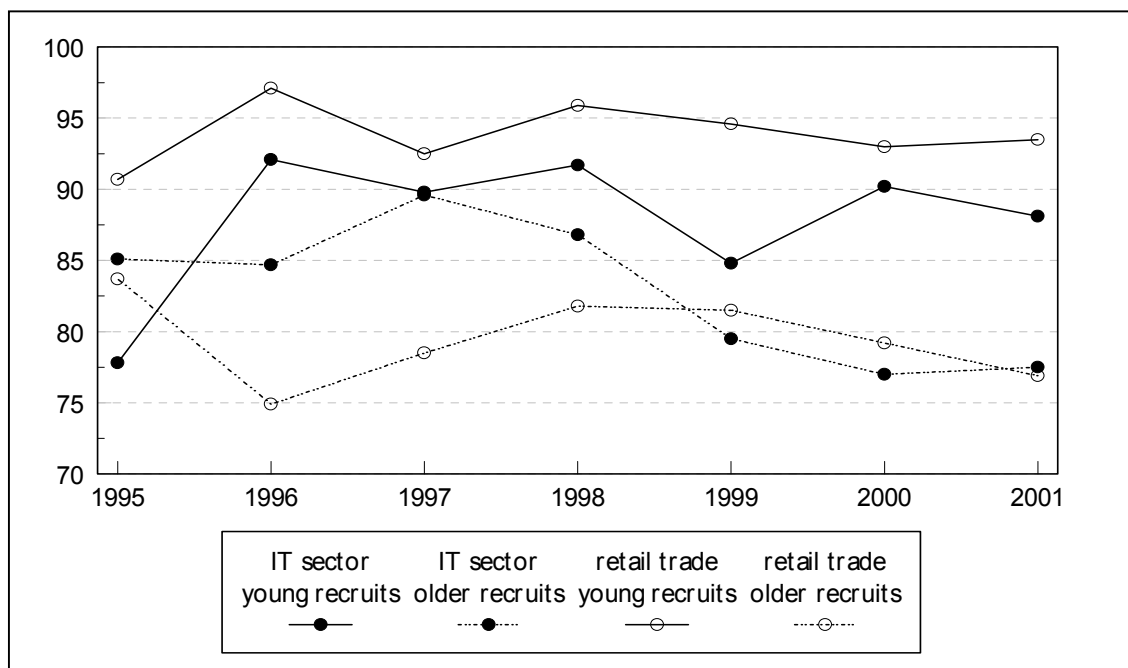
Note: The average hourly wages of, respectively, all, full-time and part-time female recruits are related to the average hourly wages of the corresponding categories of male recruits. n.a. indicates that the cell contains less than six observations either for the women or for the men, or for both.

A second main conclusion is that the gender wage gap is not only larger among older recruits but has, moreover, widened between 1995 and 2001. When only looking at these two end years and the average trend among older recruits, the size and change of the gender wage gap reveals a high degree of similarity in the two sectors – from about 84% in 1995 down to some 77% in 2001. Yet, when following the trend over the in-between years the change stands out as more dramatic in the IT sector (Figure 3.2).

Table 3.9 Average hourly wages of young recruits relative to those of older recruits, by gender, in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001	Av. 95/01
<i>All female recruits on</i>	66	64	72	80	77	79	83	74
- full-time contracts	65	68	71	77	74	77	83	74
- part-time contracts	n.a.	85	86	144	116	121	103	109
<i>All male recruits on</i>	70	59	72	74	70	66	71	69
- full-time contracts	71	62	71	73	70	66	73	69
- part-time contracts	n.a.	n.a.	n.a.	80	54	44	71	62
Retail trade								
<i>All female recruits on</i>	89	86	89	95	92	92	90	90
- full-time contracts	83	80	79	86	84	82	83	82
- part-time contracts	93	92	95	100	97	97	95	96
<i>All male recruits on</i>	77	64	70	78	76	74	69	72
- full-time contracts	76	61	67	73	72	70	68	70
- part-time contracts	91	86	84	94	95	89	85	89

Note: The average hourly wages of, respectively, all, full-time and part-time young recruits are related to the average hourly wages of the corresponding categories of older recruits. n.a. indicates that the cell contains less than six observations for the women or for the men, or for both.

Figure 3.2 Average male–female wage gap among full-time young and older recruits in IT and the retail trade, 1995 – 2001

The fact that women tend to enter jobs at lower wage levels than their male colleagues and that this tendency becomes more pronounced with the age of the recruits, may be due to major differences between men and women with respect to key characteristics such as education and job status. The next sections look into these aspects in more detail.

3.4 Are the recruited women less well educated?

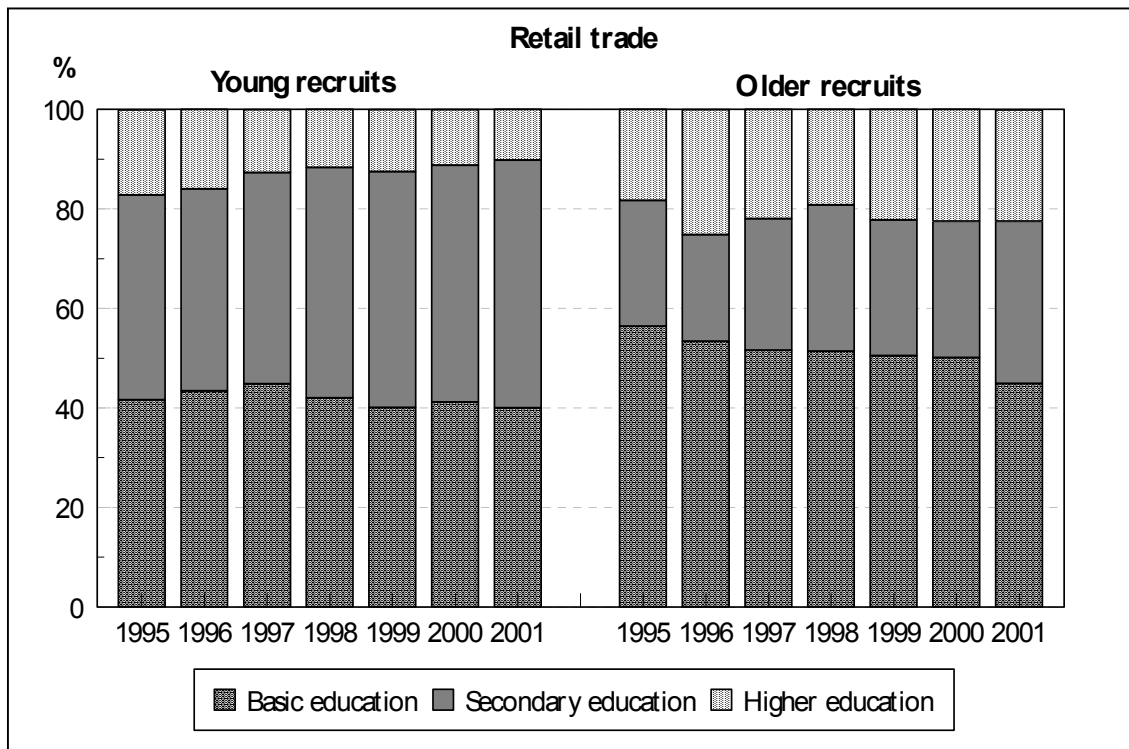
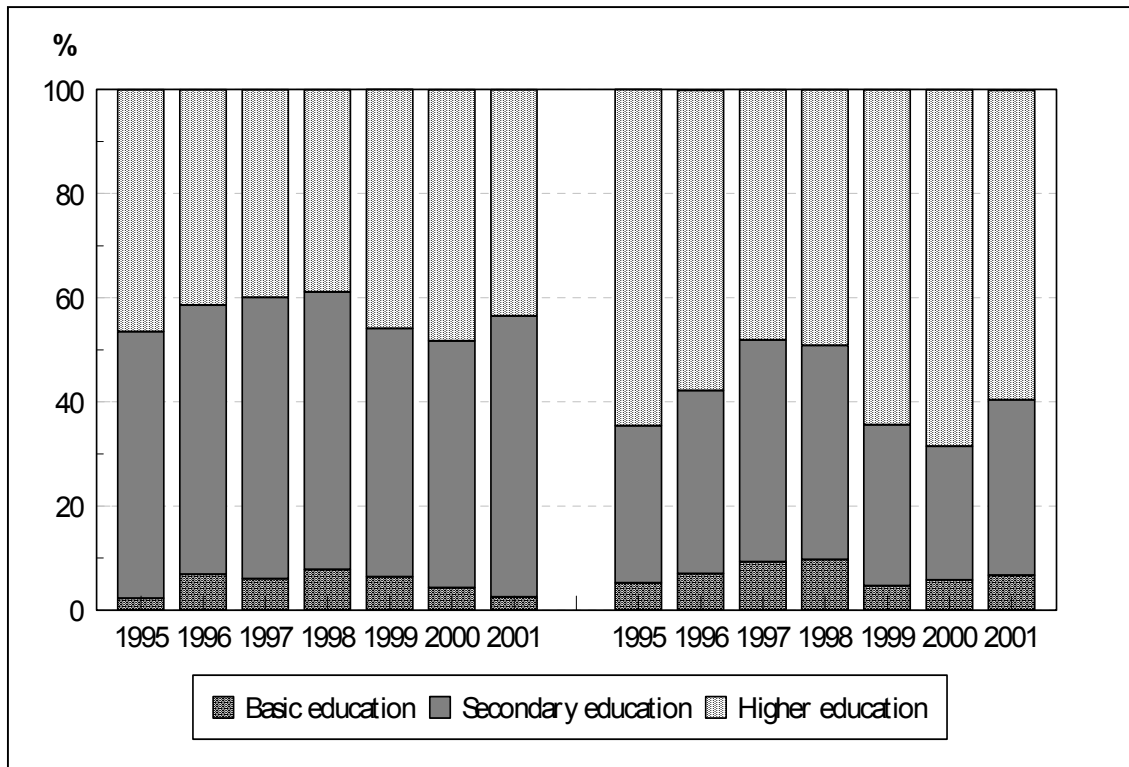
A potential explanation for the starting wages of the recruited women being on average lower than those of their male colleagues relates to major differences in educational attainment levels. If the recruited women have, on average, a lower educational level, then the wage levels that they tend to enter on can also be expected to be lower. Likewise, the overall gender wage gap within each respective sector may reflect clear differences in the educational attainment levels of women and men employed in the sectors, as may the substantial wage gap observed between the two sectors.

The data set contains information on the single highest formal education completed as regards both degree and field. A notable shortcoming of this educational data is, however, that the information is missing for a large number of individuals.¹⁸ Moreover, a comparison of the background characteristics of individuals with missing data with those for whom educational information is available, points to a non-random distribution across educational degrees and fields for those with missing data. Instead the group of individuals with missing educational information seems to be biased towards, respectively, basic education and general education. Since the statistics reported in this and the next section by necessity overlook this particular group, the numbers are not fully representative for the two sectors and should, as a consequence, be assessed with due caution.

A majority of those working in the IT sector have completed a higher (tertiary) education, while a small and shrinking share has only a basic (primary) education. The reverse situation prevails in the retail trade with a majority of the sector's employees having acquired, at most, a basic education. The relative share of employees with a post-compulsory education has increased markedly between 1995 and 2001, but is still notably lower than in the IT sector. This holds especially for those with a higher education. Evidently this offers at least part of an explanation as to why the IT sector is high-paid and the retail trade low-paid. These differences in the educational structure of the two sectors also influence the educational composition of the new recruits of the two sectors, as is obvious from Figure 3.3.

¹⁸ Among the IT sector observations for 2001 information on education was missing for about one-third, while the corresponding share for the retail trade was about two-fifths.

Figure 3.3 Distribution of young and older recruits across basic, secondary and higher education levels in IT and the retail trade, 1995 – 2001



A minority of the new recruits of IT firms have no formal education beyond a compulsory education. A secondary education dominates among the young recruits and a higher education among the older recruits. A secondary-level education also dominates among the young recruits of retail trade firms, but here the second largest share is held by those with a basic education instead of those with a higher education as in the IT sector. A majority of the older recruits of retail trade firms have a basic education only. Indeed, this share is even larger than among the young recruits, but so is the share of those with a higher education.

Therefore, the educational composition of the new recruits does mirror the overall education structure of the sector's workforce while simultaneously contributing to a gradual improvement of the sector's average educational level. Young recruits exert a relatively stronger influence on the secondary-level education share and older recruits on the higher-level education share, which is also to be expected in view of the age differences between young and older recruits. Nevertheless, a conspicuous feature in the retail trade is the persistently high share of those with only a basic education among both young and older recruits, a share that is, moreover, likely to be underestimated because of the non-random distribution of missing-information individuals across the three educational levels.

Table A3.2 of the Appendix gives the percentage shares of women in the three educational level categories, separately for young and older recruits and the two sectors. The most outstanding feature of this table is the dominance of women among older recruits with only a basic education. Moreover, while repeated in both sectors, this pattern stands out much more strongly in the IT sector after controlling for the overall share of female recruits. This is evident from the concentration ratios displayed in Table 3.10. Another noteworthy feature is the marked under-representation of women among the higher-educated older recruits of retail trade firms, and to some extent also among the young recruits. The recruitment of men and women with a secondary-level education seems to be roughly similar when adjusted for their overall share among, respectively, young and older recruits in the two sectors. The only exception is the almost persistent under-representation of secondary educated females among young recruits of IT firms.

The educational differences between men and women observed especially among older recruits can, indeed, add to an understanding of why the male–female wage gap was found to be larger among older than among young recruits. Why it has been increasing over the years under study remains an open question, though. Possibly the answer can be found in the evolution of within-educational-level wage differentials as opposed to between-educational-level wage differentials. The male–female wage gaps within educational levels among, respectively, young and older recruits of the two sectors are displayed in Table 3.11. The same information is provided separately for full-time recruits in Table A3.3 of the Appendix.

Table 3.10 Concentration of women with, respectively, a basic, secondary and higher education among young and older recruits in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001
<i>Young recruits</i>							
Basic education	n.a.	n.a.	1.49	0.96	1.25	0.58	0.70
Secondary education	0.78	0.69	0.97	0.84	0.83	0.57	1.01
Higher education	1.15	1.21	0.97	1.22	1.14	1.46	1.01
<i>Older recruits</i>							
Basic education	2.42	1.40	1.54	0.99	1.38	1.56	1.82
Secondary education	0.97	1.00	1.12	0.94	1.04	0.95	0.93
Higher education	0.90	0.95	0.79	1.05	0.95	0.97	0.95
Retail trade							
<i>Young recruits</i>							
Basic education	1.00	1.00	0.97	0.99	0.99	0.98	0.99
Secondary education	1.00	1.00	1.05	1.03	1.02	1.02	1.02
Higher education	0.99	1.01	0.94	0.94	0.93	0.97	0.93
<i>Older recruits</i>							
Basic education	1.08	1.10	1.05	1.04	1.07	1.07	1.08
Secondary education	0.96	0.94	1.00	1.02	0.97	1.00	0.99
Higher education	0.82	0.84	0.88	0.86	0.87	0.85	0.86

Source: Table A3.2 of the Appendix.

Despite year-to-year fluctuations in the average wage gap between male and female recruits having completed the same level of education, the trend seems to point to increasing within-educational-level wage differences across genders. Moreover, this tendency turns out to be stronger among older recruits, and more so in the IT sector, a conclusion that receives further support when restricting the within-educational-level wage difference comparisons across genders to those recruited on a full-time basis.

Table 3.11 Average hourly wages of women relative to those of men, by educational level, among young and older recruits in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001	Av. 95/01
<i>Young recruits</i>								
Basic education	n.a.	n.a.	n.a.	80	92	n.a.	n.a.	85
Secondary education	87	n.a.	103	95	95	106	96	99
Higher education	85	88	83	99	84	90	92	89
<i>Older recruits</i>								
Basic education	n.a.	82	90	86	54	60	78	75
Secondary education	107	92	94	96	79	83	77	90
Higher education	87	83	91	85	84	77	79	84
Retail trade								
<i>Young recruits</i>								
Basic education	100	103	101	98	99	98	100	100
Secondary education	98	99	98	100	98	94	100	98
Higher education	87	94	96	100	94	84	84	91
<i>Older recruits</i>								
Basic education	93	82	84	91	88	80	87	86
Secondary education	81	80	89	86	87	78	81	83
Higher education	78	67	77	75	77	68	67	73

Note: The average hourly wages of female recruits having completed, respectively, a basic, secondary and higher education are related to the average hourly wages of the corresponding categories of male recruits. n.a. indicates that the cell contains less than six observations either for the women or for the men, or for both.

All in all, then, the lower starting wages of female recruits can be taken to reflect two education-related aspects. First, the educational composition of female recruits does seem to be less favourable compared to that of their male colleagues. Broadly speaking, female recruits have, on average, a lower educational level, especially when it comes to the category of older recruits. Second, despite a similar educational degree women are, nevertheless, entering at a lower wage level, and this tendency turns out to have strengthened right up until 2001, again especially among older recruits. This phenomenon of widening within-educational-level wage gaps across genders may, of course, be due to crucial differences between men and women in the educational field, namely which degree they have completed. This potential explanation is explored in the next section.

3.5 *Are women segregated into “wrong” educational fields?*

In both IT and the retail trade, the majority of those who are less well educated have no formal vocational education. Among the higher educated, in turn, a degree in commercial and business administration dominates in both sectors, followed by degrees in educational programmes specialised in technology, but only for the IT sector. Moreover, the distribution of the retail trade workforce across educational fields reveals minor changes between 1995 and 2001, the most outstanding being a slow but steady decline in the large share of those with only a general education. In the IT sector, in contrast, degrees in technology programmes have grown in importance while those in commercial and business administration programmes as well as in mathematics and natural sciences programmes have lost their relative importance.

As in the case of educational degrees, the prevailing educational field structure of the workforce is strongly reflected in the composition of those recruited by the firms engaged in each respective sector (Figure 3.4). Thus, the larger share of people with a higher education among older compared to young recruits (cf. Figure 3.3) shows up as larger shares of those with a tertiary-level vocational education.

Table A3.4 of the Appendix gives the percentage shares of women in the various educational field categories, separately for young and older recruits and the two sectors. For the higher-education-dominated IT sector, the most conspicuous feature is the still small but, as it seems, growing share of women among recruits educated in a technology programme. The under-representation of women in this particular category remains huge, though, which is also evident from the concentration ratios displayed in Table 3.12. Instead women have traditionally been and still are heavily over-represented among the recruits educated in commercial and business administration.

For the basic-education-dominated retail trade, on the other hand, the previously noted over-representation of women among the lower educated, especially in the category of older recruits, shows up as a clear and persistent over-representation among those with only a general education (Table 3.13). On the whole, the gender distribution of retail trade recruits across educational fields has only undergone small changes, if any, since the mid-90s.

Figure 3.4 Distribution of young and older recruits across educational fields in IT and the retail trade, 1995 – 2001

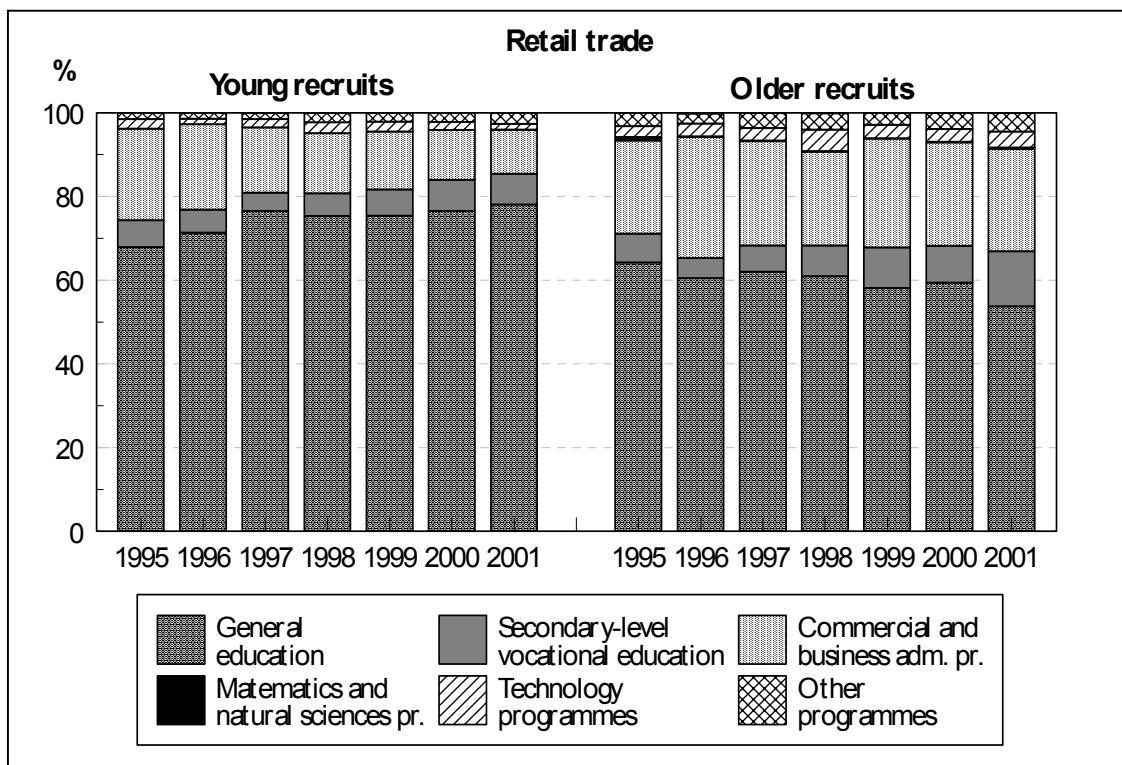
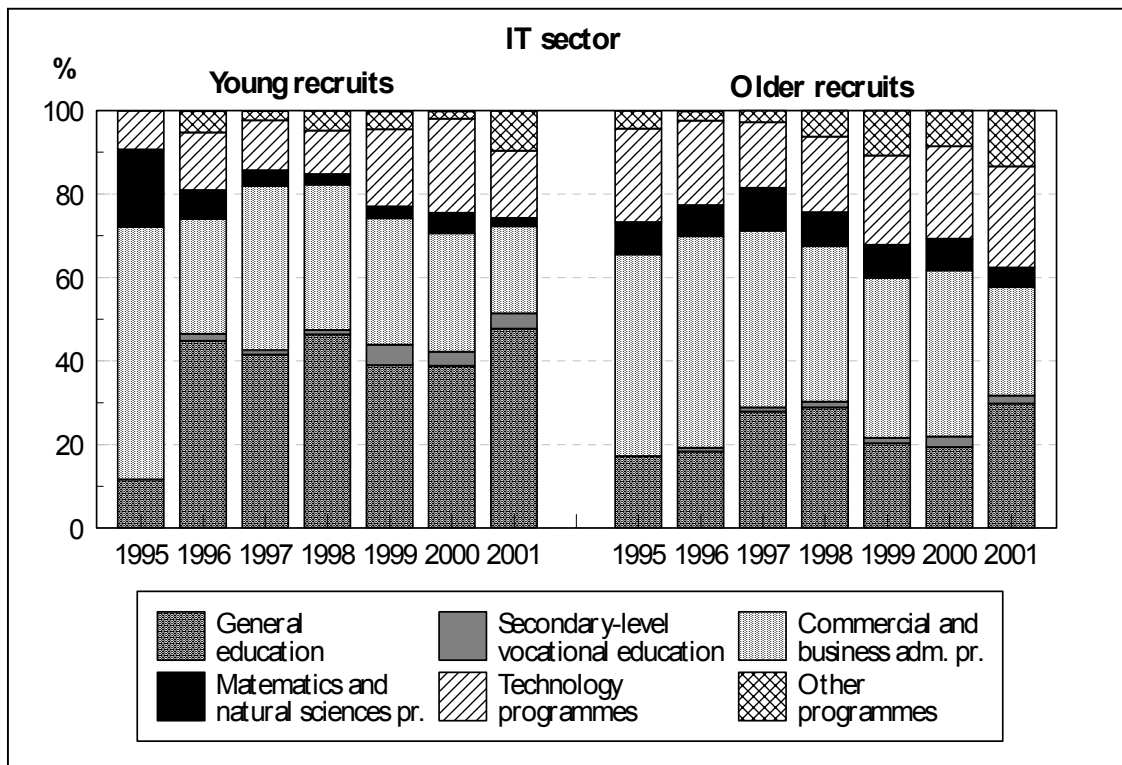


Table 3.12 Concentration of women, by field of education, among young and older recruits in the IT sector, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001
<i>Young recruits</i>							
General education	n.a.	0.64	0.86	0.70	0.86	0.67	1.03
Sec.-level vocational education	n.a.	n.a.	n.a.	n.a.	0.60	0.37	0.97
Commercial and business adm. pr.	1.32	1.55	1.44	1.65	1.53	1.74	1.32
Mathematics and natural sciences pr.	0.72	n.a.	0.39	0.48	0.69	1.26	0.45
Technology programmes	n.a.	0.00	0.25	0.00	0.32	0.65	0.33
Other programmes	n.a.	n.a.	n.a.	1.56	2.06	1.35	1.39
<i>Older recruits</i>							
General education	1.57	1.02	1.15	0.90	1.09	1.10	1.07
Sec.-level vocational education	n.a.	n.a.	n.a.	2.05	n.a.	0.77	1.10
Commercial and business adm. pr.	1.17	1.30	1.23	1.42	1.33	1.38	1.38
Mathematics and natural sciences pr.	1.07	1.17	0.63	0.63	0.99	0.94	0.88
Technology programmes	0.09	0.11	0.27	0.31	0.34	0.32	0.34
Other programmes	n.a.	n.a.	0.99	1.18	1.03	0.90	1.33

Source: Table A3.4 of the Appendix.

Table 3.13 Concentration of women, by field of education, among young and older recruits in the retail trade, 1995 – 2001

Retail trade	1995	1996	1997	1998	1999	2000	2001
<i>Young recruits</i>							
General education	1.02	1.00	1.01	1.02	1.01	1.01	1.00
Sec.-level vocational education	0.83	0.85	0.90	0.96	0.98	0.98	1.06
Commercial and business adm. pr.	1.00	1.05	0.99	0.95	0.96	0.98	0.97
Mathematics and natural sciences pr.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Technology programmes	0.81	0.55	0.76	0.84	0.76	0.68	0.72
Other programmes	1.14	1.25	0.96	1.05	1.11	1.08	1.02
<i>Older recruits</i>							
General education	1.06	1.09	1.06	1.05	1.07	1.06	1.07
Sec.-level vocational education	0.92	0.89	0.94	0.98	0.92	1.05	1.04
Commercial and business adm. pr.	0.91	0.91	0.97	0.96	0.95	0.89	0.93
Mathematics and natural sciences pr.	0.64	n.a.	n.a.	n.a.	n.a.	n.a.	0.40
Technology programmes	0.64	0.32	0.43	0.65	0.41	0.64	0.41
Other programmes	0.93	0.88	0.75	0.98	1.00	1.04	1.00

Source: Table A3.4 of the Appendix.

The main outcome from this examination of young and older recruits according to their educational fields is that certain fields dominate in the two sectors and that the representation of female recruits in these fields varies considerably. Accordingly, notable differences in the size and trend in wage levels and gender wage gaps for these educational fields can shed further light on the overall gender gap in starting wages among young and, especially, older recruits. The subsequent wage analysis is consistently restricted to general education, commercial and business administration programmes and technology programmes for the IT sector, and to general education and commercial and business administration programmes for the retail trade.¹⁹

Table 3.14 Relative hourly wages, for selected fields of education, among young and older recruits in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001	Av. 95/01
<i>All young recruits with</i>	100	100	100	100	100	100	100	100
- general education	n.a.	89	94	99	97	103	96	96
- commercial and business adm.	106	111	102	93	98	108	101	103
- technology programmes	n.a.	121	114	95	103	108	102	107
<i>All older recruits with</i>	100	100	100	100	100	100	100	100
- general education	86	96	97	95	92	100	99	95
- commercial and business adm.	97	99	98	92	87	101	94	96
- technology programmes	112	114	110	93	106	106	109	107
Retail trade								
<i>All young recruits with</i>	100	100	100	100	100	100	100	100
- general education	101	99	101	101	101	99	98	100
- commercial and business adm.	105	102	101	98	100	102	103	102
<i>All older recruits with</i>	100	100	100	100	100	100	100	100
- general education	95	93	95	93	95	96	93	94
- commercial and business adm.	113	120	109	111	110	121	111	114

Source: Table A3.5 of the Appendix.

Table 3.14 reveals that the uneven distribution of male and female recruits across major educational fields does provide part of an explanation for the observed gender wage gap in starting wages. The average starting wage of those with a degree in a technology programme exceeds markedly the average starting wage of new recruits, and women are still heavily under-represented in this field. The relative wages of those educated in commercial and business administration, in turn, correlate heavily with the female

¹⁹ A full coverage of educational fields is provided in Tables A3.5 and A3.6 of the Appendix.

dominance in the field. More precisely, in the IT sector, where women are over-represented among the recruits educated in this field, the starting wage is on average lower than the average starting wage of recruits. And from Table 3.15 it is evident that the gender wage gap among these recruits has widened substantially right up to 2001.

Table 3.15 Average hourly wages of women relative to those of men, for selected fields of education, among young and older recruits in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001	Av. 95/01
<i>Young recruits with</i>								
- general education	n.a.	n.a.	89	93	98	102	97	96
- commercial and business adm.	82	122	92	103	88	91	88	95
- technology programmes	n.a.	n.a.	n.a.	n.a.	71	106	114	97
<i>Older recruits with</i>								
- general education	77	75	87	86	69	67	74	76
- commercial and business adm. pr.	104	86	94	90	81	70	81	86
- technology programmes	n.a.	n.a.	116	109	88	109	87	102
Retail trade								
<i>Young recruits with</i>								
- general education	101	100	101	99	98	96	100	99
- commercial and business adm. pr.	87	95	97	100	94	85	91	93
<i>Older recruits with</i>								
- general education	91	81	85	91	86	80	81	85
- commercial and business adm. pr.	77	72	81	77	78	64	70	74

Source: Table A3.6 of the Appendix.

In the retail trade, in contrast, where women are under-represented among the recruits educated in commercial and business administration, the starting wage is on average much higher than the average starting wage of recruits. Additionally in this sector, the gender wage gap in this education field is large and increasing.

All in all, women do seem to be segregated into the “wrong” fields of education. But this picture is further mixed by the fact that a particular field – here commercial and business administration – stands out as “right” or “wrong” depending on the concentration of women in it. On top of this come widening gender wage gaps within the major educational fields of the two sectors and among those educated in commercial and business administration in particular. Last, but not least, all these differences are much more pronounced among older recruits.

3.6 *Do women tend towards less demanding working tasks?*

Despite being at the forefront in gender equality matters, the Nordic countries, including Finland, are still today characterised by a surprisingly high degree of sex segregation across both industries and occupations. Moreover, this strong segregation has remained more or less unchanged over the past decades.²⁰ Coupled with diverging preferences as regards fields of study, men and women can be expected to enter different types of working tasks. And, if differently rewarded, such segregation would show up in gender-specific pay differentials, also within occupations and industries. It is, therefore, worthwhile examining in somewhat more detail the recruitment patterns into IT and the retail trade with respect to working tasks.

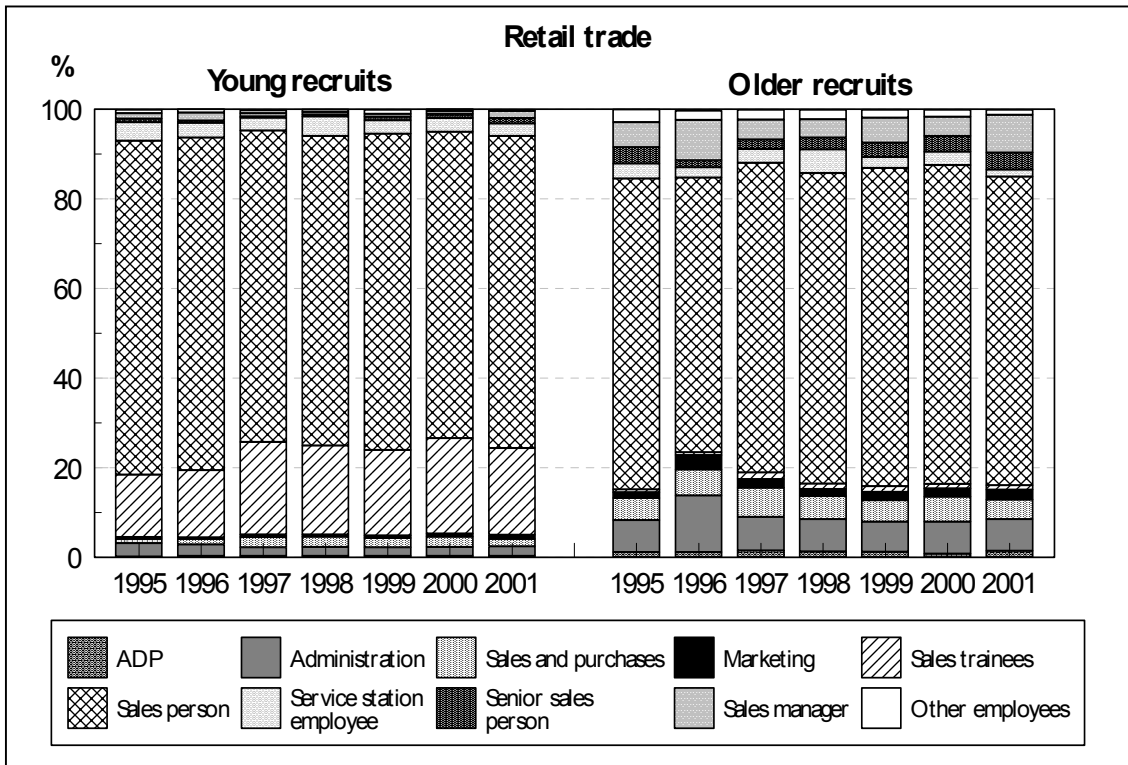
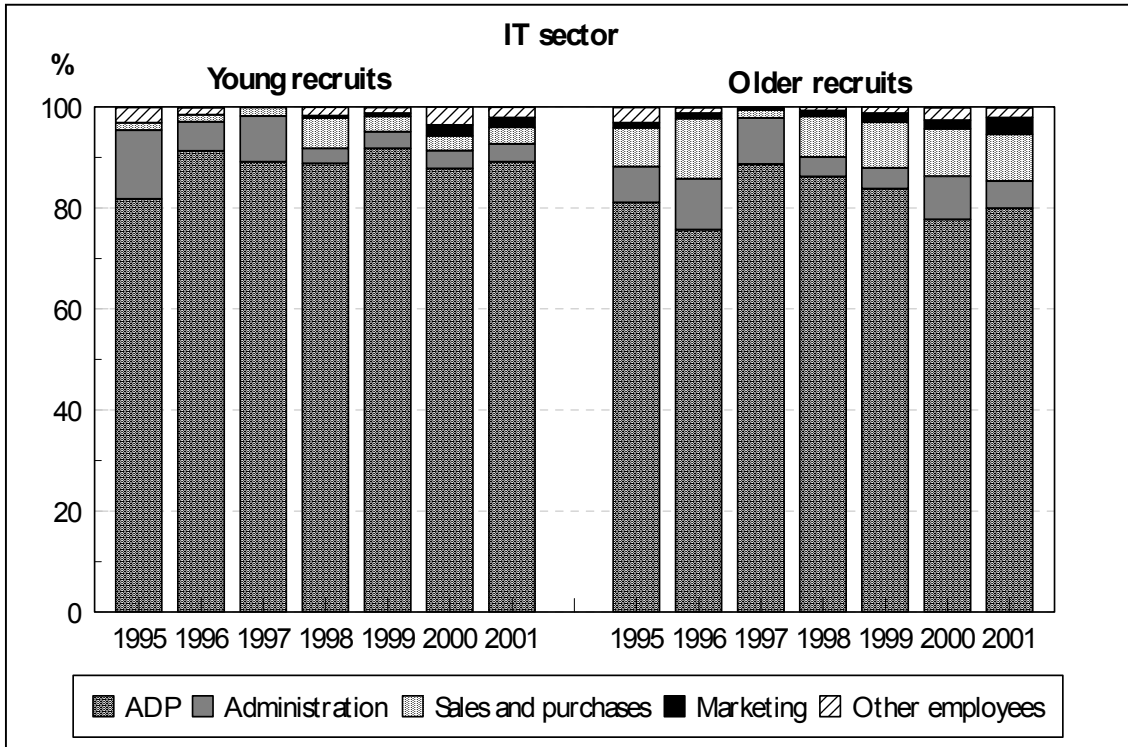
For these purposes, the workforce is divided into three broad categories: clerical employees, sales personnel, and other employees. The category of clerical employees distinguishes between employees engaged in, respectively, ADP, administration, sales and purchases, and marketing. The sales personnel, which appear only in the retail trade, involves a distinction between trainees, sales persons, service station employees, senior sales persons, and sales managers. The category of other employees is small, and no further split is made among the employees classified into it.

A majority of those employed in the IT sector are engaged in ADP-related working tasks. Their share has, moreover, grown steadily since 1995 and is rapidly approaching 90% of total IT employment. At the same time the relative shares of the other working task categories have declined further, most strongly for administration. In 2001 both administration and sales and purchases engaged less than 6% of IT employees while the categories of marketing and “other” each occupied less than 1.5% of the IT workforce.

A similar dominance is discernible in the retail trade, but here it relates to sales, with over 80% of employees performing sales-related working tasks. ADP occupies only about one per cent of the employees. Administration and sales and purchases engage between 6 and 8% each, while only some two per cent are involved in marketing.

²⁰ See, for example, Asplund et al. (1996), Persson and Jonung (1998), Asplund and Persson (2000), and Vartiainen (2002).

Figure 3.5 Distribution of young and older recruits across working tasks in IT and the retail trade, 1995 – 2001



Again, the recruitment patterns mirror the overall composition of the workforce (Figure 3.5). But there are also noteworthy differences between young and older recruits. Thus the recruitment of young people is heavily concentrated in the working task category dominating the sector. In the IT sector almost 90% of the young recruits entered ADP-related working tasks in 2001. In the retail trade some 95% of the young recruits entered sales-related working tasks in 2001. For both sectors, these shares clearly exceed the overall share of employees engaged in these working tasks. Among older recruits, in contrast, a substantially larger share enters working tasks other than the dominating ones. For instance, in 2001 almost 10% of the older recruits of IT firms went into sales and purchases but only some 3% of the young recruits. In the retail trade, the relative over-representation of older recruits is discernible in all working task categories of clerical employee.

Table A3.7 of the Appendix gives the percentage shares of women in the various working task categories, separately for young and older recruits and the two sectors. For the IT sector, the most conspicuous features are the following. Most importantly, while the large majority of young recruits enter ADP-related working tasks almost persistently, only one in four is a woman. The corresponding picture among older recruits seems to be recovering towards a ratio of approximately two in five. In the other working task categories the relative share of female recruits exceeds the 50% threshold, except for sales and purchases.

A small share of female recruits into ADP-related jobs is also the prevailing pattern in the retail trade, with the share being higher among older than younger recruits. The other working tasks reflect the overall female dominance in the sector with high shares of female recruits in principally all categories.

The corresponding concentration ratios are reported in Tables 3.16 and 3.17. These tables also give an idea of the development over time in the gender-specific recruitment patterns into the different working tasks.

Table 3.16 provides further evidence of the clear under-representation of female recruits in the IT sector among those entering ADP-related jobs. Moreover, this under-representation is more severe among young recruits and seems to have diminished only temporarily in the IT boom years in the late 1990s. Among older recruits, women turn out to be losing ground not in ADP-related jobs but rather in sales and purchases, the concentration ratios of which point to a steadily worsening under-representation of females. At the same time, both young and older female recruits are highly over-represented in marketing and especially in administration.

Table 3.16 Concentration of women, by working tasks, among young and older recruits in the IT sector, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001
<i>Young recruits</i>							
ADP	0.81	0.84	0.86	0.86	0.88	0.83	0.83
Administration	1.78	n.a.	2.45	4.07	2.90	2.42	3.30
Sales and purchases	n.a.	n.a.	n.a.	1.02	1.25	1.87	1.20
Marketing	n.a.	n.a.	n.a.	n.a.	n.a.	1.71	2.11
Other working tasks	n.a.	n.a.	n.a.	2.44	2.82	2.57	3.06
<i>Older recruits</i>							
ADP	0.94	0.89	0.91	0.97	0.95	0.87	0.98
Administration	1.83	1.82	2.02	2.03	2.18	2.05	1.43
Sales and purchases	0.71	0.91	0.74	0.65	0.75	0.59	0.57
Marketing	n.a.	n.a.	n.a.	1.31	0.95	2.25	1.20
Other working tasks	1.07	n.a.	n.a.	2.18	2.33	2.18	2.13

Source: Table A3.7 of the Appendix.

The corresponding information for the retail trade is displayed in Table 3.17. When it comes to clerical employees, much the same overall pattern also emerges in the retail trade, that is, under-representation in ADP as well as in sales and purchases, and over-representation in administration and marketing. The degree of disproportionate recruitment is much less outstanding in the retail trade than in the IT sector, though. No trend over the 7-year period investigated is discernible, either. The findings concerning the sales-related working tasks were both anticipated and unanticipated. First, disproportionately fewer females are recruited into more demanding sales tasks, although there are signs of a slight improvement in this respect. Second and surprisingly, there are no distinct differences between young and older recruits, although more experienced female recruits might be expected to be more competitive than their younger counterparts when it comes to more demanding sales tasks.

Hence, the previous observation of considerable variation in female representation according to field of study does seem to indicate notable segregation, also with respect to the working tasks that men and women enter having completed their education. As a consequence, and in line with the results obtained from the educational field analysis, conspicuous differences in the size and trend of wage levels and gender wage gaps also characterise the various working tasks and the dominating ones in particular. This is evident from the next four tables. Tables 3.18 and 3.19 provide an overall picture of the average starting wages in the different working tasks relative to the average starting

wage of, respectively, young and older recruits in the two sectors. Tables 3.20 and 3.21, in turn, report on the male–female wage gap within respective working tasks.

Table 3.17 Concentration of women, by working task, among young and older recruits in the retail trade, 1995 – 2001

Retail trade	1995	1996	1997	1998	1999	2000	2001
<i>Young recruits</i>							
ADP	n.a.	0.60	0.46	0.19	0.17	0.40	0.16
Administration	1.08	1.14	1.03	1.12	1.06	1.11	1.10
Sales and purchases	0.74	0.70	0.48	0.45	0.55	0.58	0.70
Marketing	1.10	1.14	1.04	1.21	1.03	1.16	1.08
<i>Sales trainees</i>	0.98	0.90	0.92	0.98	0.96	1.00	0.97
Sales persons	1.04	1.05	1.05	1.04	1.05	1.04	1.04
<i>Service station employees</i>	0.61	0.63	0.89	0.77	0.73	0.66	0.79
Senior sales persons	0.43	0.57	0.46	0.53	0.53	0.61	0.57
<i>Sales managers</i>	0.69	0.67	0.74	0.74	0.82	0.67	0.87
Other working tasks	0.92	0.77	0.81	0.77	0.84	0.51	0.55
<i>Older recruits</i>							
ADP	0.59	0.39	0.34	0.51	0.36	0.62	0.40
Administration	1.21	1.13	1.12	1.17	1.09	1.19	1.05
Sales and purchases	0.68	0.50	0.55	0.69	0.57	0.45	0.69
Marketing	0.90	0.66	1.15	0.93	1.02	0.98	1.03
<i>Sales trainees</i>	1.13	0.84	1.17	1.02	1.08	1.00	0.98
Sales persons	1.08	1.11	1.08	1.09	1.08	1.08	1.07
<i>Service station employees</i>	0.69	0.73	0.85	0.76	0.77	0.78	0.88
Senior sales persons	0.41	0.30	0.40	0.47	0.61	0.70	0.58
<i>Sales managers</i>	0.73	0.81	0.80	0.64	0.72	0.72	0.86
Other working tasks	0.87	0.79	0.84	0.69	0.72	0.69	0.84

Source: Table A3.7 of the Appendix.

The dominating working task category in the IT sector – ADP – stands out as an average-paid category, which is hardly surprising in view of its large share of IT employment. It seems, however, as if the relative “value” of ADP-related working tasks declines with the age of recruits. One possible explanation is that other working tasks increase in relative importance among older recruits and employees. Another potential explanation is that the relative share of females is much higher among the older than among the young recruits, as noted above, and that this has a depressing influence on the relative wage position of these types of working tasks. Further support for a gender-

based explanation is provided in Table 3.20, which shows that the male–female wage gap has increased among older recruits entering ADP-related working tasks.

Table 3.18 Relative hourly wages, by working tasks, among young and older recruits in the IT sector, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001	Av. 95/01
<i>All young recruits</i>	100	100	100	100	100	100	100	100
ADP	102	101	101	101	101	102	100	101
Administration	85	n.a.	86	81	83	87	91	86
Sales and purchases	n.a.	n.a.	n.a.	101	114	101	127	111
Marketing	n.a.	n.a.	n.a.	n.a.	n.a.	100	97	98
Other working tasks	n.a.	n.a.	n.a.	61	65	67	75	67
<i>All older recruits</i>	100	100	100	100	100	100	100	100
ADP	100	99	101	97	97	98	97	98
Administration	73	85	82	101	107	88	107	92
Sales and purchases	121	121	124	134	131	133	128	128
Marketing	n.a.	n.a.	n.a.	117	106	109	117	112
Other working tasks	99	n.a.	n.a.	67	59	56	59	57

Note: The reference category is the average hourly wages of, respectively, all young recruits and all older recruits. n.a. indicates that the cell contains less than six observations in total.

In the retail trade, ADP represents a small, male-dominated and highly paid working task category. The gender wage gap in starting wages is large among both young and older recruits. Moreover, just as in the IT sector, the male–female wage gap reveals a widening trend among older recruits, possibly mirroring the slowly increasing share of females among the recruits.

Another male-dominated recruitment category is that of sales and purchases, which represents the highest paid working tasks in the IT sector. Furthermore, the category's average starting wage level relative to the average starting wages of all recruits has improved considerably since 1995, especially among older recruits. At the same time the gender wage gap is one of the largest among the working task categories of the IT sector.

In the retail trade, sales and purchases has maintained its high relative wage position among older recruits and the gender wage gap in starting wages has remained large, close to that of ADP-related jobs. Among young recruits, on the other hand, relative starting wages have come down considerably and the gender wage gap has more often been in favour of women rather than men.

Table 3.19 Relative hourly wages, by working tasks, among young and older recruits in the retail trade, 1995 – 2001

Retail trade	1995	1996	1997	1998	1999	2000	2001	Av. 95/01
<i>All young recruits</i>	100	100	100	100	100	100	100	100
ADP	n.a.	104	158	112	117	142	142	129
Administration	103	105	106	104	105	106	105	105
Sales and purchases	124	122	139	100	100	100	100	112
Marketing	98	125	109	112	115	112	112	112
<i>Sales trainees</i>	90	89	92	95	93	93	92	92
Sales persons	100	101	100	101	101	102	101	101
<i>Service station employees</i>	103	101	97	101	97	99	98	99
Senior sales persons	113	102	125	105	108	101	101	108
<i>Sales managers</i>	136	129	128	132	122	117	120	126
Other working tasks	93	98	90	88	97	91	93	93
<i>All older recruits</i>	100	100	100	100	100	100	100	100
ADP	184	151	165	175	190	155	167	170
Administration	113	116	120	117	131	122	127	121
Sales and purchases	149	158	170	153	141	160	151	155
Marketing	122	146	130	137	137	143	124	134
<i>Sales trainees</i>	74	66	69	72	75	75	77	73
Sales persons	93	86	89	91	91	91	90	90
<i>Service station employees</i>	94	86	85	93	92	87	84	89
Senior sales persons	105	92	101	101	98	99	93	98
<i>Sales managers</i>	121	120	127	127	121	120	126	123
Other working tasks	83	89	84	94	96	84	83	88

Note: The reference category is the average hourly wages of, respectively, all young recruits and all older recruits. n.a. indicates that the cell contains less than six observations in total.

Administration was identified as a heavily female-dominated category. In the IT sector, the average starting wage level of these working tasks falls well below average starting wages, particularly among young recruits. In the retail trade, in contrast, administration stands out as an above-average-wage-level category, but this position is achieved merely due to the low relative starting wages of sales jobs. Compared to the other clerical-type working tasks, administration represents a lower-pay category, just as in the IT sector. Apart from being female dominated and relatively low paid, the gender wage gap in administration is large and, as it seems, increasing.

Marketing is a small but steadily growing working task category with a relatively high influx of women. Nevertheless, the average starting wages have almost persistently exceeded the average wage level of new recruits. This tendency has been strongest among older recruits in the retail trade, but at the same time these are also the recruits

among whom the gender wage gap is one of the largest across retail trade working tasks.

Table 3.20 Average hourly wages of women relative to those of men, by working tasks, among young and older recruits in the IT sector, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001	Av. 95/01
<i>All young recruits</i>	79	90	90	93	86	90	90	88
ADP	79	92	93	95	88	96	93	91
Administration	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Sales and purchases	n.a.	n.a.	n.a.	119	74	58	71	80
Marketing	n.a.	n.a.	n.a.	n.a.	n.a.	76	n.a.	76
Other working tasks	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>All older recruits</i>	83	82	90	86	78	75	77	82
ADP	84	85	94	90	80	82	80	85
Administration	n.a.	n.a.	n.a.	53	52	41	60	52
Sales and purchases	n.a.	79	n.a.	69	74	74	73	74
Marketing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	94	94
Other working tasks	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Note: The average hourly wages of female recruits in each respective working task category are related to the average hourly wages of the corresponding categories of male recruits. n.a. indicates that the cell contains less than six observations either for the women or for the men, or for both.

When it comes to sales jobs in the retail trade, the following observations can be made. First, the average starting wage level increases from trainees up to managers, which is only to be expected. Second, relative to the average wages of new recruits, the starting wages of sales jobs stand out as rather low among older recruits; only the starting wages of sales managers are close to the average starting wages of those entering clerical jobs. Among young recruits, in contrast, sales jobs start out from wage levels that are, on average, similar to those of clerical jobs. Sales manager's positions offer young recruits, in effect, a relatively high starting wage, beaten only by that of ADP-related jobs. Finally, the gender wage gaps in sales jobs tend to grow from trainees up to sales managers, but are smaller throughout among young recruits. The largest male–female wage gap shows up among older recruits entering sales manager positions, and the trend points to a widening rather than a narrowing of gender differences.

All in all, women do seem to be segregated into the “wrong” fields of education and, as a consequence, also into the “wrong” types of working tasks. Broadly speaking, female recruits are under-represented in higher-paid working task categories and over-represented in lower-paid working task categories. The relative position of female recruits is further weakened by the fact that the gender wage gaps are large in all working task categories irrespective of whether they are male or female dominated.

Moreover, the male–female wage gap is usually larger in female-dominated rather than male-dominated working task categories. Last, but not least, for several working tasks the gender gap in starting wages is larger among older recruits and, moreover, the trend appears for it to be increasing rather than decreasing.

Table 3.21 Average hourly wages of women relative to those of men, by working tasks, among young and older recruits in the retail trade, 1995 – 2001

Retail trade	1995	1996	1997	1998	1999	2000	2001	Av. 95/01
<i>All young recruits</i>	97	101	99	99	99	97	99	99
ADP	n.a.	n.a.	75	n.a.	n.a.	79	n.a.	77
Administration	77	90	92	88	87	84	83	86
Sales and purchases	77	102	87	101	106	96	107	97
Marketing	n.a.	n.a.	79	n.a.	92	99	94	91
Sales trainees	106	102	104	100	99	104	100	102
Sales persons	99	102	101	99	99	96	100	99
Service station employees	104	108	96	99	99	101	93	100
Senior sales persons	78	105	91	96	105	91	91	94
Sales managers	86	92	91	87	89	89	90	89
Other working tasks	100	128	92	107	111	87	86	102
<i>All older recruits</i>	84	75	78	81	82	78	76	79
ADP	73	84	107	83	81	75	78	83
Administration	56	55	55	55	52	51	50	54
Sales and purchases	77	66	82	81	103	76	82	81
Marketing	n.a.	70	71	50	62	69	47	61
Sales trainees	n.a.	n.a.	n.a.	93	99	120	100	103
Sales persons	97	99	94	93	96	90	93	94
Service station employees	99	97	88	97	88	88	86	92
Senior sales persons	92	99	97	92	95	96	89	94
Sales managers	90	88	76	86	83	76	77	82
Other working tasks	83	81	79	82	78	83	73	80

Note: The average hourly wages of female recruits in each respective working task category are related to the average hourly wages of the corresponding categories of male recruits. n.a. indicates that the cell contains less than six observations either for the women or for the men, or for both.

3.7 Are women less likely to enter higher positions?

A final aspect to be covered in this descriptive analysis concerns the hierarchical position of the jobs men and women enter in the two sectors investigated. The hierarchical position correlates positively and strongly with the wage level and also

gives an indication of the socio-economic status that comes with the position. Moreover, empirical evidence shows that almost half of the economic benefit from investing in a higher education arises indirectly through the hierarchical position and socio-economic status that the individual is capable of achieving due to the acquired education (Asplund 1993, 2001b). Accordingly, if women fail to enter the same hierarchical positions as their male colleagues despite a similar or even identical education, then this will be reflected in lower starting wages for female recruits.

A total of five hierarchical positions are identified based on the data: trainees, employees, experts, managers and directors. A sixth category contains individuals that are not easily classified into one of these five positions. For most of the years, however, this category is small or empty, which provides a further reason for overlooking it in the subsequent analysis. A considerably more serious problem for interpreting the results are the changes in the coding of individuals that have occurred to at least some extent during the 7-year period under study. For instance, the term “experts” appears in the IT sector only from 1998 onwards.

Of the IT-sector workforce, one-quarter can be categorised as employees, about one-half as experts, one-fifth as managers, and less than five per cent as directors. The workforce has only exceptionally embraced individuals classified as trainees. Only minor shifts have occurred in the hierarchical composition of IT employment since 1995. In the retail trade, on the other hand, over 80% of the workforce are employees. The second largest category consists of managers (10–11%). Experts make up less than four per cent of total retail trade employment, and directors only about one per cent. Some four per cent of the workforce are trainees. As in the IT sector, the hierarchical composition of the retail trade has remained almost unchanged over the investigated time period.

Not surprisingly, there are large differences in the hierarchical composition of young and older recruits. While the composition of the older recruits resembles that of total employment, the composition of the young recruits is heavily biased towards the lower end of the hierarchical scale (Figure 3.6). Of the young recruits of IT firms, 95% or more enter as employees or experts. And of the young recruits of retail trade firms, 97% or more enter as trainees or employees.

Figure 3.6 Distribution of young and older recruits across hierarchical positions in IT and the retail trade, 1995 – 2001

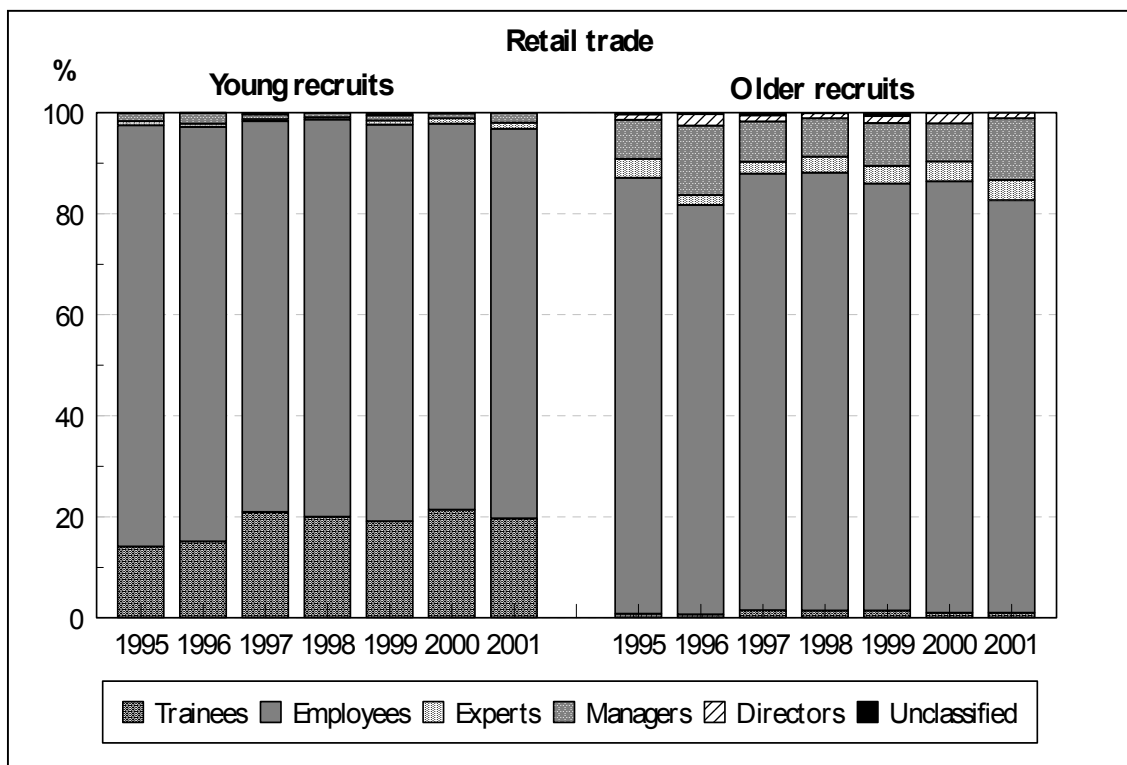
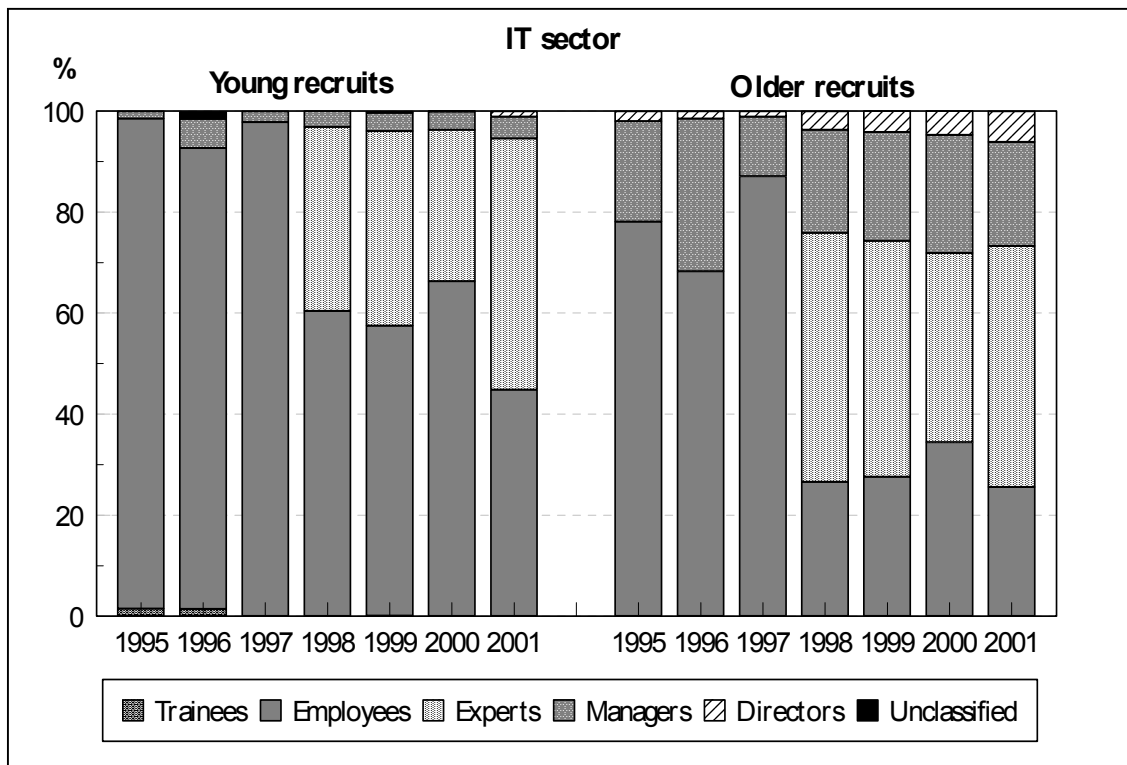


Table 3.22 Concentration of women, by hierarchical position, among young and older recruits in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001
<i>Young recruits</i>							
Trainees	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Employees	1.00	0.97	1.02	1.14	1.25	1.22	1.16
Experts	n.a.	n.a.	n.a.	0.69	0.73	0.54	0.88
Managers	n.a.	n.a.	n.a.	1.93	0.00	0.76	0.94
Directors	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.00
<i>Older recruits</i>							
Trainees	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Employees	1.09	1.11	1.03	1.30	1.63	1.48	1.28
Experts	n.a.	n.a.	n.a.	1.00	0.83	0.89	1.06
Managers	0.76	0.77	0.83	0.64	0.71	0.62	0.71
Directors	n.a.	n.a.	n.a.	0.87	0.24	0.29	0.38
Retail trade							
<i>Young recruits</i>							
Trainees	0.98	0.89	0.92	0.98	0.96	1.00	0.98
Employees	1.02	1.03	1.03	1.01	1.02	1.01	1.02
Experts	0.42	0.49	0.42	0.42	0.47	0.52	0.54
Managers	0.57	0.76	0.74	0.78	0.77	0.62	0.85
Directors	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Older recruits</i>							
Trainees	1.02	0.84	1.17	0.95	1.06	1.01	0.98
Employees	1.06	1.10	1.04	1.06	1.06	1.06	1.06
Experts	0.38	0.24	0.35	0.39	0.57	0.63	0.55
Managers	0.77	0.64	0.76	0.63	0.70	0.75	0.79
Directors	0.18	0.17	0.65	0.26	0.30	0.30	0.45

Source: Table A3.8 of the Appendix.

The percentage shares of women at different hierarchical position levels are displayed in Table A3.8 of the Appendix, separately for young and older recruits and the two sectors. In both sectors, the shares of women decline substantially when moving up the hierarchical scale. This declining trend is more pronounced among the older recruits for the simple reason that so few youngsters are recruited into higher positions. The same picture emerges from the corresponding concentration ratios reported in Table 3.22.

Women recruited into IT firms flow disproportionately into employee-level positions, and their over-representation among employees is stronger among older recruits. This trend seems to have strengthened notably over the 7-year period investigated, but is obviously mostly a result of the male-dominated category of experts having been extracted from the category of employees only since 1998. Another noteworthy feature of the older recruits is the increasing under-representation of women in manager-level positions.

In the retail trade, men and women enter trainee and employee positions in similar proportions, albeit with a slight over-representation of women among older recruits entering employee-level positions. Women are strongly under-represented in recruitment into higher-level positions, but the trend points to a clear improvement in this respect among both young and older recruits.

It goes without saying that this uneven distribution of male and female recruits across hierarchical positions substantially influences the gender gap in starting wages. Table 3.23 shows that the differences in average starting wages are huge when moving from the lowest to the highest positions. Moreover, due to the relatively exceptionally high wages of directors, the spread in hierarchical starting wages is larger in the retail trade than in the IT sector.

Finally, the gender wage gaps at the different hierarchical levels indicate that the female recruits of IT firms generally enter at lower starting wages than their male colleagues and that the male–female wage difference is, once again, larger among the older recruits (Table 3.24). Another noteworthy finding, however, is that the gender wage gap among the older recruits is larger at the employee-level than higher up the hierarchical scale.

In the retail trade, on the other hand, the gender wage gaps are small, if any, among young recruits entering lower-level positions. Among the older recruits, notable male–female wage differentials occur throughout the hierarchical scale. And in contrast to the IT sector, the gender wage gaps tend to widen rather than narrow when moving from the bottom to the top of the hierarchy.

No distinct time trends are discernible in relative wage levels nor in gender wage gaps. But as noted earlier, any trends over the 7-year period investigated are at least partly distorted in the IT sector by changes in the coding of individuals according to hierarchical status.

Table 3.23 Relative hourly wages, by hierarchical position, among young and older recruits in retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001	Av. 95/01
<i>Young recruits</i>	100	100	100	100	100	100	100	100
Trainees	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Employees	100	98	99	93	90	91	88	94
Experts	n.a.	n.a.	n.a.	109	109	115	105	110
Managers	n.a.	n.a.	n.a.	131	159	136	142	142
Directors	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	175	175
<i>Older recruits</i>	100	100	100	100	100	100	100	100
Trainees	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Employees	91	88	94	72	70	71	72	80
Experts	n.a.	n.a.	n.a.	95	94	97	94	95
Managers	128	125	133	134	134	130	125	130
Directors	n.a.	n.a.	n.a.	178	186	188	180	183
Retail trade								
<i>Young recruits</i>	100	100	100	100	100	100	100	100
Trainees	90	89	92	95	93	93	92	92
Employees	101	101	101	101	101	101	101	101
Experts	113	99	117	101	105	100	101	105
Managers	144	134	138	140	132	128	128	135
Directors	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Older recruits</i>	100	100	100	100	100	100	100	100
Trainees	81	66	69	78	75	75	77	74
Employees	95	90	93	94	94	93	92	93
Experts	104	93	100	100	98	98	93	98
Managers	136	141	153	153	141	143	143	144
Directors	261	208	285	246	256	227	248	247

Note: The reference category is the average hourly wages of, respectively, all young recruits and all older recruits. n.a. indicates that the cell contains less than six observations in total.

Table 3.24 Average hourly wages of women relative to those of men, by hierarchical position, among young and older recruits in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001	Av. 95/01
<i>Young recruits</i>	79	90	90	93	86	90	90	88
Trainees	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Employees	80	95	91	89	89	92	94	90
Experts	n.a.	n.a.	n.a.	102	95	100	89	96
Managers	n.a.	n.a.	n.a.	108	n.a.	n.a.	100	104
Directors	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Older recruits</i>	83	82	90	86	78	75	77	82
Trainees	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Employees	86	85	92	90	80	80	84	85
Experts	n.a.	n.a.	n.a.	94	90	96	83	91
Managers	93	88	96	93	95	88	92	92
Directors	n.a.	n.a.	n.a.	96	119	84	93	98
Retail trade								
<i>Young recruits</i>	97	101	99	99	99	97	99	99
Trainees	106	102	104	100	99	103	100	102
Employees	99	102	98	99	100	97	99	99
Experts	78	109	97	102	108	91	92	97
Managers	80	96	83	95	87	90	89	88
Directors	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Older recruits</i>	84	75	78	81	82	78	76	79
Trainees	n.a.	n.a.	n.a.	85	99	120	100	101
Employees	94	95	84	91	93	86	88	90
Experts	93	97	99	94	95	98	89	95
Managers	86	77	76	86	85	84	73	81
Directors	n.a.	84	92	n.a.	86	91	86	88

Note: The average hourly wages of female recruits in respective hierarchical positions are related to the average hourly wages of the corresponding categories of male recruits. n.a. indicates that the cell contains less than six observations either for women or for men, or for both.

3.8 Do the gender wage gaps reflect different characteristics or unequal returns?

Finally, an attempt is made to explore whether the observed gender wage gaps among the new recruits are explained mainly by different wage-relevant characteristics between men and women or by similar characteristics being rewarded differently depending on the sex of the holder. The standard way of doing this is to estimate separate log wage equations for the two genders (marked by m and f) and to use the estimated coefficient (β_j) of each explanatory variable j , together with the corresponding sample mean (\bar{X}_j), in order to split the observed gender wage gap into two components, one due to different characteristics and one due to different rewarding of these characteristics²¹, in line with Oaxaca (1973) and Chiplin (1979). More formally,

$$(1) \ln \bar{w}^m - \ln \bar{w}^f = \sum_{j=1}^J \beta_j^m (\bar{X}_j^m - \bar{X}_j^f) + \sum_{j=0}^J \bar{X}_j^f (\beta_j^m - \beta_j^f),$$

where the first part on the right-hand side gives the gender wage differentials attributable to different background characteristics, using the coefficients from the male wage equation (β_j^m). The second part on the right-hand side measures the gender wage differentials that cannot be explained by differences in the background characteristics accounted for by the variables in the X-vector. This second part also includes the constant terms from the wage equations, which reflect the difference in returns between male and female recruits holding the characteristics of the so-called reference group. In the subsequent analysis, this reference group is characterised by individuals with only a basic (general) education, recruited as trainees, employees or experts into full-time jobs in administration located outside the metropolitan area.

If male and female recruits received identical returns for the same characteristics, then the second part of (1) would disappear and the observed gender wage gap would be due only to differences in wage-related characteristics. According to (1), the male wage structure would prevail, since the coefficients of the male wage equation are used to weight the gender differences in background characteristics. In other words, the male wage structure (β^m) is seen to represent the “no-discrimination” wage structure. Indeed, this is the commonly used approach in the literature, as the point of departure often is that the unexplained part of the overall gender wage gap is due to discrimination with men being paid according to their marginal productivity and women being paid less than their marginal productivity. Removing discrimination would mean that the wages of women would rise to match those of men.

²¹ The different characteristics component can be seen to correspond to the between-group wage differentials and the unequal returns component to the within-group wage differentials in the above descriptive analysis.

The male wage structure may not always be the proper non-discriminatory one to use, however. Suppose that there is no discrimination against females, only nepotism towards males. In that case, the male recruits would take the whole gain from the employers' "positive" preferences for them, and in the absence of such employer behaviour their wages would fall to the wages of the female recruits. In such a situation, the appropriate no-discrimination wage structure to use would be the female one (β^f), or

$$(2) \ln \bar{w}^m - \ln \bar{w}^f = \sum_{j=1}^J \beta_j^f (\bar{X}_j^m - \bar{X}_j^f) + \sum_{j=0}^J \bar{X}_j^m (\beta_j^m - \beta_j^f).$$

Which one of equations (1) and (2) to actually use is largely a question of preferences, but also a question of the male or female dominance in the category under study (cf. Chiplin 1979). Clearly they yield different answers and especially when there is considerable gender segregation across key background characteristics, as has been shown to be the case also among the new recruits analysed here. A third option therefore is to use a combination of the two specifications. Following Greenhalgh (1980), the decomposition can be calculated as the geometric average of equations (1) and (2), or

$$(3) \sqrt{\sum_{j=0}^J \bar{X}_j^m (\beta_j^m - \beta_j^f) \sum_{j=0}^J \bar{X}_j^f (\beta_j^m - \beta_j^f)} = (\ln \bar{w}^m - \ln \bar{w}^f) - \sqrt{\sum_{j=1}^J \beta_j^m (\bar{X}_j^m - \bar{X}_j^f) \sum_{j=1}^J \beta_j^f (\bar{X}_j^m - \bar{X}_j^f)},$$

which gives the wage gap due to different returns as the residual from comparing the wage gap due to different characteristics with the observed wage gap. Another solution is to combine the results from equations (1) and (2) by using the sample proportions (p) of male and female recruits as weights, or

$$(4) \ln \bar{w}^m - \ln \bar{w}^f = \sum_{j=1}^J (p^m \beta_j^m + p^f \beta_j^f) (\bar{X}_j^m - \bar{X}_j^f) + \sum_{j=0}^J (p^f \bar{X}_j^m + p^m \bar{X}_j^f) (\beta_j^m - \beta_j^f).$$

Neumark (1988) suggests a different method where the no-discrimination wage structure is defined based on the coefficients estimated from the pooled regression (β), that is, the full sample of new recruits.

$$(5) \ln \bar{w}^m - \ln \bar{w}^f = \sum_{j=1}^J \beta_j (\bar{X}_j^m - \bar{X}_j^f) + \left[\sum_{j=0}^J \bar{X}_j^m (\beta_j^m - \beta_j) - \sum_{j=0}^J \bar{X}_j^f (\beta_j^f - \beta_j) \right].$$

If $\beta = \beta^m$, then the decomposition in (4) reduces to (1), and if $\beta = \beta^f$, then it reduces to (2). A major appealing feature of these latter, more general decompositions of the gender wage gap is that they are sensitive to the gender composition of the

recruits, allowing the no-discrimination wage to vary according to the prevailing gender dominance. The notable differences that exist in the composition of male and female recruits of the retail trade and IT firms are, in other words, accounted for – albeit to a varying extent – in equations (3) to (5) but not in (1) or (2). The results obtained from these decomposition exercises are summarised in Tables 3.25 and 3.26.

The overall gender wage gaps repeat the patterns pointed to earlier: minor and time-stable differences in starting wages between less than 30-year-old men and women recruited by retail trade firms; rather time-stable but clearly larger gender wage gaps among young recruits of IT firms; and for both sectors, large and widening wage gaps among older recruits. When it comes to the influence on the gross wage ratio between male and female recruits of different characteristics, on the one hand, and different returns to these characteristics, on the other, the two tables indicate the following:

Young recruits of retail trade firms. Both the characteristics and the rewarding of these characteristics are remarkably equal (numbers close to one) across the two genders, showing no distinct trends over time.

Young recruits of IT firms. The different characteristics component seems to have declined over time due to the male and female recruits having become more equal with respect to labour market characteristics, while the different rewarding component displays no clear-cut trend over time. Both components are higher than for young recruits of retail trade firms.

Older recruits of retail trade firms. All five calculation methods indicate that the gender wage gap due to different characteristics has remained roughly unchanged. The different rewarding component, in contrast, reveals considerable year-to-year variation, possibly pointing to a growing rather than stable or even decreasing gender gap in the return to similar characteristics. The much more unequal starting position of older compared to young female recruits of retail trade firms is unquestionable, though.

Older recruits of IT firms. There seems to be a tendency of growing differences in the characteristics held by the over 30-year-old males and females recruited by IT firms. Compared to young IT recruits, the different characteristics component is clearly higher. An increasing trend is discernible also for the different rewarding component. As a consequence, the unequal rewarding of similar characteristics stands out as being, on average, most serious among older recruits of IT firms.

Table 3.25 Components of the male–female wage gap among young and older recruits in IT, 1995 – 2001

	1995	1996	1997	1998	1999	2000	2001	Av. 95/01
Young recruits								
Observed male-female wage ratio	1.245	1.132	1.104	1.088	1.171	1.119	1.116	1.139
<i>Component from different characteristics:</i>								
Eq.(1) Male wage structure	1.047	1.070	1.062	1.095	1.042	0.998	1.024	1.048
Eq.(2) Female wage structure	1.095	0.838	1.019	1.045	1.009	1.073	1.000	1.011
Eq.(3) Geometric av. of (1) & (2)	1.012	1.107	n.a.	1.025	1.035	n.a.	n.a.	1.045
Eq.(4) Weighing of (1) & (2)	1.071	1.007	1.046	1.083	1.033	1.021	1.017	1.040
Eq.(5) Full sample wage structure	1.152	1.137	1.048	1.059	1.057	1.029	1.029	1.073
<i>Component from different coefficients:</i>								
Eq.(1) Male wage structure	1.190	1.058	1.039	0.993	1.124	1.122	1.090	1.088
Eq.(2) Female wage structure	1.137	1.350	1.083	1.041	1.160	1.043	1.116	1.133
Eq.(3) Geometric av. of (1) & (2)	1.230	1.023	n.a.	1.061	1.131	n.a.	n.a.	1.111
Eq.(4) Weighing of (1) & (2)	1.163	1.124	1.055	1.005	1.133	1.096	1.097	1.096
Eq.(5) Full sample wage structure	1.081	0.996	1.053	1.028	1.108	1.088	1.085	1.063
Older recruits								
Observed male-female wage ratio	1.211	1.231	1.113	1.158	1.299	1.330	1.301	1.235
<i>Component from different characteristics:</i>								
Eq.(1) Male wage structure	1.071	1.087	1.085	1.055	1.066	1.086	1.104	1.079
Eq.(2) Female wage structure	1.057	1.166	1.097	1.095	1.145	1.164	1.155	1.126
Eq.(3) Geometric av. of (1) & (2)	n.a.	n.a.	n.a.	1.057	1.093	n.a.	1.138	1.096
Eq.(4) Weighing of (1) & (2)	1.065	1.122	1.091	1.070	1.093	1.117	1.126	1.098
Eq.(5) Full sample wage structure	1.130	1.143	1.081	1.078	1.125	1.169	1.143	1.124
<i>Component from different coefficients:</i>								
Eq.(1) Male wage structure	1.130	1.132	1.025	1.098	1.219	1.225	1.179	1.144
Eq.(2) Female wage structure	1.145	1.056	1.015	1.058	1.134	1.143	1.127	1.097
Eq.(3) Geometric av. of (1) & (2)	n.a.	n.a.	n.a.	1.096	1.188	n.a.	1.144	1.143
Eq.(4) Weighing of (1) & (2)	1.137	1.097	1.021	1.082	1.189	1.191	1.156	1.125
Eq.(5) Full sample wage structure	1.072	1.077	1.030	1.074	1.154	1.138	1.138	1.098

Notes: The observed male–female wage ratio shows the wage premium of male recruits compared to female recruits. Among young recruits in IT firms, this premium amounts to an average of 14% for the period 1995 to 2001. Multiplying the components from different characteristics with that from different coefficients gives the gross male–female wage ratio. A number close to 1 indicates, respectively, equal characteristics and equal returns to these characteristics. Numbers over (below) 1 point to a situation in favour of male (female) recruits.

Table 3.26 Components of the male–female wage gap among young and older recruits in the retail trade, 1995 – 2001

	1995	1996	1997	1998	1999	2000	2001	Av. 95/01
<i>Young recruits</i>								
Observed male-female wage ratio	1.022	0.983	1.004	1.007	1.000	1.023	1.005	1.006
<i>Component from different characteristics:</i>								
Eq.(1) Male wage structure	1.027	0.996	1.007	0.991	0.997	0.998	1.007	1.003
Eq.(2) Female wage structure	1.011	0.988	0.996	0.984	0.987	0.992	0.998	0.994
Eq.(3) Geometric av. of (1) & (2)	1.021	1.018	1.018	1.018	1.011	1.018	1.014	1.017
Eq.(4) Weighing of (1) & (2)	1.015	0.990	0.989	0.986	0.990	0.994	1.000	0.996
Eq.(5) Full sample wage structure	1.019	0.991	1.002	0.988	0.991	0.996	1.003	0.999
<i>Component from different coefficients:</i>								
Eq.(1) Male wage structure	0.995	0.988	0.996	1.015	1.003	1.025	0.998	1.003
Eq.(2) Female wage structure	1.011	0.996	1.008	1.024	1.013	1.031	1.006	1.013
Eq.(3) Geometric av. of (1) & (2)	1.001	0.966	0.986	0.989	0.990	1.005	1.014	0.993
Eq.(4) Weighing of (1) & (2)	1.008	0.994	1.004	1.021	1.011	1.029	1.004	1.010
Eq.(5) Full sample wage structure	1.003	0.993	1.002	1.019	1.010	1.027	1.002	1.008
<i>Older recruits</i>								
Observed male-female wage ratio	1.153	1.259	1.225	1.180	1.169	1.219	1.237	1.206
<i>Component from different characteristics:</i>								
Eq.(1) Male wage structure	1.103	1.191	1.122	1.113	1.123	1.117	1.125	1.128
Eq.(2) Female wage structure	1.074	1.148	1.069	1.070	1.092	1.087	1.088	1.090
Eq.(3) Geometric av. of (1) & (2)	1.040	1.095	1.039	1.045	1.047	1.047	1.054	1.052
Eq.(4) Weighing of (1) & (2)	1.080	1.158	1.083	1.081	1.099	1.094	1.096	1.099
Eq.(5) Full sample wage structure	1.091	1.186	1.105	1.099	1.109	1.112	1.114	1.117
<i>Component from different coefficients:</i>								
Eq.(1) Male wage structure	1.045	1.057	1.092	1.060	1.041	1.091	1.099	1.069
Eq.(2) Female wage structure	1.074	1.097	1.146	1.102	1.071	1.121	1.137	1.107
Eq.(3) Geometric av. of (1) & (2)	1.108	1.150	1.179	1.129	1.117	1.164	1.173	1.146
Eq.(4) Weighing of (1) & (2)	1.068	1.087	1.131	1.092	1.064	1.114	1.129	1.098
Eq.(5) Full sample wage structure	1.056	1.062	1.108	1.074	1.055	1.096	1.110	1.080

Note: For explanations of the numbers in the table, see the notes of Table 3.25.

All in all, these decomposition results confirm the main findings from the descriptive analysis. The relatively small (IT sector) or minor (retail trade) gender wage gaps among young recruits are the outcome of comparatively small or minor gender differences in wage-relevant characteristics as well as in the rewarding of these characteristics. The notably larger gender wage gaps observed among older recruits are due to conspicuous differences between males and females with respect to both the composition of and the return to key background characteristics. Furthermore, the widening trend in the gender wage gap of older recruits is largely attributable to the rewarding of similar characteristics having become increasingly unequal across the two genders. Among older recruits of IT firms, this trend is further strengthened by increasing gender differences also in relation to key characteristics.

Apart from these broad-based outlines, it is hard to draw more definitive conclusions about the relative importance of the two components in explaining the overall gender wage gap within and between the four recruitment categories under study. As is evident from the two tables, the outcome varies substantially depending on the decomposition method used. Even for the same year and category, the alternative ways of decomposing the overall gender wage gap produce highly varying absolute values for both components. Moreover, the relative size of the two components also varies considerably with the different characteristics component being larger than the different rewarding component according to one calculation method, with the outcome being the opposite according to the next method. Hence, the results reported in the two tables illustrate how crucial the choice of the non-discriminatory wage structure is for the decomposition results actually obtained. In addition they show that the female dominance as well as the segregation patterns of the investigated worker group affect the final outcome and, consequently, complicate comparisons across worker groups.

These cautious remarks should be kept in mind when looking next at the influence exerted by single characteristics. Results are reported based on calculations using equations (1), (2) and (4). Moreover, because of no distinct trends over time, only results averaged over the investigated 7-year period are displayed in Tables 3.27 and 3.28. In brief, the results displayed in the two tables suggest the following.

Table 3.27 Effect on the male–female wage gap of different characteristics and different returns, measured by the average for 1995 – 2001, young and older recruits in IT

	Different characteristics				Different returns			
	Eq. (1)	Eq. (2)	Eq. (4)	Eq. (5)	Eq. (1)	Eq. (2)	Eq. (4)	Eq. (5)
<i>Young recruits</i>								
Constant					0.180	0.180	0.180	0.180
Part-time job	0.007	0.001	0.005	0.006	-0.026	-0.020	-0.025	-0.026
Secondary education	0.006	0.018	0.011	-0.005	-0.042	-0.054	-0.048	-0.031
Higher education	-0.012	-0.008	-0.011	-0.020	0.003	-0.001	0.001	0.011
Education unknown	0.019	0.003	0.010	0.052	-0.012	0.004	-0.003	-0.045
Commercial & business adm.	0.008	-0.018	0.002	0.001	-0.074	-0.048	-0.068	-0.068
Math. & natural sciences prog.	-0.002	0.006	0.002	-0.001	-0.005	-0.014	-0.009	-0.006
Technology programme	-0.002	0.002	0.000	0.000	-0.002	-0.006	-0.004	-0.004
Other educational field	-0.001	-0.009	-0.003	0.003	-0.008	0.000	-0.006	-0.012
ADP-related working tasks	0.033	0.025	0.031	0.038	0.031	0.039	0.034	0.026
Sales & purchases	-0.004	-0.003	-0.004	-0.004	0.003	0.002	0.004	0.004
Marketing	-0.002	-0.001	-0.002	-0.001	0.000	0.000	0.000	0.000
Manager	0.009	-0.001	0.006	0.011	-0.002	0.008	0.001	-0.004
Director	0.002	-0.001	0.001	0.001	-0.001	0.002	0.000	0.000
Metropolitan area	-0.014	-0.006	-0.010	-0.011	0.038	0.030	0.035	0.035
<i>Older recruits</i>								
Constant					0.231	0.231	0.231	0.231
Part-time job	-0.002	0.010	0.003	0.009	0.017	0.004	0.012	0.005
Secondary education	-0.002	-0.002	-0.002	-0.001	-0.015	-0.015	-0.015	-0.017
Higher education	0.008	0.006	0.007	0.010	0.020	0.022	0.021	0.018
Education unknown	-0.001	0.001	0.000	-0.001	-0.011	-0.013	-0.012	-0.011
Commercial & business adm.	0.012	-0.002	0.006	0.008	-0.037	-0.024	-0.032	-0.033
Math. & natural sciences prog.	0.000	0.002	0.001	0.001	-0.010	-0.012	-0.011	-0.011
Technology programme	-0.017	0.020	-0.001	-0.002	-0.008	-0.044	-0.023	-0.022
Other educational field	0.004	0.001	0.003	0.003	-0.008	-0.006	-0.007	-0.007
ADP-related working tasks	0.013	0.014	0.013	0.019	-0.015	-0.015	-0.014	-0.021
Sales & purchases	0.008	0.007	0.007	0.011	0.001	0.001	0.001	-0.002
Marketing	0.000	-0.001	-0.001	-0.001	-0.002	-0.001	-0.001	-0.001
Manager	0.034	0.040	0.037	0.038	-0.011	-0.017	-0.013	-0.015
Director	0.022	0.024	0.022	0.024	-0.001	-0.003	-0.001	-0.003
Metropolitan area	-0.001	-0.003	-0.002	-0.002	-0.019	-0.018	-0.019	-0.019

Notes: A negative (positive) number indicates that the characteristic works in favour of (against) female recruits. For more details, see the text.

Table 3.28 Effect on the male–female wage gap of different characteristics and different returns, average for 1995 – 2001, young and older recruits in retail trade

	Different characteristics				Different returns			
	Eq. (1)	Eq. (2)	Eq. (4)	Eq. (5)	Eq. (1)	Eq. (2)	Eq. (4)	Eq. (5)
<i>Young recruits</i>								
Constant					0.017	0.017	0.017	0.017
Part-time job	-0.009	-0.016	-0.014	-0.013	-0.033	-0.026	-0.028	-0.029
Secondary education	-0.001	-0.001	-0.001	-0.001	0.001	0.001	0.001	0.001
Higher education	0.000	0.000	0.000	0.000	0.004	0.004	0.004	0.004
Education unknown	0.001	0.001	0.001	0.001	-0.001	-0.001	-0.001	-0.001
Vocational education	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001
Technology programme	0.000	0.000	0.000	0.000	-0.002	-0.002	-0.002	-0.002
Other educational field	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ADP-related working tasks	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sales & purchases	0.002	0.001	0.001	0.002	0.000	0.001	0.001	0.000
Marketing	0.002	0.001	0.002	0.002	0.000	0.000	0.000	0.000
Sales trainee	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Other sales personnel	-0.003	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002	-0.002
Manager	0.000	0.001	0.001	0.001	0.006	0.005	0.005	0.005
Director	0.005	0.004	0.004	0.005	0.001	0.002	0.002	0.001
Metropolitan area	0.001	0.000	0.001	0.001	0.000	0.000	0.000	0.000
<i>Older recruits</i>								
Constant					0.162	0.162	0.162	0.162
Part-time job	0.008	-0.010	-0.006	-0.003	-0.026	-0.009	-0.013	-0.016
Secondary education	0.000	0.000	0.000	0.000	0.002	0.002	0.002	0.002
Higher education	0.002	0.003	0.002	0.003	-0.001	-0.001	-0.001	-0.002
Education unknown	0.002	0.000	0.001	0.001	0.014	0.016	0.015	0.015
Vocational education	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001
Technology programme	0.000	0.000	0.000	0.000	0.002	0.002	0.002	0.003
Other educational field	0.000	-0.002	-0.002	0.000	0.001	0.002	0.002	0.000
ADP-related working tasks	0.000	0.000	0.000	0.000	0.001	0.002	0.001	0.001
Sales & purchases	0.006	0.008	0.008	0.009	0.000	-0.002	-0.002	-0.003
Marketing	0.005	0.010	0.009	0.014	-0.002	-0.008	-0.007	-0.011
Sales trainee	-0.001	0.000	0.000	0.000	0.000	-0.001	-0.001	-0.001
Other sales personnel	0.001	0.001	0.001	0.001	-0.002	-0.002	-0.002	-0.002
Manager	0.020	0.008	0.011	0.009	-0.090	-0.078	-0.081	-0.079
Director	0.043	0.034	0.036	0.039	0.006	0.015	0.013	0.009
Metropolitan area	0.028	0.027	0.027	0.030	0.000	0.000	0.000	-0.002
Metropolitan area	0.006	0.007	0.007	0.007	-0.001	-0.001	-0.001	-0.001

Notes: A negative (positive) number indicates that the characteristic works in favour of (against) female recruits. For more details, see the text.

Young recruits of retail trade firms. Only a few characteristics play a more outstanding role among young recruits entering retail trade firms, an outcome that is also to be expected in view of the minor overall gender wage gap within this recruitment category. Part-time employment stands out as the most notable single characteristic affecting both wage components. Moreover, in both cases it works in favour of women. In other words, a part-time job (compared to a full-time one) means a more disadvantageous starting position for young men than for young women. However, this part-time related comparative advantage of young female recruits is more than outweighed by two other major characteristics that turn out to be much better rewarded if held by young male recruits; that is, working within the metropolitan area, and holding the basic characteristics of the reference group (captured by the constant term).²²

Young recruits of IT firms. The different characteristics component of this recruitment category is most strongly influenced by three background characteristics: a higher education degree, ADP-related working tasks, and working for a firm located within the metropolitan area. Of these, both a higher education degree and a workplace located within the metropolitan area reduce the overall difference in characteristics between the two genders because of relatively more female recruits holding these characteristics. But even taken together they fail to neutralise the widening effect caused by the under-representation of young females recruited into ADP jobs. However, when it comes to the different rewarding component, all three characteristics behave in the same way, in that male recruits receive a higher return than female recruits. The joint impact of these three characteristics is further strengthened by the unequal rewarding of the basic characteristics of the reference group, a difference that is, moreover, much larger than among young recruits of retail trade firms. A counter-effect, in the sense that female recruits are on average better rewarded than male recruits, is exerted primarily by the following characteristics: part-time job, secondary education qualification, and specialisation in commercial and business administration educational programmes.

Older recruits of retail trade firms. The spread in characteristics among older recruits of retail trade firms originates mainly in conspicuous gender segregation by hierarchy, with the most pronounced under-representation of females showing up among those recruited into manager and director positions. This strong segregation logically means that eventual differences in returns for similar characteristics are concentrated on recruits entering the lower end of the hierarchical scale and on the reference group in particular. It should also be noted that the highly advantageous situation of female recruits when it comes to the rewarding of part-time work and sales jobs is simply due

²² As noted earlier, the reference group refers to individuals with only a primary education, performing administrative tasks on a full-time basis. Furthermore, they work as trainees, employees or experts in firms located outside the metropolitan area.

to these characteristics placing male recruits in an even worse position than female recruits when compared to the respective reference category.²³

Older recruits of IT firms. As for older recruits of retail trade firms, strong hierarchical segregation by gender explains a major part of the different characteristics component. And in line with the situation among young recruits of IT firms, the gender differences in characteristics are widened further by a clear under-representation of females among those with a higher education degree as well as among those recruited into ADP-related working tasks. Of the four recruitment categories, the unequal returns of those holding the characteristics of the reference group are most notable among older recruits of IT firms. The on-average higher return of male recruits with a higher education degree further exacerbates this unfavourable situation of female recruits, despite being somewhat alleviated by better rewarding of females with respect to most other characteristics accounted for. It is also noteworthy that working within the metropolitan area is a strength for older female recruits, but a clear disadvantage for young female recruits.

In conclusion, when analysing how single background characteristics contribute to the overall effect of the different characteristics component and the different rewarding component on male and female starting wages, we find that the patterns that emerge strongly resemble those identified in the descriptive analysis. In particular, the differences in characteristics reflect notable gender segregation in recruitment behaviour especially when it comes to hierarchical positions. At the same time, female recruits generally receive lower returns for characteristics of particular relevance for the sector in question.

3.9 Conclusions and discussion

The IT sector stands out as male-dominated, highly-paid and highly-skilled, offering almost without exception full-time job contracts only. The retail trade, on the other hand, is a female-dominated, rather low-paid and low-skilled sector with a considerable proportion of people hired on part-time contracts. But although IT and retail trade firms represent opposite extremes of the services sector, their recruitment behaviour and the composition of their recruits reveal interesting similarities. This concluding section draws together the main findings, pointing to key features that the sectors have in common from a gender perspective.

Over the 7-year period investigated, the IT sector has been characterised by a clear shift in recruitment towards the younger age groups (less than 30 year-olds). From a female point of view this is a problematic trend, as women seem – for one reason or another –

²³ These reference categories are full-time work and administrative positions, both captured by the constant term.

to be less successful when competing for IT jobs at younger ages. This shows up as declining female percentages among new recruits and subsequently also in total IT employment. As the educational composition of the new recruits is, on average, more favourable than the prevailing educational structure of the sector, this has steadily improved the average educational level of the sector. Many of the new recruits enter ADP-related working tasks at expert or higher levels in the hierarchy.

In contrast to the IT sector, the recruitment patterns of retail trade firms and the composition of the recruits have undergone only marginal changes since 1995. A steadily high share of females is recruited into retail trade jobs, which has maintained female dominance in the sector. Moreover, a notable proportion of the recruits – among both young and older recruits – have only a basic education, which means they have no formal vocational education. This, in turn, has maintained the sector's character of being low skilled. And since the majority of the recruits have acquired only a compulsory education, it is hardly surprising that most of them enter less demanding jobs at the lower end of the hierarchical scale.

But when looking closer at the recruits of the two sectors from a gender perspective, astonishing similarities can be identified, despite the fundamental differences between IT and the retail trade outlined briefly above. A major similarity is that the gender gap in starting wages increases with the age of the recruits. While the starting wages of young male and female recruits reveal, on average, quite moderate differences, the male–female wage gap is substantially larger among older recruits, with the trend pointing to widening rather than narrowing wage differentials.

This pattern seems to be the outcome of several closely related factors that stand out more among older recruits than younger ones. First, female recruits are on average less well educated, for which reason they tend to enter lower-paid jobs at the lower end of the hierarchy. And even if they acquire a vocational education, they often choose a less valued field, which often correlates with the fact that the educational field is female dominated. Lower-than-average starting wages also characterise female-dominated jobs. All in all, relatively more female recruits enter average-wage or below-average-wage jobs. Why the recruitment of women is concentrated on lower-skilled women and women with a qualification in the “wrong” educational field remains an open question, though.

The effects of these between-group differences in starting wages are strengthened by notable and occasionally further widening gender wage gaps within major educational and job categories. Moreover, such within-group gender wage gaps occur irrespective of the group being female or male dominated. And for some groups, an increasing proportion of female recruits is coupled with widening within-group differences in starting wages, providing support for the so-called pollution theory of discrimination which states that new female recruits reduce the prestige of previously male-dominated occupations (Goldin 2002).

The main outcomes from this descriptive analysis receive further support when undertaking a statistical analysis of the wage gaps observed between male and female recruits. More precisely, the notable over and under-representation of female recruits with respect to key characteristics of the respective sector shows up as crucial characteristic-related explanations for the observed gender wage gaps. Simultaneously the within-group wage differentials that characterise several of these key individual and job-related background factors are expressed as substantial differences between men and women in the remuneration of similar characteristics.

This static analysis of male and female recruits of IT and retail trade firms may, however, give an unduly pessimistic picture of the current situation and its evolution since the mid-90s. It is, therefore, of crucial importance to complement this analysis with a corresponding dynamic one tracing the same individuals over several years. Such an exercise is reported in the next chapter.

4. CAREERS AND EARNINGS GROWTH OF NEW RECRUITS

To be able to understand the underlying mechanisms that create gender wage differentials it is important to look into the dynamic aspects of the internal labour market. In Chapter 3 it was noted that there are quite substantial gender differences in the initial conditions of new recruits. Depending on the way the internal labour markets function, these differences may either widen or narrow over time. The next sections of this chapter highlight some basic dynamics in the internal labour markets that contribute to the observed gender differences in the IT sector and the retail trade.

In order to make empirical analyses, different background information has been collected on the same individuals in the recruitment year and during the following 4 years of employment using the annual data sets provided by the Employers' Confederation of Service Industries in Finland (ECSIF).²⁴

The internal labour markets that are studied in this chapter refer to the industry/sector level. In each industry, ECSIF member firms follow the same centralised wage agreements and are governed by the same institutional rules. Thus, in each sector, ECSIF member firms can be regarded as forming their own internal labour markets with well-defined regulations and practices.

4.1 *Do gender wage differentials widen throughout a career?*

In studying how the earnings of new recruits change over time, hourly wage rates have been deflated by the index of wage and salary earnings. Thus, the indices of real hourly wages for new recruits that are used in this chapter are relative to the overall changes in wage earners' and salaried employees' earnings.

It appears from Table 4.1 that during the first 5 years of employment the real hourly wages of new recruits in the IT sector grew on average 23% more rapidly than the overall index of wage and salaried earnings did during the same time interval. The corresponding growth in the retail trade was 10 percentage points smaller, at 13%. Thus, recruits in the high-pay IT sector also appear to receive higher returns from their employment in the long run than those in the low-pay retail trade sector. At the beginning of their careers new recruits in the retail trade earned about 60% of the average hourly wage of new recruits in the IT sector. After 5 years of employment retail trade employees earned 55% of the corresponding wage in the IT sector, indicating a widening wage gap between the two sectors.

²⁴ In Chapter 2 the creation of the panel data set is discussed in more detail.

Table 4.1 Index of real average hourly wages during the first 5 years of employment, among new recruits in IT and the retail trade

IT sector	1	2	3	4	5
<i>All recruits</i>	100	109	112	116	123
- men	100	108	110	114	125
- women	100	110	114	119	123
Women's average hourly wages relative to those of men	86	88	90	90	85
Retail trade					
<i>All recruits</i>	100	105	109	111	113
- men	100	109	116	121	125
- women	100	104	106	108	109
Women's average hourly wages relative to those of men	92	88	84	82	80

Note: 1, 2, 3, 4 and 5 refer to, respectively, the 1st, 2nd, 3rd, 4th and 5th year of employment.

A closer look at the widening wage gap between the two sectors reveals that it is attributable to the growing wage differentials between the female employees of these sectors. Table 4.1 shows that men's earnings growth in the IT sector and the retail trade has been the same over the observation period, whereas the earnings growth of women in the IT sector has been 14 percentage points higher than that of women in the retail trade. Thus, it has been beneficial for women's earnings growth to be employed in a male-dominated high-pay industry compared to that of a female-dominated low-pay industry.

In the IT sector the earnings growth of men and women during the first 5 years of employment has been about the same, and there appears to be no rising trend in the gender wage gap over time. In contrast, in the retail trade, women's earnings growth has not kept up with that of men and the originally narrow gender wage gap of 8% has widened to 20% during the first 5 years of employment.

To facilitate an examination of the different factors generating the gender wage differentials in the two industries, the index of real hourly wages is reported separately in Table 4.2 for new recruits younger and older than 30 years of age. Three main conclusions can be made based on this table. First, earnings growth is notably higher among young recruits than among older recruits, reflecting a catching up effect related to the lower starting wages of young recruits, which is in line with the steep age-earnings profiles characteristic of early working life. This means that the wage premium of older recruits, discussed in Chapter 3, narrows during the 5 first years of employment. Among male recruits this wage premium shrank from 30% to 22% in the IT sector and from 28% to 18% in the retail trade. Among female recruits it shrank from

22% to 14% in the IT sector and from 10% to 6% in the retail trade. These figures indicate notable differences in the shape of age-earnings profiles between men and women, but also across women, depending on the sector of employment. The earnings profile is almost flat for women in the retail trade.

Second, the gender wage gap among young recruits remains markedly lower than that of older recruits in both sectors. This difference is more pronounced in the retail trade, where the gender wage gap, at the beginning of a career, is 20 percentage points higher among older recruits than among young recruits. In the IT sector the gender wage gap is about 10 percentage points higher among older recruits than among young recruits throughout the 5 year observation period.

A third main conclusion is that the gender wage gap slightly narrows in the IT sector and widens in the retail trade during the first 5 years of employment. In particular, the situation of nearly equal pay between young female recruits and their male colleagues in the retail trade at the beginning of their careers has changed to a 14% wage gap by the 5th year of employment. These results point to potential differences in the functioning of the internal labour markets in the IT sector and the retail trade. Practices related to reward systems and to internal mobility (promotions and demotions) may be less beneficial for women working in the retail trade than for women working in the IT sector. The results may also be due to differences in external mobility. If women with higher qualifications have higher than average exit rates from the industry, other things being equal, one would observe increasing gender wage gaps over the careers of the women who remain employed within the industry.

Table A4.1 of the Appendix presents an index of real average hourly wages which is based on a more restricted data set, including only those new recruits who remained employed in ECSIF member firms throughout the 5-year observation period. A comparison of how these results differ from the above analyses, using an unbalanced panel data set (which allows exits from the two sectors at any point of time), gives some indication of the potential effects of external mobility on the results presented earlier.

Table 4.2 Index of real average hourly wages during the first 5 years of employment, among young and older recruits in IT and the retail trade

IT sector	1	2	3	4	5
<i>Young recruits</i>	100	112	120	127	126
- men	100	111	119	126	126
- women	100	115	123	131	129
Women's average hourly wages relative to those of men	89	92	92	93	91
<i>Older recruits</i>	100	106	106	107	114
- men	100	104	103	104	113
- women	100	107	110	113	117
Women's average hourly wages relative to those of men	80	83	86	87	83
Retail trade					
<i>Young recruits</i>	100	105	108	110	114
- men	100	107	112	118	126
- women	100	104	106	108	109
Women's average hourly wages relative to those of men	99	96	94	90	86
<i>Older recruits</i>	100	103	105	106	106
- men	100	105	111	112	110
- women	100	102	104	104	105
Women's average hourly wages relative to those of men	79	76	74	73	75

First, it should be stated that most of the earlier conclusions also hold in this restricted sample. One clear exception relates to the male and female earnings growth among young recruits in the IT sector. The earlier result showing similar earnings growth does not hold in this sample; earnings growth appears to be clearly higher among young men than women, leading to a widening gender wage gap over time. These results suggest that young men, who have a better career in the IT sector than elsewhere, are inclined to remain employed in this sector. On the other hand, young women, who do not have especially good career opportunities in the IT sector, are nevertheless even more inclined than their male colleagues to remain employed in this industry. This may be due to the fact that, even though these women do not get as good wage increases in the

IT sector as men on average, they still receive better wages by remaining in the high-pay IT sector than exiting from it.

According to economic research, working on a part-time basis may result in lower relative average hourly wages. The IT sector offers mainly full-time jobs but in the retail trade a large proportion of young recruits work on part-time job contracts. We may see whether this has an effect on the general conclusions drawn earlier on the overall earnings growth in the retail trade by examining the index of real average hourly wages for full-time workers presented in Table A4.2 of the Appendix.²⁵ It appears that earnings growth among young female recruits on full-time job contracts is slightly better than earnings growth among all young female recruits, suggesting a positive wage premium for full-time employees in the retail trade. However, this has not prevented a widening of the gender wage gap among full-time workers in the retail trade, too. Thus, the overall conclusions made in connection with Table 4.2 seem to hold also for the more restricted group of full-time workers.

It is clear that looking at gender wage gaps among very heterogeneous groups of employees is not sufficient to uncover potential discrimination that women may face in the labour market. A much more detailed analysis is required. Chapter 3 reported major differences in starting wages among some sub-groups of new recruits. The next task is to see whether these differences prevail over time.

One of the explanations for overall gender wage gaps may be that men and women have different educational attainment levels. It was noted earlier in Chapter 3 that there is a dominance of women among older recruits with only a basic education. This dominance is particularly strong in the IT sector. Furthermore, there is a marked under-representation of women among the higher-educated older recruits in the retail trade. These differences affect both starting wages and the potential wage growth over time.

In Table 4.3 the average hourly wages of women relative to those of men during the first 5 years of employment are reported by educational level. This table shows that the only group which exhibits equal wages over time is young recruits with a secondary education in the IT sector. However, this positive outcome has a snag, since women are clearly under-represented in this group of recruits. Young female recruits with only a basic education in the retail trade start off with equal pay, but by the 5th year of employment the gender wage gap has risen to 10%.

²⁵ A person is defined to be on a full-time job if his or her weekly hours of work equal or are above 35 hours. The index of real average hourly wages is also reported for the IT sector for the sake of completeness.

Table 4.3 Average hourly wages of women relative to those of men during the first 5 years of employment, by educational level, among young and older recruits in IT and the retail trade

IT sector	1	2	3	4	5
<i>Young recruits</i>					
Basic education	84	92	n.a.	n.a.	n.a.
Secondary education	97	98	95	100	103
Higher education	89	88	92	91	98
<i>Older recruits</i>					
Basic education	76	74	76	87	n.a.
Secondary education	87	93	93	91	86
Higher education	82	82	87	85	78
Retail trade					
<i>Young recruits</i>					
Basic education	100	97	96	97	90
Secondary education	98	96	96	94	91
Higher education	93	88	84	82	78
<i>Older recruits</i>					
Basic education	85	86	83	83	83
Secondary education	83	79	79	85	92
Higher education	72	74	73	77	76

Note: n.a. indicates that the cell contains less than six observations for women or for men or for both.

The highest gender wage gap is among highly educated older recruits in the retail trade. In this group, at the beginning of their careers, women's wages average 72% of the average male wages. Among young recruits the corresponding figure is 93%. However, after 5 years of employment in the retail trade, the gender wage gap of younger recruits with a high education has approached that of older recruits, whose gender wage gap has slightly narrowed over the years. This result suggests that there are mechanisms in the internal labour markets of the retail trade that impede the performance of highly educated young women over time compared to that of men. This point will be discussed in more detail later in this chapter.

A final observation from Table 4.3 is that the within-educational-level wage differences across genders tend to persist or widen over time in the retail trade. This result tends to indicate that gender segregation in relation to working tasks remains rather stable at different levels of education. This potential outcome may be due to differences in the

educational fields men and women typically choose to study. The educational field influences men's and women's ability to break the gender segregation of working tasks. One cannot perform working tasks that require technical skills with a general education. We next discuss how the gender wage gap evolves over time among recruits from selected educational fields.

Table 4.4 shows gender wage gaps during the first 5 years of employment in 3 different educational fields - general education, commercial and business administration and technology. These educational fields represent very different female dominance. In the IT sector women are over-represented among recruits with a qualification in commercial and business administration and under-represented among recruits with a qualification in technology. In the retail trade women are under-represented among recruits with either a commercial and business administration qualification or a qualification in technology. In this sector women have a slight dominance among recruits with a general education.

Table 4.4 shows that in the IT sector, where most working tasks are ADP-related, a qualification in technology produces the smallest gender wage gaps over time. However, there appears to be a point where this gender wage gap starts to rise, suggesting an inability of female recruits with a technological orientation to keep up with their male colleagues. On the other hand, among female recruits with a qualification in commercial and business administration in the IT sector perseverance seems to pay; by the 5th year of employment women have attained wage levels that are similar to or higher than those of men.²⁶ In the IT sector the largest gender wage gaps appear among older recruits with a general education.

²⁶ It should be noted that this result may be unreliable due to the relatively small number of observations (26) in the 5th year among recruits with this particular field of education.

Table 4.4 Average hourly wages of women relative to those of men during the first 5 years of employment, by field of education, among young and older recruits in IT and the retail trade

IT sector	1	2	3	4	5
<i>Young recruits with qualifications in</i>					
General education	96	97	90	90	93
Commercial and business administration	92	89	93	92	106
Technology	102	100	92	n.a.	n.a.
<i>Older recruits with qualifications in</i>					
General education	77	81	84	85	79
Commercial and business administration	83	82	87	88	97
Technology	97	99	98	90	n.a.
Retail trade					
<i>Young recruits with qualifications in</i>					
General education	99	96	96	95	89
Commercial and business administration	94	90	84	82	78
Technology	96	92	89	88	89
<i>Older recruits with qualifications in</i>					
General education	85	84	82	83	84
Commercial and business administration	73	73	74	78	79
Technology	70	75	70	86	96

Note: n.a. indicates that the cell contains less than six observations for women or for men or for both.

In the retail trade the largest gender wage gaps are among recruits with a qualification in commercial and business administration. This is a field in which women are under-represented. The smallest gender wage gaps are among recruits with a general education. This suggests that in the retail trade, contrary to the IT sector, a general education provides women with the flexibility that is needed in order to be able to manage different working tasks. In the retail trade the initially small gender wage gap of 4% among young recruits with a qualification in technology widens to 11% over time. For older female recruits in the retail trade a qualification in technology gives substantially lower starting wages than those of men, but the gender wage gap appears to narrow over time. Among young recruits in the retail trade the gender wage gap widens over time in all fields of education.

It was noted in Chapter 3 that almost half of the economic benefit from investing in a higher education arises indirectly through the hierarchical position and socio-economic status that the individual is capable of achieving due to the acquired education. If women fail to enter the same hierarchical positions as their male colleagues, despite having similar education, then it is reflected in lower starting wages for the female recruits. We move on to a discussion of how persistent the gender wage gaps are at different hierarchical positions in the IT sector and the retail trade.

In Table 4.5 a total of four hierarchical positions are identified; trainees & employees, experts, managers and directors. Since the trainees category shrinks quickly with the years of employment, it is combined with the employee category. The expert category represents employees whose jobs require independent decision-making. For example, senior sales personnel are included in this category in the retail trade. As the expert category was introduced only in the 1998 data for the IT sector, some individuals who were previously employees gained the status of expert.

The gender wage gaps reported in Table 4.5 by hierarchical position are, as to be expected, much less marked than the overall gender wage gaps in Table 4.2. The gender wage gaps in different hierarchical positions among young recruits in the IT sector are relatively close to one another and rather stable over time. Among older recruits the largest gender wage gap is among trainees and employees.

In contrast to the IT sector, the retail trade exhibits the lowest gender wage gaps among trainees and employees. The largest gender wage gaps are in the managerial positions and these gender wage gaps seem to persist or slightly widen over time.²⁷ Among directors the gender wage gap is rather narrow at the starting level but widens increasingly with years of experience. Thus, when moving from the bottom to the top of the hierarchy in the retail trade it appears to be more difficult for women to maintain their relative wage levels as the years go by.

Gender wage gaps at different career phases reflect not only the differences in the background of men and women, but also differences in external and internal mobility. The next three sections of this chapter highlight different aspects of external and internal mobility, using the ECSIF data set.

²⁷ The large gender wage gap in managerial positions may reflect the different natures of these positions among men and women. The hierarchical categories are made using information on the hierarchical status of different working tasks, and gender segregation in these tasks may influence the results.

Table 4.5 Average hourly wages of women relative to those of men during the first 5 years of employment, by hierarchical position, among young and older recruits in IT and the retail trade

IT sector	1	2	3	4	5
<i>Young recruits</i>					
Trainees & employees	91	91	93	91	71
Experts	95	96	94	92	97
Managers	95	97	100	94	93
Directors	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Older recruits</i>					
Trainees & employees	85	85	86	87	89
Experts	90	94	94	94	87
Managers	91	91	95	93	92
Directors	93	98	96	97	82
Retail trade					
<i>Young recruits</i>					
Trainees & employees	100	98	97	93	91
Experts	94	90	95	93	89
Managers	89	91	84	86	83
Directors	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Older recruits</i>					
Trainees & employees	90	88	87	91	91
Experts	93	93	91	97	96
Managers	79	80	76	76	77
Directors	92	88	82	73	84

Note: n.a. indicates that the cell contains less than six observations for women or for men or for both.

4.2 Are women more likely than men to exit from the IT sector or retail trade?

To study the mobility of recruits in the IT sector and the retail trade four pair-wise data sets were created from the original annual ECSIF data sets. Each pair-wise data set is made in such a way that information on the status of the employee is known for both the first and second years of comparison, thus allowing a study of the external and internal

mobility of new recruits at different phases of their careers.²⁸ Since each recruit is followed in the data for as long as she or he remains employed in an ECSIF member firm, the external exit rates that will be examined next refer to exits from ECSIF member firms in either the IT sector or the retail trade. Mobility between two ECSIF member firms within the IT sector or within the retail trade will be studied separately later in this chapter.

Table 4.6 reports the exit rates at different career phases for both the IT sector and the retail trade. Table 4.6 highlights quite high turnover rates in both industries. More than a quarter of the new recruits exited from the IT sector after each year of employment during the 5-year observation period. After the first year of employment as many as one third of the female recruits exited from the IT sector, most probably reflecting the higher share of temporary job contracts among female employees.²⁹ Except for the first year the relative proportion of female exits has been the same as that of male exits in the IT sector.

Table 4.6 shows that new female recruits have been slightly less prone than their male colleagues to exit from the retail trade. As many as about 45% of all new recruits exit after the first year of employment, suggesting that the use of short-term job contracts is quite common in the retail trade. In fact, the retail trade is characterised as a sector in which the percentage of young – and mobile – employees is typically high. In Table 4.7 the exit rates for young recruits and older recruits are reported separately.

Table 4.7 shows that age has a significant impact on the observed external mobility; young recruits have a much higher propensity to exit from the IT sector and the retail trade than older recruits in these sectors. In the retail trade, after the first year of employment as many as half of the young recruits exit from the sector, suggesting that a large proportion of young people is recruited on a temporary basis.

²⁸ See Chapter 2 for further details.

²⁹ According to Statistics Finland, taking the Finnish labour markets as a whole, 20% of female employees and 13% of male employees had temporary job contracts in 2001.

Table 4.6 Proportion of recruits who exited from the IT sector or the retail trade in the second year of comparison at different career phases

IT sector	1 → 2	2 → 3	3 → 4	4 → 5
<i>All recruits</i>	28	25	26	26
- men	26	25	26	27
- women	33	25	26	26
Ratio of women exiting compared to men	1.3	1.0	1.0	1.0

Retail trade	1 → 2	2 → 3	3 → 4	4 → 5
<i>All recruits</i>	45	33	28	25
- men	47	35	30	27
- women	44	33	28	24
Ratio of women exiting compared to men	0.9	0.9	0.9	0.9

Note: 1->2, 2->3, 3->4, 4->5 refer, respectively, to comparisons between the 1st and 2nd, 2nd and 3rd, 3rd and 4th, 4th and 5th years of employment.

Women appear to be generally more prone to exit from the male-dominated IT sector. Among young recruits in the retail trade, women and men exit at the same rate, but among older recruits women are less prone to exit than men.

Table 4.7 shows that, at the beginning, the exit rates are clearly higher in the retail trade than in the IT sector. Furthermore, the exit rates decline with the length of stay in the ECSIF member firms. This trend appears to be more pronounced in the retail trade than in the IT sector, and is stronger among older recruits than among young recruits. One possible explanation provided by economic theory for the declining pattern of exit rates is that some learning about employee's abilities has occurred in the ECSIF member firms over the years. If employers have better information on employees' abilities, this results in a better match between the employees' human capital and the firms' job requirements, which leads to lower exit rates in later years.³⁰

³⁰ For further discussion, see Rosenbaum (1984). See also Lilja (1995) for similar results in Finnish industry.

Table 4.7 Share of young and older recruits who exited from the IT sector or the retail trade in the second year of comparison at different career phases

IT sector	1 → 2	2 → 3	3 → 4	4 → 5
<i>All young recruits</i>	30	28	28	38
- men	28	28	27	40
- women	37	29	30	34
Ratio of women exiting compared to men	1.3	1.0	1.1	0.9
<i>All older recruits</i>	27	24	25	22
- men	24	24	25	21
- women	31	24	25	23
Ratio of women exiting compared to men	1.3	1.0	1.0	1.1
Retail trade				
<i>All young recruits</i>	50	40	36	32
- men	52	40	36	30
- women	50	40	35	32
Ratio of women exiting compared to men	1.0	1.0	1.0	1.1
<i>All older recruits</i>	33	22	19	18
- men	35	26	21	23
- women	32	21	19	17
Ratio of women exiting compared to men	0.9	0.8	0.9	0.7

Table 4.8 presents the exit rates for new recruits by different background characteristics in order to highlight which groups of recruits have higher than average exit risks. To allow for enough observations these exit rates have been calculated for the entire group of new recruits using the data from the whole 5-year observation period.³¹ Due to the fact that there are substantially more observations for the first years of employment, the subsequent figures characterise more short-term than long-term exit rates. To complete the picture, in Tables A4.3 and A4.4 of the Appendix, average percentage distributions of basic characteristics of those who remained employed in one of the ECSIF member firms and those who exited are reported for the IT sector and the retail trade respectively.

³¹ These exit rates are based on non-weighted numbers of recruits from different years and are therefore dominated by the first years of employment. The reason behind using non-weighted numbers is that in later years, in some small recruit-categories, very few observations can lead to unacceptably high variance in the calculated exit rates.

Table 4.8 Average exit rates by background characteristics and gender, among new recruits in IT and the retail trade

	IT sector		Retail trade	
	Men	Women	Men	Women
Working time				
- full-time	25	28	33	29
- part-time	35	48	51	42
<i>Level of education</i>				
- basic	30	27	40	33
- secondary	28	27	40	40
- higher	27	30	29	31
Field of education				
- general education	28	26	41	37
- vocational education	32	22	36	31
- commercial and business administration	30	28	29	30
- mathematics and natural sciences	28	32	18	20
- <i>technology</i>	26	33	33	31
Hierarchical position				
- trainees	--	--	56	53
- employees	26	34	42	37
- experts	24	22	33	30
- managers	28	30	25	22
- <i>directors</i>	31	29	21	30
Working task				
- ADP	25	27	31	26
- Administration	38	37	31	30
- Sales & Purchases	34	35	35	29
- Marketing	27	36	22	26
- <i>Sales personnel</i>	--	--	42	39

-- = not available.

Table 4.8 shows that part-timers are more prone than full-time workers to exit from the IT sector and the retail trade, suggesting that part-time workers are often employed on a temporary basis in both sectors. In the IT sector, female part-timers and in the retail trade, male part-timers are most inclined to exit from their respective sectors.

The new recruits with a basic or secondary education are more inclined to exit from the retail trade than from the IT sector. In the IT sector, the exit rates of the new recruits are quite similar at different levels of education; only men with a basic education and women with a higher education are slightly more prone than others to leave the sector.

In the retail trade, new recruits with a higher education - and women with a basic education - have the lowest exit rates. Among men, in both sectors the probability of exit decreases with the level of education.

Furthermore, an interesting feature in the IT sector is that women with non-technical qualifications are less prone to exit from the sector than are women with technical qualifications. No such division can be detected among male recruits. One possible explanation for this is that the highly-paid IT sector provides better terms for non-technical women than other industries and therefore this group is inclined to remain employed in this sector.

In the retail trade, less well qualified male recruits are more likely to exit from the sector than other men, suggesting that these types of men have better career prospects elsewhere. Furthermore, new recruits with a general education have the highest exit rates and a small group of new recruits with a qualification in mathematics and natural sciences have the lowest exit rates. The exit rates for both men and women with a qualification in commercial and business administration and technology are about the same in both industries.

Experts have the lowest exit rates in the IT sector, and trainees and employees have the highest exit rates in the retail trade. It is interesting that the largest employee group in the IT sector exhibits the lowest exit rates whereas the largest employee group in the retail trade does the opposite. This type of phenomenon can also be found when the ADP-related working tasks in the IT sector and sales personnel in the retail trade are compared. These results are related to sector-specific human capital accumulation in the respective groups and related potential effects deterring external mobility. This point will be discussed later in this section in connection with an evaluation of the long-term effects of external mobility.

Another useful way to characterise the extent of external mobility is to apply survival rates. Survival rates describe the proportion of new recruits who have remained employed in one of the ECSIF member firms in the IT sector or the retail trade, respectively, over consecutive points in time. Thus, survival rates characterise longer-term aspects of external mobility.

Table 4.9 reports the survival rates for new recruits in the IT sector and the retail trade at different career phases. Three main conclusions can be made on the basis of this table. First, the overall survival rates are higher in the IT sector than in the retail trade. This outcome reflects basic differences in the composition of the employees and differences in their attachment to their sector. This point is further developed later in this section.

Table 4.9 Survival rates at different career phases, among new recruits in IT and the retail trade

IT sector	2	3	4	5
<i>All recruits</i>	72	54	40	29
- men	74	55	41	30
- women	67	50	37	28
<i>All young recruits</i>	70	50	36	23
- men	72	52	38	23
- women	63	45	32	21
<i>All older recruits</i>	73	56	42	33
- men	76	58	43	34
- women	69	53	40	30
Retail trade				
<i>All recruits</i>	55	37	26	20
- men	53	35	24	18
- women	56	38	27	21
<i>All young recruits</i>	50	30	19	13
- men	48	29	18	13
- women	50	31	20	13
<i>All older recruits</i>	68	52	42	35
- men	65	48	38	29
- women	68	54	44	36

Note: 2, 3, 4 and 5 refer, respectively, to the 2nd, 3rd, 4th, and 5th years of employment.

Second, survival rates are higher among older recruits than among young recruits, reflecting the higher external mobility of young recruits. In the retail trade only 13% of the young recruits are still employed in the 5th year of employment in one of the ECSIF firms whereas 35% of the older recruits have remained employed until this point.

Third, the gender differences in survival rates appear to be related to the male-female dominance of the sector. In the male-dominated IT sector the survival rates are higher among men, and in the female-dominated retail trade the survival rates are higher among women (in particular, among older female recruits).

In addition to age and gender there are many other factors that influence individual mobility in the labour market. Tables A4.5 – A4.8 of the Appendix report the survival rates for selected sub-groups of the recruits. In these tables no distinction is made

between young and older recruits, in order to allow for sufficient observations for all comparisons.

It appears from Table A4.5 of the Appendix that full-time employees are more inclined to remain employed than part-time employees. In the retail trade, where part-time job contracts are common, the survival rates in full-time jobs are twice as high as those in part-time jobs in the 5th year of comparison. It also appears from this table that the previously detected higher survival rates in the IT sector than in the retail trade are due to the negligible use of part-time jobs in this sector. When full-time jobs are compared, the difference between the survival rates in IT and the retail trade are no longer significant. In the retail trade the survival rates in part-time jobs are significantly higher among women than men, suggesting that women work in part-time jobs on a much more permanent basis than men.

In a comparison of survival rates at different levels of education, as shown in Table A4.6 of the Appendix, the gender differences appear to be negligible. Survival rates are higher among women than men only among new recruits with a basic education in the retail trade. This result may reflect the fact that the typical working tasks of women in the retail trade do not require as much further education as the typical working tasks of men do. It is also possible that outside options are better for men with only a basic education than for similar women. In the IT sector the survival rates are about the same among new recruits with a secondary education or with a higher education. In the retail trade, the survival rates are lowest among new recruits with a secondary education. This result may be due to the fact that secondary education, which is typical in the retail trade, allows other options in the labour market, thus increasing external mobility.

Table A4.7 of the Appendix shows that a qualification in technology brings about the highest survival rates in the IT sector, in which most working tasks are ADP-related. In the retail trade, in contrast, new recruits with a qualification in commercial and business administration are most inclined to remain employed in the sector. One explanation for these results may be that these particular fields of education give a good basis for accumulating sector-specific human capital in the IT sector and the retail trade, respectively, which reduces external mobility. This may happen because the accumulation of sector-specific human capital reduces the competitiveness of outside options. Women with a general education have higher survival rates in both sectors than their male colleagues. This may be due to the smaller possibilities that women with this type of education have in the labour market in general, reducing external mobility and possibly also increasing the risk of ending up in dead-end jobs.

With respect to hierarchical position, clear differences in external mobility can be detected as shown in Table A4.8 of the Appendix. The highest survival rates in the IT sector belong to experts, who clearly represent the human capital accumulation of the sector. There is no large difference between the external mobility of employees and managers in the IT sector, reflecting the general nature of their working tasks. In

contrast, in the retail trade, employees have the lowest survival rates, despite the fact that sector-specific expertise lies mostly at the employee-level. This result may be due to part-time and temporary job contracts among employees being more common in the retail trade than in the IT sector, thus increasing their exit rates. Furthermore, in contrast to the IT sector, managers and directors are more likely than other employee groups to remain employed in the retail trade. Among directors, however, women have clearly lower survival rates than men.

This section has focused on various aspects of external mobility. In the next section, the focus is shifted to mobility at the firm level, in particular the mobility between ECSIF member firms. At the beginning of this chapter, internal labour markets were defined to be industry level markets, and therefore, by this definition, mobility between two ECSIF member firms is regarded as industry-specific internal mobility.

4.3 Is there a difference between how often women and men change employers within the IT sector or retail trade?

One potential way to improve one's career prospects is to change employer. Even if the hierarchical position does not improve with the change of workplace, it is possible to acquire higher than average wage increases by accepting a new job in another firm. On the other hand, if a job change is involuntary it is possible that it will result in a lower hierarchical position and lower wages.

The ECSIF data set has one drawback related to studying changes of employer. The firm codes do not systematically reflect the changes that have occurred due to mergers and splits of firms over the observation period. Thus, when there is a split of a firm between two years the data reads as if the employees have changed employer. A similar situation occurs with mergers. If there are no systematic differences in this respect between the firms into which women and men are recruited, gender comparisons are not affected by this particular feature of the data. If the opposite is true, caution should be used in these types of comparison. Anyway, one should regard the results presented in this section as tentative, highlighting only the most basic differences in this type of mobility between men and women.

In Table 4.10 the proportion of new recruits who changed employer within the ECSIF member firms are reported.

Table 4.10 Share of young and older recruits who changed employer in the second year of comparison over the 5 year period within IT or the retail trade

IT sector	1 → 2	2 → 3	3 → 4	4 → 5	Av.
<i>All young recruits</i>	4.2	1.7	n.a.	n.a.	3.0
- men	4.1	1.6	n.a.	n.a.	2.9
- women	4.3	2.1	n.a.	n.a.	3.2
<i>All older recruits</i>	5.6	4.2	1.7	n.a.	3.8
- men	5.2	3.7	1.5	n.a.	3.5
- women	6.1	5.1	2.0	n.a.	4.4
Retail trade					
<i>All young recruits</i>	3.9	3.1	3.9	3.6	3.6
- men	3.3	2.8	5.5	3.5	3.8
- women	4.2	3.2	3.4	3.6	3.6
<i>All older recruits</i>	3.6	2.0	3.4	1.7	2.7
- men	3.6	2.0	3.4	1.7	2.7
- women	3.8	2.4	2.1	2.2	2.6

Note: n.a. indicates that the cell contains less than six observations for women or for men or for both.

The table gives a very varied picture of the extent of these changes and one should not pay too much attention to the details. There are a couple of conclusions that can be drawn from this table. First, young recruits in the IT sector are less prone and older recruits are more prone to change employer than their colleagues in the retail trade.

Second, there appears to be no major gender differences in internal mobility. The only exception is the group of older female recruits in the IT sector, which shows higher mobility figures than its male counterpart.

The increase in real hourly wages related to changing employer is reported in Table 4.11. Three observations can be made from this table. First, the remuneration related to change of employer is higher in the IT sector than in the retail trade, reflecting the better negotiating position of IT sector employees in the face of changes. Second, in both industries young recruits have received higher percentage wage increases than older recruits. Third, men have received, on average, higher percentage increases in their wages than women when they changed employer.

Table 4.11 Percentage change of real hourly wages for those who changed employer in the IT sector or retail trade

IT sector	1 → 2	2 → 3	3 → 4	4 → 5	Av.
<i>All young recruits</i>	16.4	13.2	n.a.	n.a.	14.8
- men	17.0	19.2	n.a.	n.a.	18.1
- women	14.6	1.1	n.a.	n.a.	7.9
<i>All older recruits</i>	4.0	9.0	13.4	n.a.	8.8
- men	4.4	11.8	13.0	n.a.	9.7
- women	3.3	5.0	14.0	n.a.	7.4
Retail trade					
<i>All young recruits</i>	6.6	2.0	3.6	2.9	3.8
- men	8.7	7.7	8.7	3.9	7.3
- women	6.0	0.1	0.6	2.5	2.3
<i>All older recruits</i>	2.3	3.7	3.2	0.9	2.5
- men	4.2	4.9	8.4	1.1	4.7
- women	1.6	3.3	0.5	0.9	1.6

Note: n.a. indicates that the cell contains less than six observations for women or for men or for both.

Percentage changes in real wages that are related to the change of working place do not necessarily reflect the relative gain that an individual receives from this change compared to the option of not changing employer. To look at this, the percentage change of real hourly wages for those who changed employer compared to the percentage change of hourly wages for those who remained employed in the same working place is reported in Table 4.12.

Table 4.12 Percentage change of real hourly wages for those who changed employer compared to the percentage change of hourly wages for those who remained employed in the same working place in the IT sector or the retail trade

IT sector	1 → 2	2 → 3	3 → 4	4 → 5	Av.
<i>All young recruits</i>	0.98	1.83	n.a.	n.a.	1.41
- men	1.07	2.49	n.a.	n.a.	1.78
- women	0.84	0.86	n.a.	n.a.	0.85
<i>All older recruits</i>	0.79	2.00	3.29	n.a.	2.03
- men	0.85	2.70	3.53	n.a.	2.36
- women	0.71	1.08	3.02	n.a.	1.60
Retail trade					
<i>All young recruits</i>	1.48	1.12	2.30	2.41	1.83
- men	1.44	2.45	2.74	1.24	1.97
- women	1.55	0.11	0.60	5.41	1.92
<i>All older recruits</i>	2.80	5.81	--	--	4.31
- men	1.84	2.30	4.73	0.66	2.38
- women	5.34	28.82	**	**	17.08

Note: n.a. indicates that the cell contains less than six observations for women or for men or for both.
 ** = real hourly wages among those who did not change employer dropped.

The basic message from Table 4.12 is that most of the new recruits who changed employer got markedly higher wage rises than their colleagues who remained employed in the same working place. There are some important exceptions to this basic result, though. In the IT sector, changing employer after the first year of employment does not seem to improve one's relative wage position. On the contrary, those who continue to work for the same employer received higher wage rises. This situation does not change in the second year of employment in the group of young female recruits, whose ability to improve their relative position by changing employer appears to be limited. In the IT sector it seems to be more beneficial to change employer at later stages of one's career. This is true for both men and women and can be an indication that it is easier for IT sector employees to capitalise their acquired human capital later in their careers.

In the retail trade the picture of relative wage changes related to a change of employer is quite mixed. Among young women, changing employer does not always improve relative wages, whereas among young men this is always the case, indicating a stronger position for men in these situations. Older female recruits who did not change employer

either had very low wage increases or even experienced wage cuts. This is reflected in the very high relative figures in Table 4.12 for those recruits who changed employer.

A general conclusion that can be drawn from Table 4.12 is that change of employer has generally improved the relative situation of male recruits. The picture is more mixed among women. In particular, it seems that it has been difficult for some young female recruits to improve their relative position by changing employer.

In Table 4.13 the proportions of the new recruits who changed employer are reported by different background characteristics to see which groups of recruits have a higher than average propensity to change employer and to evaluate gender differences in this respect as well. To allow for enough observations, the propensity to change employer has been calculated for the group of all new recruits, using the data from the whole 5-year observation period.³² Due to the fact that the first years of employment dominate in these calculations, the subsequent figures should be interpreted as characterising short-term rather than longer-term propensities to change employer.

Table 4.13 shows that when new recruits are studied in smaller groups, the conclusions drawn from Table 4.11 change slightly. First, we can still conclude that new recruits in the IT sector quite often have a higher propensity to change employer than their colleagues in the retail trade. On the other hand, the gender differences are more varied than reported earlier. There are quite a few cases where the internal mobility of women has been substantially higher than that of men. In the IT sector, women have changed employers more often than men in part-time jobs. Furthermore, a secondary, general or vocational education increases women's mobility in this sector. In addition, women experts and directors are more mobile than men in the IT sector and in ADP-related working tasks and administration.

³² These rates are based on non-weighted numbers of recruits from different years and are therefore dominated by the first years of employment. The reason behind using non-weighted numbers is that in later years in some small recruit-categories very few observations can lead to unacceptably high variance in the calculated propensities.

Table 4.13 Average propensity to change employer in IT and retail trade by background characteristics and gender

	IT sector		Retail trade	
	Men	Women	Men	Women
Working time				
- full-time	3.5	4.3	3.3	3.4
- part-time	3.3	5.9	3.2	3.6
<i>Level of education</i>				
- basic	5.1	9.0	4.4	3.4
- secondary	4.2	7.2	3.2	3.3
- higher	3.0	2.3	3.7	3.8
Field of education				
- general education	4.5	8.2	4.0	3.4
- vocational education	2.5	6.0	4.0	3.1
- commercial and business administration	3.9	4.2	4.1	3.7
- mathematics and natural sciences	5.4	2.3	--	--
- technology	2.5	1.0	1.4	1.9
Hierarchical position				
- trainees	--	--	2.2	3.2
- employees	5.4	5.0	3.6	3.6
- experts	2.1	4.1	2.2	4.0
- managers	3.2	2.8	3.0	3.0
- directors	0.5	3.9	2.2	0.0
Working task				
- ADP	3.6	4.9	3.7	7.0
- Administration	2.3	4.3	3.5	3.2
- Sales & Purchases	2.2	1.2	1.5	1.5
- Marketing	5.4	0.0	1.5	3.3
- Sales personnel	--	--	3.5	3.6

-- = not available.

In the IT sector female directors have 7 times as high a propensity to change employer as men. In the retail trade, in contrast, none of the female directors changed employer, but they did have a 1.4 times higher propensity to exit from the ECSIF member firms altogether. These results suggest that, in the retail trade, female directors look for career changes from outside the ECSIF member firms relatively more often than their male colleagues. This is understandable considering that female directors do not keep up with their male colleagues' wage increases; the gender wage gap among directors widens during the first years of employment in the retail trade.

It is noteworthy that women have a higher propensity to change employer within the retail trade than men in two very atypical cases - if they have a qualification in technology or if they have ADP-related working tasks. It appears that a technology orientation in a typical low-paid female sector improves women's relative position. These women are also slightly less prone than men to exit from the ECSIF member firms.

4.4 Are women less likely than men to be promoted?

If women are less likely to be promoted than men, or if they receive a smaller remuneration from their promotions than men, gender wage gaps persist or even widen over time. Promotions are a major way by which individuals can improve their position and receive higher wages.

This section deals with promotions within the ECSIF member firms. A promotion occurs when a recruit steps up from a lower hierarchical level to a higher one; 1) trainees, 2) employees & experts, 3) managers and 4) directors. The employee and expert levels have been combined due to the fact that in the IT sector the expert level was introduced only in 1998 in the ECSIF data set. Before this date experts belonged to the group of employees. Experts are an important group in the IT sector, less so in the retail trade, and the inability to identify promotions from the employee level to the expert level is clearly a handicap of this data. Due to the relatively low number of hierarchical levels that can be used in identifying promotions, they are measured at a very rough level. This should be taken into account when interpreting the subsequent figures. Promotions that occur within different hierarchical levels, at a working tasks level, are not accounted for. Using the rough hierarchical levels, however, has the benefit that the hierarchical steps to be studied are exactly the same for both sectors and for both men and women, which provides an objective basis for studying and comparing gender differences in promotions in these two sectors.

Table 4.14 reports the proportions of recruits who were promoted at different phases of their careers. It appears that, in all recruit groups, women have a smaller propensity to be promoted than men. Women's propensity to be promoted is lowest among older recruits in the retail trade, only 38% that of men, and highest among young recruits in the IT sector, 86 % that of men. These figures accord with previous studies on the service sector that have been made in Sweden and Finland.³³

³³ See Granqvist and Persson (1999) for Sweden and Lilja (1999) for Finland.

Table 4.14 Proportion of young and older recruits who were promoted in the second year of comparison in the IT sector or the retail trade

IT sector	1 → 2	2 → 3	3 → 4	4 → 5	Av.
<i>All young recruits</i>	1.8	2.0	1.9	n.a.	1.9
- men	1.7	2.3	2.2	n.a.	2.1
- women	1.8	n.a.	n.a.	n.a.	1.8
<i>All older recruits</i>	3.2	3.5	3.0	2.6	3.1
- men	3.8	4.2	3.1	n.a.	3.7
- women	2.3	2.3	2.9	n.a.	2.5
Retail trade					
<i>All young recruits</i>	4.9	2.5	2.2	1.5	2.8
- men	5.1	3.0	3.5	3.1	3.7
- women	4.8	2.4	1.8	0.9	2.5
<i>All older recruits</i>	1.1	1.1	1.2	0.6	1.0
- men	1.5	1.9	2.8	n.a.	2.1
- women	1.0	0.8	0.7	0.6	0.8

Note: n.a. indicates that the cell contains less than six observations for women or for men or for both.

One interesting feature revealed in Table 4.14 is that promotion rates do not markedly decrease over time. The only exception in this respect is young recruits in the retail trade. A general observation in economic research has been that the propensity to be promoted is normally highest at the beginning of one's career.³⁴ There may be many reasons why a declining trend is not observable in this data. It may be because promotions are not restricted to those that occur within a single firm. It may also be due to the rough hierarchical levels that are used to identify promotions. Longer work experience results in higher positions, from which it is less likely to be promoted. The rough measurement of promotions used here may not be able to detect this aspect of career mobility. Furthermore, the 5-year observation period may be too short to detect declining promotion rates over time.

In the IT sector, older recruits are more likely to be promoted than younger recruits. The opposite is true in the retail trade. These differences relate to differences in the hierarchical composition of recruits. The figures for young recruits in the retail trade may be more beneficial due to the fact that there are more trainees in the retail trade than in the IT sector. Among older recruits a striking result is that the gender gap in promotions narrows in the IT sector and widens in the retail trade over time.

³⁴ See Baker, Gibbs and Holmström (1994), Lazear (1992) or McCue (1996).

How much the fact that women have a lower propensity to be promoted affects gender wage gaps over time depends on the subsequent rises in wages that these promotions bring about. In Table 4.15 the percentage changes of real hourly wages of those who were promoted are reported at different career phases. The figures of Table 4.15 and Table 4.11 show that promotions are much more effective than changes of employer in providing higher remuneration in terms of real wage increases.

Table 4.15 Percentage change of real hourly wages of those who were promoted in the IT sector or the retail trade

IT sector	1 → 2	2 → 3	3 → 4	4 → 5	Av.
<i>All young recruits</i>	17.4	9.7	14.9	n.a.	14.0
- men	16.8	10.2	15.2	n.a.	14.1
- women	19.0	n.a.	n.a.	n.a.	19.0
<i>All older recruits</i>	9.5	10.1	9.8	5.5	8.7
- men	9.9	8.5	7.9	n.a.	8.8
- women	8.5	15.0	13.2	n.a.	12.2
Retail trade					
<i>All young recruits</i>	11.2	10.3	9.2	15.4	11.5
- men	15.0	16.7	3.7	14.8	12.6
- women	9.8	7.3	13.3	16.3	11.7
<i>All older recruits</i>	14.0	15.3	10.0	5.9	11.3
- men	14.8	15.3	11.7	2.5	11.1
- women	13.4	15.2	7.4	7.0	10.8

Note: n.a. indicates that the cell contains less than six observations for women or for men or for both.

In the IT sector, women receive higher average wage rises from their promotions than men do, whereas the opposite is true in the retail trade. Thus, in the IT sector, widening gender wage gaps related to differences in promotion propensities are offset by women's higher wage increases from such promotions. In the retail trade, however, both the smaller probability of promotions and the lower wage increases related to these promotions among women contribute to the widening gender wage gaps. This accords with the observation that, in the retail trade, there is a real widening of the overall gender wage gap over time.

Table 4.16 shows the percentage change of real hourly wages of promoted persons compared to the percentage change of real hourly wages of those who remained in the same hierarchical position.

Table 4.16 Percentage change of real hourly wages of promoted persons compared to the percentage change of real hourly wages of those who remained in the same hierarchical position in the IT sector or the retail trade

IT sector	1 → 2	2 → 3	3 → 4	4 → 5	Av.
<i>All young recruits</i>	1.78	1.59	1.88	n.a.	1.75
- men	1.60	1.62	1.71	n.a.	1.64
- women	2.43	n.a.	n.a.	n.a.	2.43
<i>All older recruits</i>	2.66	2.71	2.96	1.70	2.51
- men	2.60	2.10	2.32	n.a.	2.34
- women	2.63	4.60	4.18	n.a.	3.80
Retail trade					
<i>All young recruits</i>	2.79	7.21	6.51	24.02	10.13
- men	2.71	6.23	0.97	8.35	4.57
- women	2.80	7.52	24.80	66.78	25.48
<i>All older recruits</i>	22.84	--	--	---	22.84
- men	8.46	8.26	10.25	1.45	7.11
- women	78.97	**	**	**	78.97

Note: n.a. indicates that the cell contains less than six observations for women or for men or for both. ** = real hourly wages among those who were not promoted dropped or were close to zero.

According to Table 4.16 women seem to perform better than men in relative terms. The very high figures for some categories of women reflect the fact that, in those categories, the real wage increases for women who remained in the same hierarchical position were negligible. In the retail trade, in three cases out of four, real wages dropped among older female recruits who were not promoted. This means that these women were not able to keep up with the overall earnings growth in the economy. This is also a factor contributing to the observed widening of the gender wage gap over time in the retail trade.

The overall differences in promotion patterns discussed above do not reveal all features about promotions that may contribute to the widening of the gender wage gaps. In particular, the overall figures do not reveal if the lower promotion probability of women is related to the fact that it is more difficult for women with similar characteristics to men to be promoted (glass ceiling) or to the fact that it is more difficult to be promoted from typical female jobs than from typical male jobs (dead-end jobs).³⁵

³⁵ See Groot and Maassen van den Brink (1996).

To study these aspects a little further, promotion rates for new recruits by different background characteristics are reported in Table 4.17. To allow for enough observations the promotion rates have been calculated for the group of all new recruits, using the data from the whole 5-year observation period.³⁶ Due to the fact that the first years of employment dominate in these calculations the subsequent figures should be interpreted as characterising short-term rather than longer-term promotion rates. To complete the picture, in Tables A4.9 and A4.10 of the Appendix, the average percentage distribution of basic characteristics among those new recruits whose status remained unchanged or who were promoted are reported by gender.

Table 4.17 shows that, in most cases, women have a lower propensity to be promoted than men. In the IT sector none of the female recruits with a basic or vocational education was promoted during the 5-year observation period. Additionally, working tasks in marketing provided a dead-end to women, with no-one being promoted. In the retail trade the promotion rates in marketing are also lower than in other working tasks, but better for women than men.

³⁶ These promotion rates are based on non-weighted numbers of recruits from different years and are therefore dominated by the first years of employment. The reason behind using non-weighted numbers is that in later years, in some small recruit-categories, very few observations can lead to unacceptably high variance in the calculated promotion rates.

Table 4.17 Average promotion rates by background characteristics and gender in IT and the retail trade

	IT sector		Retail trade	
	Men	Women	Men	Women
Working time				
- full-time	3.2	2.1	2.7	1.9
- part-time	0.0	2.0	4.4	3.1
<i>Level of education</i>				
- basic	1.0	0.0	4.8	3.1
- secondary	2.5	3.2	2.6	3.0
- higher	4.0	2.2	2.9	1.8
Field of education				
- general education	1.9	2.3	4.2	3.2
- vocational education	2.5	0.0	2.1	2.4
- commercial and business administration	3.8	2.4	2.8	1.7
- mathematics and natural sciences	3.7	4.6	--	--
- technology	4.1	1.9	3.2	5.4
<i>Hierarchical position</i>				
- trainees	--	--	19.4	23.1
- employees & experts	3.2	2.1	1.5	0.7
- managers	2.7	2.5	1.2	0.1
<i>Working task</i>				
- ADP	3.0	2.4	4.3	3.2
- administration	2.3	1.0	2.0	1.2
- sales & purchases	4.0	1.9	1.9	1.3
- marketing	2.7	0.0	0.8	1.1
- sales personnel	--	--	3.8	2.9

-- = not available.

In the IT sector male dominance in technology seems to weaken technologically oriented women's career prospects. The promotion rate of women with a qualification in technology is less than half of that of men. The promotion probability of women working in ADP-related working tasks is 80% of that of men in the IT sector.

Among new recruits with a qualification in commercial and business administration women's probability of being promoted is 60% that of men in both sectors. Similarly, in the group of employees and experts, women do not reach men's promotion probabilities; in the IT sector, women's probability is 70% that of men and in the retail

trade only 50% that of men. In this group, too, promotion probabilities for women are at comparatively low levels.

Women with a secondary education is one of the exceptional groups in which women's promotion probabilities are higher than those of men; in the IT sector, the promotion probability is 30% higher, and in the retail trade 20% higher for women than for men. Technologically oriented women in the retail trade also have a 70% higher propensity to be promoted than their male counterparts.

In the retail trade, trainees have the highest promotion rates, with about every fifth trainee being promoted every year. In this group, women have slightly better chances than men to be promoted. The fact that a large share of promotions relates to the lower end of the hierarchy is in accordance with the so called vacancy competition model, which suggests that the rate of career mobility is smaller in better jobs simply because there are less available vacancies in these jobs.³⁷

Women in managerial positions have only 0.1 % probability of being promoted in the retail trade. This is only 10% of the promotion probability of men in similar positions, reflecting the difficulties that female managers have to compete for highest positions in the internal labour markets of the retail trade. This is also reflected in the persistent high gender wage gaps among managers over time.

The overall message presented by Table 4.17 is plain. The unequal promotion possibilities of men and women contribute to the widening of gender wage gaps over time, and create them even in cases where new female and male recruits have equal starting wages. Women are not promoted at an equal rate to men from similar positions and it also seems to be more difficult to be promoted from positions that women typically hold.

4.5 What determines gender differences in mobility and earnings growth – a statistical investigation

In previous sections various aspects of new recruits' mobility and earnings growth in the retail trade and the IT sector have been described. These analyses suggest that there are clear differences in the mobility patterns of new recruits which contribute to the observed gender wage gaps over time. One basic limitation in descriptive analyses is that they can only focus on one background factor at a time. The fact that there are many different factors influencing mobility simultaneously is not accounted for in these types of analyses. To do this, statistical models are required. In this section the probability that a new recruit exits from the industry, changes employer, or is promoted at different career phases is studied by estimating probit probability models. To complete the picture, regression models for the relative changes in hourly wages over a

³⁷ See Sørensen (1977).

career are also estimated.³⁸ The advantage of using statistical models as a basis for comparison derives from the fact that when, for example, one compares part-time and full-time workers' behaviour, one can control differences in their other background factors as well and thus study the "pure" effect that different working time has on these workers' behaviour.

Table 4.18 reports percentage changes in the propensity to exit from the industry by different background factors which have been calculated from probit model estimations. In these estimations only those observations for which there was data on hourly wages were included.³⁹ For both sectors the models have been estimated separately for young and older recruits, which allows for a distinction between differences in exit behaviour among these different recruit groups. The likelihood ratio test in the last row of the table shows that in all cases the included explanatory variables as a whole have a statistically significant effect on the propensity to exit from the industry.

In each distinct background category there is a reference group against which the probability is measured. Thus, each background characteristic reported in Table 4.18 should be interpreted as measuring the difference in the propensity to exit that a person with this characteristic has, compared with a reference person who has otherwise similar background characteristics to that person.⁴⁰ In the subsequent analyses the relevant reference groups are as follows: for women – men, for part-time work – full-time work, for career phase – first year, for level of education – basic education, for field of education – general education, for hierarchical position – trainees, employees or experts, for working task – administration, and for the metropolitan area – outside the metropolitan area.⁴¹

³⁸ For further discussion of probit and regression models, see Greene (2000).

³⁹ In the IT sector among young and older recruits, 7 and 4 observations were lost, respectively, due to this restriction. In the retail trade 2 098 observations among young recruits and 195 observations among older recruits were lost.

⁴⁰ In subsequent calculations, when comparing any two groups (such as women – men), other characteristics have been evaluated at the mean values of the relevant background variables.

⁴¹ In the case of educational variables, missing information was added as an extra category in estimations, to make sure that the reference categories are as defined above. The coefficients for these missing information categories are not reported.

Table 4.18 Percentage change in the propensity to exit from the industry by background characteristics, probit model estimation results

	IT sector		Retail trade	
	Young recruits	Older recruits	Young recruits	Older recruits
Woman	3.87**	1.41	-3.41***	-6.43***
Career phase				
- <i>second year</i>	-1.07	-3.18**	-8.83***	-8.98***
- <i>third year</i>	-1.38	-2.13	-11.56***	-11.65***
- fourth year	7.80*	-6.13**	-14.22***	-11.86***
Part-time work	9.21***	20.85***	10.13***	4.99***
Relative starting wage	-7.80**	-5.07***	-8.52***	-5.78***
<i>Level of education</i>				
- secondary	-7.36*	1.59	5.70***	4.40***
- higher	-9.43*	-0.09	8.26***	4.44**
Field of education				
- vocational education	--	--	-6.83***	-2.58
- commercial and business administration	1.51	5.54**	-9.53***	-4.01**
- mathematics and natural sciences	3.72	7.75**	--	--
- <i>technology</i>	3.40	3.34	-7.85***	-0.63
Hierarchical position				
- manager	8.47**	6.49***	-4.07**	-1.43
- director	--	10.80***	-0.08	-1.59
Working task				
- ADP	-6.57*	-10.73***	-6.73	-1.07
- sales & purchases	10.58*	-3.11	-2.55	0.32
- marketing	13.45	-8.54*	-8.11***	-5.62***
- <i>sales trainees</i>	--	--	-0.56	10.93***
- <i>other sales personnel</i>	--	--	-3.60***	-7.75***
Metropolitan area	-0.65	-4.95***	4.01***	-2.23***
Number of observations	3 792	5 934	47 420	26 577
LR χ^2	69.16***	116.42***	1647.68***	917.65***

* = significant at 10% significance level, ** = significant at 5% significance level,

*** = significant at 1 % significance level. -- = not included.

Table 4.18 shows that the general picture of the exit behaviour, which was outlined in the descriptive section, holds true after controlling for the simultaneous influence of different background factors. As was discussed earlier, the propensity to exit is related to the male-female dominance of the sector. In the male-dominated IT sector young women have 3.9 percentage points higher probability to exit than similar young men. In

the female-dominated retail trade, both young and older female recruits have lower propensities to exit than their similar male colleagues.

The career phase influences the propensity to exit. With the exception of young recruits in the IT sector the propensity to exit diminishes over the career. This diminishing trend is particularly marked in the retail trade. Young recruits in the retail trade have in their fourth year of employment 14.2 percentage points lower propensity to exit than their similar colleagues in their first year of employment. In contrast, young recruits in the IT sector have 7.8 percentage points higher propensity to exit in their fourth year than in the first year of employment. This result possibly reflects the required work experience from young recruits in the IT sector that is needed in order to make a successful career shift.

Part-time workers have markedly higher propensities to exit than otherwise similar full-time workers in both industries. The highest exit rates are among older part-time recruits in the IT sector, nearly 21 percentage points higher than among full-time recruits. Among older recruits in the retail trade this difference between part-time and full-time workers is much smaller, about 5 percentage points. This reflects the fact that older recruits in the retail trade work part-time on a more permanent basis than other recruit groups. In particular this is the case among older female part-time workers whose propensity to exit is smaller than that of men.⁴²

Table 4.18 shows that the higher a new recruit's starting hourly wage is, relative to the average starting hourly wage in the sector, the lower is the propensity to exit. Similar exit patterns have been found in Finnish industry.⁴³ This result suggests that the initial evaluation of new recruits' relative ability, measured by the starting wage, has an effect on career mobility even after other characteristics such as education and hierarchical position are controlled. New recruits who have been less successful in this evaluation have a higher than average propensity to exit. Separate gender specific analyses reveal that in the IT sector the relative starting wage influenced only female recruits' propensity to exit, emphasising the importance of initial evaluation in the case of women.

Among young recruits in the IT sector, the higher the educational level is, the smaller is the propensity to exit. Those with a higher education have 9.4 percentage points lower propensity to exit than those with only a basic education. Similar effects are not found among older recruits in the IT sector, and the opposite is true among recruits in the retail

⁴² This result is based on additional probit model estimations, in which gender effects were separately controlled for each background factor. They were not chosen for the baseline case to be presented here because adding interaction terms (i.e. adding into the model each background variable multiplied by the female indicator) caused multicollinearity, reducing the overall accuracy of the estimates. However, these estimations can be used as additional information to see if there are statistically significant gender differences in the effects of different background variables. These estimation results are provided by the authors upon request.

⁴³ Lilja (1995).

trade. Young recruits with a higher education in the retail trade have 8.3 percentage points higher propensity to exit than those with only a basic education. These differences clearly reflect differences in skill requirements in these two sectors. The IT sector provides career paths for young, highly educated people, whereas in the retail trade career opportunities for these types of people are rather limited.⁴⁴

Among young recruits in the IT sector the field of education does not influence the propensity to exit. Among older recruits those with an education in commercial and business administration or in mathematics and natural sciences have higher exit propensities than others. Higher than average exit rates in these groups of recruits reflect the fact that career options outside the ECSIF firms are more appealing than inside these firms for these people. There is an over-representation of young female recruits among those with a qualification in commercial and business administration. The higher exit rates in this group may to some extent reflect the potential problems of female recruits in creating a career in the technically oriented ECSIF firms. As was discussed earlier in Chapter 3, in this respect these women have the “wrong” education.

In the retail trade, on the other hand, and among young recruits in particular, a vocational education, a qualification in commercial and business administration or a qualification in technology mean lower than average exit propensities. In vocational education and in technology, young female recruits are under-represented. Gender specific analyses reveal that the overall lower than average exit propensities in vocational education and in technology are caused by the fact that young female recruits have a lower propensity to exit. Thus, it is interesting that in these atypical fields of education for women, young female recruits’ employment persists for a longer period than in other fields in the retail trade.

In the IT sector, managers and directors have markedly higher propensities to exit than employees and experts. The opposite is true in the retail trade. It was noted already in the descriptive analyses that, in the IT sector, experts have the lowest exit rates, and that trainees and employees have the highest exit rates in the retail trade.⁴⁵

New recruits in ADP-related working tasks in the IT sector have lower than average exit rates. So it seems that the accumulation of sector specific human capital among this group of new recruits deters their external mobility. It is also interesting to note that,

⁴⁴ Probit model estimations, in which gender effects were separately controlled for each background factor, showed that in the retail trade the positive exit rates were (statistically significantly) higher for highly educated women than for their male colleagues. These results suggest that the limited career options for recruits with higher education in the retail trade are a more severe problem for women than for men.

⁴⁵ In the statistical analyses the expert group could not be included as a separate group due to the fact that in the IT sector this group was introduced only in 1998. In descriptive analyses one can use the information from a limited time period, but in statistical analyses one needs to have a consistent grouping of variables for the whole period under study.

after controlling other background factors, sales personnel (excluding trainees) who represent sector specific expertise in retail trade also have lower than average exit rates.

Among older recruits in the retail trade, separate gender specific analyses reveal that at the same time as male managers and directors have smaller than average propensities to exit, similar female managers and directors have markedly higher than average propensities to exit. This result may reflect female managers' and directors' potential problems in creating a career in ECSIF member firms. Other firms seem to offer better options for these female recruits. It was observed earlier that in both of these groups the gender wage gap widened over time, being largest in the case of female managers.

Working in the metropolitan area deters exit among older recruits in both industries and increases it among young recruits in the retail trade. Thus, in the metropolitan area it seems to be easier for older recruits to find a suitable job match in the ECSIF member firms. For younger mobile recruits, on the other hand, staying in the metropolitan area makes it easier to find employment from other firms, thus increasing their propensity to exit from the retail trade.

External mobility describes only one part of the mobility behaviour of new recruits. Every year about 3-4 per cent of recruits change employer within the IT sector or the retail trade. To see how different background factors influence the propensity to change employer in these two sectors, probit models have been estimated. Since these estimations are conditional on the decision to remain employed in the ECSIF member firms, a procedure to correct for the potential sample selection bias in the estimations caused by this condition is required.⁴⁶ Table 4.19 reports the results from these estimations.

Even though the selected background factors have overall a statistically significant effect on the propensity to change employer, Table 4.19 reveals that their influence is much less varied than in the case of external mobility. It seems that internal mobility in both sectors is more equal among different types of recruits than was the case for external mobility. This phenomenon is particularly marked among young recruits in the retail trade.

Table 4.19 shows that the propensity to change employers is highest in the first year of recruitment. It also confirms the earlier observation that there are no overall gender differences in this type of mobility. Neither do new recruits working part-time differ

⁴⁶ For simplicity, this has been done in two stages. First, a probit model for the probability that a new recruit will stay in the sample is estimated. From this estimation a sample selection term, the inverse of Mills' ratio, is calculated. Second, the probit model for the propensity to change employer has been estimated with the inverse of Mills' ratio as an additional variable. This procedure corrects for the potential sample selection bias caused by the fact that the subsequent empirical estimations involve only individuals who have remained in the sample at each point in time. It appeared that the coefficients of these selection terms were not statistically significantly different from zero in any of the model estimations, suggesting that the sample selection bias was not a severe problem in these estimations. See Greene (2000) for further discussion on this issue.

from those working full-time. The relative starting wage matters only for young recruits in the IT sector, whose propensity to change employer diminishes with the size of the relative starting wage. The level of education matters only in the IT sector, in which new recruits with a higher education have 3.4 percentage points lower propensity to change employer than others.

Differences in educational field has relatively little influence. Young recruits in the IT sector with a qualification in mathematics and natural sciences have 7.1 percentage points higher propensity, and older recruits in the retail trade with a qualification in technology have 2.3 percentage points lower propensity to change employer than others. Separate gender specific estimations reveal that young female recruits in the IT sector with a qualification in technology have a higher than average propensity to change employer within the IT sector, suggesting that career options for technically oriented young women are available in this sector.

Hierarchical position or working task in the IT sector have no influence on the propensity to change employer and very little influence in the retail trade. However, separate gender specific analyses suggest that female directors in the IT sector have a higher than average propensity to change employer within this sector. This observation was also made in the descriptive analyses earlier. In the retail trade, recruits working in sales and purchases have a lower propensity to change employer than others within the retail trade. Older recruits in ADP-related working tasks have a higher than average propensity to change employer within the retail trade, suggesting that there are career opportunities within the retail trade for this quite atypical group of recruits.

Table 4.19 Percentage change in the propensity to change employer by background characteristics. Probit model estimation results.

	IT sector		Retail trade	
	Young recruits	Older recruits	Young recruits	Older recruits
Woman	-0.43	0.93	0.87	-0.19
Career phase				
- <i>second year</i>	-2.58***	-1.91**	-1.04	-1.69**
- <i>third year</i>	-3.08***	-4.46***	0.81	-1.50*
- fourth year	-2.89*	-4.48***	0.43	-1.77**
Part-time work	2.43	-1.48	-1.73	-0.01
Relative starting wage	-4.17***	-1.20	-0.25	-0.65
<i>Level of education</i>				
- secondary	-1.58	-0.05	-1.39	-1.09
- higher	-3.44*	-3.41**	0.15	-0.95
Field of education				
- vocational education	--	--	1.83	-0.17
- commercial and business administration	2.02	0.45	1.28	1.12
- mathematics and natural sciences	7.09*	3.72	--	--
- <i>technology</i>	0.05	-1.81	-2.25	-2.32*
Hierarchical position				
- manager	3.46	-0.50	0.25	0.41
- director	--	-1.88	0.35	-0.15
Working task				
- ADP	-1.01	2.20	3.68	3.21**
- sales & purchases	--	1.82	-3.41***	-1.61**
- marketing	--	1.21	-0.03	-0.66
- <i>sales trainees</i>	--	--	-0.11	-0.36
- <i>other sales personnel</i>	--	--	1.42*	-0.11
Metropolitan area	2.17**	1.45	0.01	-0.10
Number of observations	2 673	4 427	26 392	19 599
LR χ^2	57.63***	110.05***	151.66***	131.15***

* = significant at 10% significance level, ** = significant at 5% significance level,

*** = significant at 1 % significance level. -- = not included.

The metropolitan area matters only for young recruits in the IT sector, raising their propensity to change employer.

To complete the picture of the internal mobility of new recruits, probit models for promotion propensities are estimated for both the IT sector and the retail trade. Since these estimations are also conditional on the decision to remain employed in the ECSIF

member firm, a sample selection correction was required for each model specification.⁴⁷ Table 4.20 reports the results from these estimations.

Before proceeding with the results one should bear in mind that promotions have been identified at a very rough level.⁴⁸ Only four hierarchical levels could be identified for the whole observation period in both sectors. As noted earlier, a major handicap is that the important hierarchical step for the IT sector from employee level to expert level could not be accounted for. Due to this, the measured promotion propensities are at relatively low levels; between 1-3 per cent each year.

Table 4.20 shows how the promotion probabilities differ among recruits with similar characteristics. It appears from the table that, in the IT sector, similar men and women have the same promotion probability; there is no overall gender difference in this respect.⁴⁹ In the retail trade, gender matters. Despite a similar background, women have a lower propensity to be promoted than men - among young female recruits 1.3 percentage points lower, and among older female recruits 0.4 percentage points lower, than men. If these figures are compared to the average promotion rates of 1-3 per cent, they appear to be relatively high. This result suggests that there is a glass ceiling in the retail trade for women. It is more difficult for female recruits with characteristics similar to those of male recruits to be promoted. This type of glass ceiling is not present in the IT sector, at least not when promotions are measured at this very rough level.

⁴⁷ The coefficients of the sample selection terms varied in different groups of recruits. Among older recruits in the IT sector and young recruits in the retail trade the coefficients were negative and significant. The interpretation is that new recruits in these two groups who decided to remain employed have a lower propensity to be promoted than new recruits drawn at random would have. Thus, career prospects for those who decided to remain employed are not optimal in these two groups. Among young recruits in the IT sector and older recruits in the retail trade no such effect was detected; the coefficients of the sample selection terms were not statistically significantly different from zero.

⁴⁸ See section 4.4 in this chapter for further details.

⁴⁹ The coefficients for female indicators (woman) are not statistically significantly different from zero.

Table 4.20 Percentage change in the propensity to be promoted by background characteristics. Probit model estimation results.

	IT sector		Retail trade	
	Young recruits	Older recruits	Young recruits	Older recruits
Woman	-0.26	-0.24	-1.31***	-0.40*
Career phase				
- <i>second year</i>	-0.09	-0.42	-1.74***	0.29
- <i>third year</i>	-0.30	-0.28	-1.49**	0.54
- fourth year	1.60	-2.01	-1.82***	-0.03
Part-time work	-1.51***	7.61	-0.02	-1.05***
Relative starting wage	5.28***	3.92***	-1.28*	0.63***
<i>Level of education</i>				
- secondary	77.12***	6.08**	1.86***	0.41
- higher	81.07***	4.33	3.36***	1.00
Field of education				
- vocational education	--	--	-1.10**	-0.71**
- commercial and business administration	0.87	2.44*	-0.95	-0.28
- mathematics and natural sciences	-0.83	5.89*	--	--
- <i>technology</i>	0.61	1.65	-0.26	-0.26
Hierarchical position				
- manager	-1.36***	-0.25	-2.06***	-0.85***
Working task				
- ADP	-0.48	0.98	1.61	1.15*
- sales & purchases	0.78	0.32	0.33	0.02
- marketing	--	-1.40	-0.28	-0.56
- <i>sales trainees</i>	--	--	57.01***	54.75***
- <i>other sales personnel</i>	--	--	0.26	0.07
Metropolitan area	-0.23	0.05	1.39***	-0.13
Number of observations	2 673	4 427	26 392	19 599
LR χ^2	82.09***	84.10***	5714.10***	391.91***

* = significant at 10% significance level, ** = significant at 5% significance level,

*** = significant at 1 % significance level. -- = not included.

As was noted in the descriptive part earlier, promotion rates do not markedly decrease over time. The only exception is young recruits in the retail trade whose promotion probability is highest at the beginning of their careers. Part-time work decreases promotion possibilities for young recruits in the IT sector and for older recruits in the retail trade. Since part-time work is a typical female job, the lower than average promotion probabilities in these jobs diminish female recruits' overall promotion prospects. However, separate gender specific estimations reveal that among older recruits in the retail trade, the negative effect that part-time jobs have on promotion

probabilities only concerns male recruits. Female recruits working part-time have higher promotion probabilities than their otherwise similar male colleagues.

The level of the relative starting wage has a bearing on promotions. In the IT sector and among older recruits in the retail trade, higher relative starting wages lead to higher promotion propensities.⁵⁰ Relative starting wages can be thought to reflect the recruits' unmeasured skills and ability to signal their competence, as well as their negotiation power at recruitment. A strong initial position thus influences later career development. In all cases men have higher relative starting wages than women.

Among older female recruits in the IT sector, separate gender specific estimation results suggest that higher relative starting wages lead to lower promotion propensities. Similar results seem to hold among young recruits in the retail trade. Whether this is the result of a short-sighted negotiation strategy displayed by the recruits at recruitment, or something else, is difficult to tell. Relative starting wages should be an indicator of the recruits' relative ability, and if they fail in this respect, it is unlikely that they will have a positive effect on promotions, either.

Among young recruits in both IT and the retail trade a higher education increases the promotion propensity. Among older recruits, education plays a smaller role in promotions. The very high coefficients for education among young recruits in the IT sector are to some extent an artefact. This is because these coefficients refer to a comparison where otherwise similar recruits with a basic education and higher education are compared with one another. In reality, in this highly skilled sector, recruits with only a basic education do not have characteristics that are otherwise identical to those with secondary or higher education. Earlier results show that, on average, male recruits with a higher education have about a fourfold propensity to be promoted in the IT sector compared with those with a basic education, whereas female recruits with a basic education have no chance at all to be promoted in this sector.

Separate gender specific estimations show that, particularly among older female recruits in the IT sector, education plays an important role in promotions. Both a secondary and a higher education increases these women's promotion prospects. Furthermore, among young female recruits in the IT sector, promotion prospects are better than for similar male recruits at a secondary educational level. It was earlier noted that women with a secondary education are one of the exceptional groups in which women's promotion probabilities are higher than those of men.

Field of education matters relatively little for promotions. It does not matter at all among young recruits in the IT sector. In the retail trade, on the other hand, recruits with a vocational education have 0.7-1.1 percentage points lower propensities to be promoted than their otherwise similar colleagues. Since men are over-represented in this

⁵⁰ A similar phenomenon was found in Finnish industry, see Lilja (1995).

educational group, the poor performance of those with a vocational training weakens the overall promotion performance of men compared to women.

On the other hand, among older recruits in the IT sector, a qualification in commercial and business administration and in mathematics and natural sciences increases the promotion probability. Since women are under-represented in these two educational groups, the good promotion performance of these educational groups increases the gender promotion gap. Separate gender specific estimations suggest that female recruits with a degree in commercial and business administration have lower promotion probabilities than their male colleagues, widening the promotion gap even further.

Table 4.20 suggests that managers have lower promotion probabilities than employees and experts. The rate of career mobility is smaller at the higher levels of hierarchy simply because there are fewer available vacancies, and fewer levels to be promoted to at this level. Separate gender specific analyses show that in the retail trade older female managers have lower promotion probabilities than their male colleagues. This result confirms the earlier picture of the difficulties that older female managers in the retail trade have in trying to keep up with the same rate of career and earnings development as their male colleagues. In the IT sector the opposite is true; older female managers appear to have higher promotion probabilities than their male counterparts.

Furthermore, sales trainees have higher promotion probabilities than recruits performing other working tasks. This result reflects the fact that a large proportion of the promotions occurs at the lower end of the hierarchy. Otherwise, it seems that differences in working tasks explain relatively little of the observed differences in promotion possibilities.⁵¹

The location of the working place seems to matter only in the case of young recruits in the retail trade, who have higher than average promotion probabilities within the metropolitan area. Separate gender specific analyses also show that the same is true for older female recruits in the IT sector, whereas older male recruits working within the metropolitan area have lower promotion probabilities than their similar colleagues working elsewhere.

To study how career mobility affects wages, we estimate a regression model, in which the dependent variable is the difference of logarithmic hourly wages (in real terms) between two subsequent years, using the same pair-wise panel data set that was used for studying new recruits' mobility. To make comparisons between the two sectors comparable, the subsequent analyses focus only on full-time workers. Part-time work is extremely rare in the IT sector, and among all other recruit groups except for older recruits in the retail trade part-time work is largely done on a temporary basis.

⁵¹ Some of the categories had to be excluded from estimations due to the fact that there were too few or no recruits that were promoted from these categories.

Estimating models that explain changes in hourly wages between two subsequent years are, of course, conditional on the fact that an employee remains employed in both years of comparison. Thus, just as with the mobility models above the regression models on relative wage changes, we require a sample selection correction that takes this condition into account.⁵²

To be able to study gender effects in the wage formation process in a more detailed manner, the regression models were extended to include female interaction terms. These interaction terms are products of the original explanatory variables and the female indicator. The coefficients of these interaction terms tell how much higher or lower the wage increase is in each case, if the recruit was a woman instead of a man.⁵³ Tables 4.21 and 4.22 report the percentage changes in hourly wages given by these regression models for the IT sector and the retail trade, respectively.⁵⁴

The first thing that attracts attention in Table 4.21 is that among young recruits in the IT sector there are no gender differences in wage formation. None of the female interaction terms appears to have a coefficient that is statistically significantly different from zero. Among older recruits, in the case of some background factors, women get different remuneration than men. In the retail trade the story is different. It appears from Table 4.22 that older female recruits working in administration (reference group) have an overall disadvantage of getting 2.4 percentage points lower wage increases than men. However, the coefficients in some other background factors reveal that there are quite a few cases in which women get higher wage increases than their male counterparts, even when this less beneficial initial reference point is taken into account.

⁵² In fact, the coefficient of the sample selection term turned out to be positive and significant in all recruit groups other than young recruits in the retail trade. Thus, these results imply that those recruits that have a tendency to remain employed in these two sectors get higher wage increases than a randomly selected recruit would get if he or she stayed in the sample.

⁵³ Although similar interaction terms were used in the mobility models, in these models they mitigate the explanatory power of the original variables. Therefore, the extended models were not chosen as the base case models.

⁵⁴ To obtain the percentage changes in hourly wages from the original estimations, the coefficients have been transformed by the formula $\exp(\beta)-1$, where β refers to the original coefficient.

Table 4.21 Percentage change in hourly wages for full-time workers by background characteristics in the IT sector. Regression model estimation results.

	Young recruits		Older recruits	
	Men	Difference if woman	Men	Difference if woman
Woman	--	7.27	--	-2.00
<i>Employer change</i>	7.42***	-2.80	3.13***	-2.68**
<i>Promotion</i>	3.21	2.58	3.40***	3.69**
<i>Level of education</i>				
- secondary	8.22***	-0.98	0.90	0.38
- higher	9.05***	0.32	2.82*	-1.87
Field of education				
- commercial and business administration	-4.07***	-3.68	-2.16**	2.94**
- mathematics and natural sciences	-5.92**	-2.79	-3.42***	5.49**
- <i>technology</i>	-6.42***	1.39	-0.88	-1.82
Hierarchical position				
- manager	-1.45	-0.74	-3.49***	1.70*
- director	--	--	-5.06***	5.66***
Working task				
- ADP	8.00**	-4.03	-0.42	0.90
- sales & purchases	7.98**	-7.44	1.34	-1.04
- marketing	2.20	8.77	3.87	-4.37
Metropolitan area				
- Metropolitan area	-0.06	-2.62	2.31***	-1.49
Number of observations	2 434		4 347	
LR χ^2	3.25***		4.63***	
Adjusted r^2	0.0270		0.0261	

* = significant at 10% significance level, ** = significant at 5% significance level,
 *** = significant at 1 % significance level, -- = not included.

Table 4.22 Percentage change in hourly wages for full-time workers by background characteristics in the retail trade. Regression model estimation results.

	Young recruits		Older recruits	
	Men	Difference if woman	Men	Difference if woman
Woman	--	-0.44	--	-2.42***
<i>Employer change</i>	3.39***	-0.87	2.64***	-1.28
<i>Promotion</i>	14.57***	-1.63	12.15***	-0.44
<i>Level of education</i>				
- secondary	2.24*	-0.76	1.31	-0.26
- higher	6.25***	-4.79**	2.07	-0.05
Field of education				
- vocational education	-4.76***	1.33	-0.48	-1.75
- commercial and business administration	-2.61*	2.91	-1.20	0.00
- <i>technology</i>	-4.38***	3.11	-0.82	1.87
Hierarchical position				
- manager	3.20***	-1.68	-1.55***	0.63
- director	4.02	-4.19	-2.33***	0.96
Working task				
- ADP	0.82	-1.65	-0.02	1.36
- sales & purchases	-6.57***	4.60**	-0.62	2.19**
- marketing	3.62	-2.98	-1.99*	4.34***
- <i>sales trainees</i>	-4.03**	5.66**	-3.15	8.29*
- <i>other sales personnel</i>	-2.81**	2.23	-1.67**	3.00***
Metropolitan area	-0.01	-0.58	-0.19	-0.32
Number of observations	8 651		11 688	
LR χ^2	22.07***		10.91***	
Adjusted r^2	0.0806		0.0296	

* = significant at 10% significance level, ** = significant at 5% significance level, *** = significant at 1 % significance level, -- = not included.

In both sectors mobility has a marked influence on wage changes. Young recruits in the IT sector receive the highest remuneration from changing employer: their hourly wages increase as much as 7.4 percentage points more if they change employer. Older male recruits in the IT sector get 3.1 percentage points higher wages if they change employer, whereas older female recruits receive a 2.7 percentage points smaller increase in wages than men if they change employer, leading only to a total of 0.4 percentage points higher wages. The higher remuneration of male recruits in changing employer contributes to the widening gender wage gap among older recruits in the IT sector.

In the retail trade there are no gender effects connected to changing employer: both men and women receive the same wage increases. Young recruits who change employer get 3.4 percentage points more and older recruits 2.6 percentage points more than their otherwise similar colleagues who remain employed in the same workplace.

In the IT sector, promotions have no effect on wage increases among young recruits. Among older recruits the contrary is true; men's wages increase by 3.4 percentage points and women's by as much as 7.1 percentage points, if they are promoted. The higher remuneration from promotions for women was noted earlier in the descriptive analyses, and means that promotions have a tendency to reduce gender wage gaps over time among older recruits. The fact that promotions are measured at a very rough level, which leaves out potentially important hierarchical levels for young recruits, may explain why promotions have no effect on wage increases in the IT sector.

Table 4.22 shows that promotions are very important for earnings growth in the retail trade. Those young male and female recruits who are promoted receive 14.6 percentage points higher wage increases than their otherwise similar colleagues who are not promoted. The corresponding figure for older recruits is 12.2. Since promotions are an important motor for earnings growth in the retail trade, the fact that female recruits have lower promotion probabilities than men, means that the overall effect from promotions is that gender wage gaps have a tendency to widen over time. This result is opposite to the one for the IT sector.

Education has an impact on earnings growth for young recruits in both sectors. In the retail trade, higher education brings 4.8 percentage points smaller wage increases for young female recruits than for similar men. This result emphasises the particular problems that highly educated young women seem to have in the retail trade. Among older recruits, education plays a minor role. Only older recruits with a higher education in the IT sector receive higher wage increases than their otherwise similar colleagues who have only a basic education. There are no gender differences in this respect.

According to the estimation results for both male and female recruits, a general education brings about higher wage increases than a qualification in commercial and business administration, in mathematics and natural sciences or in technology. The starting hourly wages are relatively low in general education, and thus, with higher than average wage increases, recruits with a qualification in general education manage to catch up with other educational groups over time.

Among older recruits in both IT and the retail trade the higher hierarchical position means lower relative wage increases. The starting hourly wages of managers and directors are about 30 to 147 per cent higher than average starting hourly wages. Thus, the smaller wage increases at the top of the hierarchy reduce the wage gaps between the lower and the top end of the hierarchy over time. In the IT sector, top level women get higher wage increases than men, which compensates for these women's somewhat lower starting wages, and reduces the gender wage gap over time.

Young male and female recruits working in ADP or sales and purchases in the IT sector receive higher wage increases than their otherwise similar colleagues. Women are under-represented in ADP tasks and over-represented in sales and purchases. Thus, the gender wage gap tends to rise in ADP-related working tasks and to shrink in sales and purchases. In the retail trade young female recruits get higher wage increases than men in sales and purchases and as sales trainees. Among older recruits women also have higher wage increases than men in marketing and as sales persons. All of these more beneficial wage changes for women contribute to reducing the gender wage gap over time in the retail trade.

4.6 Conclusions and discussions

The IT sector, which is a male-dominated, highly-skilled sector offering mainly full-time job contracts, and the retail trade, which is a female-dominated and low-skilled sector extensively using part-time job contracts, provide quite different starting points for career mobility. When one looks at the dynamic aspects of the internal labour markets in the IT sector and the retail trade, the differences in these initial conditions between the two sectors are highlighted.

Earnings growth over one's whole career is notably higher among young recruits than among older recruits in both sectors. The gender wage gap among young recruits is markedly lower than that for older recruits, although in the retail trade this difference is more pronounced than in the IT sector. However, during the first 5 years of employment, the gender wage gap narrows slightly in the IT sector but widens in the retail trade.

It appears that higher education generally pays off for women in the IT sector but not in the retail trade. The gender wage gaps are largest among highly educated older recruits in the retail trade, even though this gap slightly narrows down over time. Among highly educated young recruits in the retail trade, the gender wage gap widens substantially over time, whereas it narrows in the IT sector.

Among young recruits, higher education deters exit from the ECSIF member firms in the IT sector whereas it promotes exit (in particular among women) from these firms in the retail trade. This result clearly reflects differences in skill requirements in these two sectors. IT-firms provide career paths for young, highly educated employees, whereas career opportunities for these types of employees are rather limited in firms operating in the retail trade.

The fact that highly educated female recruits face a less beneficial situation in the retail trade than their male colleagues does not hold true for all female recruits. In fact, in the retail trade there are a number of working tasks in which female recruits receive higher wage increases than their male colleagues. Among older female recruits, this is

particularly marked among sales personnel, which is the largest employee group in retail trade.

The level of external mobility is higher in the retail trade than in the IT sector, mainly due to the high share of young – and mobile - recruits working on a part-time basis in the retail trade. In both sectors, young recruits are more mobile than their older colleagues. The male-female dominance of the sector influences external mobility. In the IT sector women are more likely than men to exit from the ECSIF firms, whereas in the retail trade the opposite is true; men are more likely than women to exit from the ECSIF firms.

Part-time work is more precarious than full-time work in both sectors; recruits working part-time have markedly higher exit rates than their otherwise similar colleagues working full-time. Only older female recruits in the retail trade work in part-time jobs on a more permanent basis than other recruit groups.

New recruits in ADP-related working tasks in the IT sector have substantially lower exit rates than their otherwise similar colleagues. In the retail trade, sales personnel's exit rates are significantly lower than those of their otherwise similar colleagues. The accumulation of sector specific human capital in these employee groups apparently deters their external mobility.

In the IT sector, managers and directors have markedly higher propensities to exit than employees and experts. This is not the case in the retail trade. Among older recruits in the retail trade, male managers and directors have smaller than average propensities to exit. However, older female managers and directors in the retail trade have markedly higher than average propensities to exit. This result may reflect female managers' and directors' problems in creating a career in ECSIF member firms; older female managers have lower propensities to be promoted than their male colleagues. Compared with other hierarchical groups, the gender wage gap is largest among older female managers in the retail trade.

Promotions and employer changes provide major channels for improving one's position in the labour market and for attaining higher wage increases. If women are less mobile than men or if they receive smaller remuneration from their mobility than men, gender wage gaps persist and widen over time. There are no overall gender differences in the propensity to change employer within the IT sector or the retail trade. Furthermore, in the IT sector there appears to be no overall gender difference in promotion propensities either. In the retail trade, gender matters. Despite having a similar background, women have a lower propensity to be promoted than men, which suggests that female recruits face a glass ceiling in the retail trade.

Mobility has a marked influence on wage changes, and thus on the development of gender wage gaps. In both sectors, a new recruit who changes employer receives higher wage increases than a similar colleague who remains employed in the same workplace.

Young recruits benefit more from the employer change than older recruits. In the IT sector older female recruits receive substantially smaller increases in wages than their male colleagues, when they change employer. In the retail trade there are no gender differences in this respect.

In the retail trade, promotions are a very important mechanism for earnings growth. New recruits who are promoted receive substantially higher wage increases than their otherwise similar colleagues who are not promoted. The fact that female recruits have lower promotion probabilities than men means that the overall effect of promotions is to widen gender wage gaps over time in the retail trade. In the IT sector, promotions have no effect on wage increases among young recruits. Among older recruits women receive higher remuneration from their promotions than men.

5. SUMMARY OF MAIN FINDINGS

The IT sector stands out as male-dominated, highly paid and highly skilled, offering almost without exception only full-time job contracts. The retail trade, on the other hand, is a female-dominated, rather low-paid and low-skilled sector with a considerable share of people hired on part-time contracts. But, despite representing the opposite extremes of the services sector, the recruitment behaviour in IT and retail trade firms, as well as the composition of the recruits, also reveals interesting similarities across the two sectors, especially from a gender perspective.

Over the 7-year period investigated (1995 to 2001), the IT sector has been characterised by a clear shift in recruitment towards younger age groups (less than 30 years old). From a female point-of-view this is a problematic trend, as women seem – for one reason or another – to be less successful when competing for IT jobs at younger ages. This shows up as declining female shares among new recruits and subsequently also in total IT employment. The educational composition of the new recruits is, on average, more favourable than the prevailing educational structure of the sector, which has steadily improved the sector's average educational level. A major number of new recruits enter ADP-related working tasks at expert or higher levels in the hierarchy and mainly on a full-time basis.

In contrast to the IT sector, the recruitment patterns of retail trade firms and the composition of recruits have undergone only marginal changes since 1995. A steadily high proportion of females are recruited into the sector, which has maintained the sector's female dominance. Moreover, a notable portion of the recruits – among both young and older ones – have only a basic education, in other words no formal vocational education. This, in turn, has maintained the sector's character of being low skilled. And since a majority of the recruits have acquired only a compulsory education, it is hardly surprising that most of them enter less demanding jobs at the lower end of the hierarchical scale. Moreover, part-time job contracts stand out as the typical working time arrangement offered to new recruits.

However, when looking closer at the recruits from a gender perspective, astonishing similarities between the two sectors can be identified, despite the fundamental differences outlined briefly above. A major similarity is that the gender gap in starting wages increases with the age of the recruits. While the starting wages of young male and female recruits reveal, on average, quite moderate differences, the male–female wage gap is substantially larger among older recruits, with the trend pointing to a widening rather than a narrowing of wage differentials.

This pattern seems to be the outcome of several closely related circumstances that stand out more strongly among older than among young recruits. First, female recruits are on average less well educated, for which reason they tend to enter lower-paid jobs at the

lower end of the hierarchy. If they have acquired a vocational education, their choice of field often represents a less valued one, which often correlates with the fact that the educational field is female dominated. Lower-than-average starting wages also characterise female-dominated working tasks. All in all, relatively more female recruits enter average-wage or below-average-wage jobs. Why the recruitment of women is concentrated on lower-skilled women and on women with a degree in the “wrong” educational field remains an open question, though.

The effects of these between-group differences in starting wages are strengthened by notable and occasionally further widening gender wage gaps within major educational and job categories. Moreover, such within-group gender wage gaps occur irrespective of the group being female or male dominated. And for some groups an increasing share of female recruits is coupled with a widening of within-group differences in starting wages, providing support for the so-called pollution theory of discrimination, that is, for new female recruits reducing the prestige of previously male-dominated occupations.

The patterns that emerge from this descriptive analysis are largely repeated when dividing the observed gender wage gaps into two components, one due to different characteristics and one due to unequal returns to these characteristics. In particular, both components play a much more outstanding role in explaining the gender wage gaps among older recruits, implying that gender differences in characteristics as well as in the returns to these characteristics are considerably larger among older than among young recruits. Furthermore, analysis of single background characteristics reveals that the differences in characteristics are primarily due to notable gender segregation in recruitment behaviour especially when it comes to hierarchical positions. At the same time, female recruits generally receive lower returns for characteristics of particular relevance to the sector in question. Finally, growing differences between male and female recruits in the rewarding of similar characteristics turns out to be a major explanation for the widening trend in the gender wage gaps observed among older recruits of both IT and retail trade firms.

Despite the fact that the IT sector and the retail trade provide quite different initial conditions for new recruits there appear to be quite a few interesting similarities in their performance in these two sectors over time. Earnings growth over career as a whole is notably higher among young recruits than among older recruits in both sectors. The gender wage gap among young recruits is markedly lower than that of older recruits, in the retail trade this difference is more pronounced than in the IT sector. However, during the first 5 years of employment, the gender wage gap narrows slightly in the IT sector but widens in the retail trade.

It appears that generally a higher education pays off for women in the IT sector but not in the retail trade. The gender wage gaps are largest among highly educated older recruits in the retail trade even though over time this gap narrows slightly. Among

highly educated young recruits in the retail trade the gender wage gap widens substantially over time, whereas it narrows in the IT sector.

Among young recruits, higher education deters exit from the ECSIF member firms in the IT sector whereas it promotes exit (in particular among women) from these firms in the retail trade. This result clearly reflects differences in skill requirements in these two sectors. IT-firms provide career paths for young, highly educated employees, whereas career opportunities for these types of employees are rather limited in firms operating in the retail trade.

The fact that highly educated female recruits face a less beneficial situation in the retail trade than their male colleagues does not hold true for all female recruits. In fact, in the retail trade there are a number of working tasks in which female recruits receive higher wage increases than their male colleagues. Among older female recruits this is particularly marked among sales personnel, which is the largest employee group in the retail trade.

The level of external mobility is higher in the retail trade than in the IT sector, mainly due to the high share of young – and mobile - recruits working on a part-time basis in the retail trade. In both sectors, young recruits are more mobile than their older colleagues. The male-female dominance of the sector influences external mobility: in the IT sector women are more likely than men to exit from ECSIF firms, whereas in the retail trade the opposite is true and men are more likely than women to exit.

New recruits in ADP-related working tasks in the IT sector have substantially lower exit rates than their otherwise similar colleagues. In the retail trade sales personnel's exit rates are significantly lower than those of their otherwise similar colleagues. The accumulation of sector specific human capital in these employee groups apparently deters their external mobility.

In the IT sector managers and directors have markedly higher propensities to exit than employees and experts. This is not the case in the retail trade. Among older recruits in the retail trade, male managers and directors have smaller than average propensities to exit. However, older female managers and directors in the retail trade have markedly higher than average propensities to exit. This result may reflect female managers' and directors' problems in creating a career in ECSIF member firms, as older female managers have lower propensities to be promoted than their male colleagues. Compared with other hierarchical groups the gender wage gap is largest among older female managers in the retail trade.

Promotions and employer changes provide major channels for improving one's position in the labour market and for attaining higher wage increases. If women are less mobile than men, or if they receive smaller remuneration from their mobility than men, gender wage gaps persist and widen over time. There are no overall gender differences in the propensity to change employers within the IT sector or retail trade. Furthermore, in the

IT sector there appears to be no overall gender difference in promotion propensities either. In the retail trade, gender matters. Despite having similar backgrounds women have a lower propensity to be promoted than men, which suggests that female recruits face a glass ceiling in the retail trade.

Mobility has a marked influence on wage changes and thus on the development of gender wage gaps. In both sectors a new recruit who changes employers receives higher wage increases than a similar colleague who remains employed in the same workplace. Young recruits benefit more from employer change than older recruits. In the IT sector older female recruits receive substantially smaller increases in wages than their male colleagues when they change employers. In the retail trade there are no gender differences in this respect.

In the retail trade promotions are a very important mechanism for earnings growth. New recruits who are promoted receive substantially higher wage increases than their otherwise similar colleagues who are not promoted. The fact that female recruits have lower promotion probabilities than men means that the overall effect from promotions is that gender wage gaps tend to widen over time in the retail trade. In the IT sector promotions have no effect on wage increases among young recruits. Among older recruits women receive higher remuneration from their promotions than men.

All in all, there appears to be forces that tend to both widen and narrow gender wage gaps over time in different recruitment groups. It was noted earlier that among young recruits in the IT sector the gender wage gap narrows slightly over time. This can be mainly explained by the fact that young female recruits in this sector have the same overall promotion propensities as their male colleagues, their overall propensity to change employers, and their general wage increases do not differ from those of their male counterparts. Young female recruits are slightly more prone to exit from ECSIF member firms than their male colleagues. However, both female and male recruits with a higher education have smaller exit rates than those with only a basic education.

Among young recruits in the retail trade the gender wage gap widens markedly over time. Many things contribute to this widening gender wage gap. Young female recruits have a smaller overall promotion propensity than their similar male colleagues. Young female recruits with a higher education also receive smaller wage increases than their similar male colleagues. Furthermore, exit rates are higher among young female recruits with a higher education than among similar male recruits.

Among older recruits in the IT sector the gender wage gap also narrows slightly over time. There are no overall gender differences in exits, promotions or changes of employers among this group of recruits. However, there are differences in the remuneration related to these changes. Older female recruits in the IT sector receive smaller increases in wages than their male colleagues when they change employers, whereas they receive a higher remuneration from promotions. Thus the change of

employers tends to widen and promotions tend to narrow gender wage gaps over time in this group of recruits.

Among older recruits in the retail trade the gender wage gap widens slightly over time. Older female recruits have a smaller overall propensity to be promoted than their male colleagues. This difference is particularly marked for older female managers and directors, who also have higher than average propensities to exit than their male colleagues. In administrative tasks older female recruits receive lower wage increases than their male colleagues. All this widens the gender wage gap. However, in some other working tasks older female recruits receive higher wage increases than men. This is true for sales personnel, which is the largest employee group in the retail trade. This contributes to the narrowing of the gender wage gap over time.

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APPENDIX TABLES

Table A3.1 Percentage shares of women among young and older recruits employed on, respectively, a full-time, short part-time and long part-time basis in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001
Percentage share of women in							
all young recruits with	50.0	24.6	37.0	24.6	26.6	31.5	27.7
- full-time contracts	50.0	22.2	36.5	26.5	26.2	31.7	28.5
- short part-time contracts	n.a.	23.1	62.5	12.2	27.8	18.6	26.8
- long part-time contracts	n.a.	n.a.	14.3	10.3	34.6	41.3	18.6
all older recruits with	46.9	44.8	45.1	38.2	35.1	40.7	43.6
- full-time contracts	45.8	42.9	44.6	37.8	33.7	40.3	43.2
- short part-time contracts	n.a.	n.a.	n.a.	60.0	66.7	33.3	n.a.
- long part-time contracts	n.a.	100.0	50.0	50.0	73.7	64.3	50.0
Retail trade							
Percentage share of women in							
all young recruits with	76.7	74.4	72.7	74.3	75.7	75.0	76.7
- full-time contracts	65.0	62.6	61.9	58.5	62.8	61.2	66.1
- short part-time contracts	79.4	77.7	75.1	77.4	77.3	77.8	78.6
- long part-time contracts	82.8	80.2	77.9	81.1	81.5	80.2	81.4
all older recruits with	78.6	76.9	73.5	75.4	76.5	77.0	80.2
- full-time contracts	67.3	66.6	61.5	62.6	64.6	65.0	70.9
- short part-time contracts	92.6	92.2	83.5	88.3	88.9	90.3	91.1
- long part-time contracts	92.1	91.5	88.8	92.1	90.9	91.7	93.1

Note: n.a. indicates that the cell contains less than six observations in total.

Table A3.2 Percentage shares of women among young and older recruits with, respectively, a basic, secondary and higher education in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001
Percentage share of women in							
all young recruits with	50.0	24.6	37.0	24.6	26.6	31.5	27.7
- basic education	n.a.	n.a.	54.5	28.6	36.4	14.3	22.2
- secondary education	27.3	16.7	35.4	25.0	24.2	14.2	31.9
- higher education	40.0	29.2	35.6	36.2	33.3	36.1	31.8
all older recruits with	46.9	44.8	45.1	38.2	35.1	40.7	43.6
- basic education	100.0	60.0	69.0	40.5	55.6	60.9	82.8
- secondary education	40.0	42.7	50.4	38.2	41.9	37.3	42.1
- higher education	37.3	40.7	35.3	42.9	38.5	37.9	43.0
Retail trade							
Percentage share of women in							
all young recruits with	76.7	74.4	72.7	74.3	75.7	75.0	76.7
- basic education	77.3	76.8	73.8	75.7	76.7	76.8	80.0
- secondary education	77.7	77.1	79.5	78.6	78.9	80.0	82.7
- higher education	76.7	77.9	71.8	72.0	71.5	76.2	75.5
all older recruits with	78.6	76.9	73.5	75.4	76.5	77.0	80.2
- basic education	84.6	81.7	79.1	81.3	85.0	84.6	89.9
- secondary education	75.8	69.7	75.2	79.7	76.8	78.8	82.9
- higher education	64.6	62.2	66.1	67.2	68.9	67.2	72.0

Note: n.a. indicates that the cell contains less than six observations in total.

Table A3.3 Average hourly wages of women relative to those of men, by educational level, among young and older recruits on full-time job contracts in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001	Av. 95/01
<i>Young recruits</i>								
Basic education	n.a.	n.a.	n.a.	85.8	n.a.	n.a.	n.a.	90.3
Secondary education	84.2	n.a.	103.5	94.8	88.3	112.7	91.5	70.1
Higher education	85.1	87.8	84.0	96.5	83.6	83.7	90.7	62.6
<i>Older recruits</i>								
Basic education	n.a.	n.a.	92.6	89.5	67.0	73.3	78.1	66.8
Secondary education	106.6	91.5	94.4	95.5	82.8	85.4	76.6	62.1
Higher education	86.6	83.8	91.6	87.2	89.8	77.7	79.0	60.8
Retail trade								
<i>Young recruits</i>								
Basic education	92.4	95.2	94.5	95.9	97.8	92.9	94.8	94.8
Secondary education	95.5	95.6	95.7	97.9	98.6	92.4	93.7	95.6
Higher education	83.0	92.9	91.1	98.0	91.9	85.4	82.3	89.3
<i>Older recruits</i>								
Basic education	91.9	79.9	79.3	88.7	86.4	78.1	84.7	84.1
Secondary education	80.5	81.3	88.9	86.1	86.8	78.1	81.8	83.4
Higher education	83.6	69.6	82.9	80.4	78.2	70.5	70.0	76.5

Note: The average hourly wages of full-time female recruits having completed, respectively, a basic, secondary and higher education are related to the average hourly wages of the corresponding categories of male recruits. n.a. indicates that the cell contains less than six observations either for the women or for the men, or for both.

Table A3.4 Percentage shares of women, by field of education, among young and older recruits in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001
Percentage share of women among							
all young recruits with	50.0	24.6	37.0	24.6	26.6	31.5	27.7
- general education	n.a.	15.4	31.6	20.8	25.2	16.5	32.5
- sec.-level vocational education	n.a.	n.a.	n.a.	n.a.	17.6	9.1	30.8
- commercial and business adm. progr.	46.2	37.5	52.8	48.9	44.8	43.0	41.9
- mathematics and natural sciences pr.	25.0	n.a.	14.3	14.3	20.0	31.3	14.3
- technology programmes	n.a.	0.0	9.1	0.0	9.4	16.2	10.5
- other programmes	n.a.	n.a.	n.a.	46.2	60.0	33.3	44.1
all older recruits with	46.9	44.8	45.1	38.2	35.1	40.7	43.6
- general education	65.0	43.6	51.7	36.8	44.2	42.9	48.4
- sec.-level vocational education	n.a.	n.a.	n.a.	83.3	n.a.	30.0	50.0
- commercial and business adm. progr.	48.2	55.6	55.3	57.8	53.8	53.8	62.5
- mathematics and natural sciences pr.	44.4	50.0	28.1	25.7	40.0	36.7	40.0
- technology programmes	3.8	4.7	12.2	12.8	13.6	12.5	15.4
- other programmes	n.a.	n.a.	44.4	48.1	41.5	35.3	60.3
Retail trade							
Percentage share of women among							
all young recruits with	76.7	74.4	72.7	74.3	75.7	75.0	76.7
- general education	78.9	77.2	77.0	77.9	78.1	79.1	81.1
- sec.-level vocational education	64.2	65.8	68.1	73.3	75.9	76.3	85.9
- commercial and business adm. progr.	77.3	80.6	75.5	72.5	74.0	76.6	78.2
- mathematics and natural sciences pr.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
- technology programmes	62.5	42.3	58.1	64.5	58.3	53.0	58.5
- other programmes	88.0	96.6	72.9	80.3	85.5	84.8	82.5
all older recruits with	78.6	76.9	73.5	75.4	76.5	77.0	80.2
- general education	83.7	81.0	79.9	81.9	84.8	83.7	89.1
- sec.-level vocational education	72.2	66.1	70.4	76.2	72.9	82.9	86.7
- commercial and business adm. progr.	71.4	67.9	73.0	74.9	75.4	70.3	78.1
- mathematics and natural sciences pr.	50.0	n.a.	n.a.	n.a.	n.a.	n.a.	33.3
- technology programmes	50.0	23.7	32.4	50.7	32.1	51.0	34.2
- other programmes	73.1	65.5	56.1	76.8	79.5	82.3	83.7

Note: n.a. indicates that the cell contains less than six observations in total.

Table A3.5 Relative hourly wages, by field of education, among young and older recruits in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001
<i>All young recruits with</i>	100	100	100	100	100	100	100
- general education	n.a.	89	94	99	97	103	96
- sec.-level vocational education	n.a.	n.a.	n.a.	n.a.	108	93	91
- commercial and business adm. prog.	106	111	102	93	98	108	101
- mathematics and natural sciences pr.	105	n.a.	124	107	109	103	127
- technology programmes	n.a.	121	114	95	103	108	102
- other programmes	n.a.	n.a.	n.a.	100	89	106	101
<i>All older recruits with</i>	100	100	100	100	100	100	100
- general education	86	96	97	95	92	100	99
- sec.-level vocational education	n.a.	n.a.	n.a.	85	n.a.	104	88
- commercial and business adm. prog.	97	99	98	92	87	101	94
- mathematics and natural sciences pr.	104	106	114	115	116	118	117
- technology programmes	112	114	110	93	106	106	109
- other programmes	n.a.	n.a.	93	91	109	106	90
Retail trade							
<i>All young recruits with</i>	100	100	100	100	100	100	100
- general education	101	99	101	101	101	99	98
- sec.-level vocational education	104	94	95	97	99	97	95
- commercial and business adm. prog.	105	102	101	98	100	102	103
- mathematics and natural sciences pr.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
- technology programmes	102	95	94	95	98	97	102
- other programmes	103	103	103	102	103	100	102
<i>All older recruits with</i>	100	100	100	100	100	100	100
- general education	95	93	95	93	95	96	93
- sec.-level vocational education	96	89	95	95	97	92	94
- commercial and business adm. prog.	113	120	109	111	110	121	111
- mathematics and natural sciences pr.	192	n.a.	n.a.	n.a.	n.a.	n.a.	268
- technology programmes	106	154	122	108	109	105	127
- other programmes	108	117	107	109	108	117	106

Note: The reference category is the average hourly wages of, respectively, all young recruits and all older recruits. n.a. indicates that the cell contains less than six observations in total.

Table A3.6 Average hourly wages of women relative to those of men, by field of education, among young and older recruits in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001
<i>Young recruits with</i>							
- general education	n.a.	n.a.	89	93	98	102	97
- sec.-level vocational education	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
- commercial and business adm. pr.	82	122	92	103	88	91	88
- mathematics and natural sciences p	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
- technology programmes	n.a.	n.a.	n.a.	n.a.	71	106	114
- other programmes	n.a.	n.a.	n.a.	88	87	n.a.	91
<i>Older recruits with</i>							
- general education	77	75	87	86	69	67	74
- sec.-level vocational education	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
- commercial and business adm. pr.	104	86	94	90	81	70	81
- mathematics and natural sciences p	n.a.	90	97	86	117	87	82
- technology programmes	n.a.	n.a.	116	109	88	109	87
- other programmes	n.a.	n.a.	n.a.	81	85	78	81
Retail trade							
<i>Young recruits with</i>							
- general education	101	100	101	99	98	96	100
- sec.-level vocational education	94	99	92	100	99	89	95
- commercial and business adm. pr.	87	95	97	100	94	85	91
- mathematics and natural sciences p.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
- technology programmes	97	89	100	97	103	94	86
- other programmes	n.a.	n.a.	84	100	101	98	80
<i>Older recruits with</i>							
- general education	91	81	85	91	86	80	81
- sec.-level vocational education	76	92	78	84	88	85	94
- commercial and business adm. pr.	77	72	81	77	78	64	70
- mathematics and natural sciences pr.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
- technology programmes	83	52	81	68	76	86	69
- other programmes	91	64	71	74	82	83	78

Note: The average hourly wages of female recruits having completed an education within respective educational fields are related to the average hourly wages of the corresponding categories of male recruits. n.a. indicates that the cell contains less than six observations either for the women or for the men, or for both.

Table A3.7 Percentage shares of women, by working tasks, among young and older recruits in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001
Percentage share of women among							
all young recruits:	50.0	24.6	37.0	24.6	26.6	31.5	27.7
- ADP	40.7	20.6	31.7	21.1	23.5	26.3	22.9
- administration	88.9	n.a.	90.5	100.0	77.3	76.2	91.3
- sales and purchases	n.a.	n.a.	n.a.	25.0	33.3	58.8	33.3
- marketing	n.a.	n.a.	n.a.	n.a.	n.a.	53.8	58.3
- other working tasks	n.a.	n.a.	n.a.	60.0	75.0	81.0	84.6
all older recruits:	46.9	44.8	45.1	38.2	35.1	40.7	43.6
- ADP	44.0	39.9	40.9	37.1	33.3	35.3	42.9
- administration	85.7	81.5	90.9	77.4	76.5	83.6	62.2
- sales and purchases	33.3	40.6	33.3	25.0	26.3	23.9	25.0
- marketing	n.a.	n.a.	n.a.	50.0	33.3	91.7	52.2
- other working tasks	50.0	n.a.	n.a.	83.3	81.8	88.9	92.9
<hr/>							
Retail trade							
Percentage share of women among							
all young recruits:	76.7	74.4	72.7	74.3	75.7	75.0	76.7
- ADP	n.a.	44.4	33.3	14.3	13.0	30.0	12.0
- administration	83.0	84.6	75.0	83.3	80.1	83.2	84.3
- sales and purchases	56.7	52.4	35.2	33.3	41.9	43.2	53.6
- marketing	84.6	84.6	75.8	89.7	77.6	87.2	83.1
- sales trainees	75.2	66.8	67.1	72.9	72.7	75.0	74.5
- sales persons	79.6	78.2	76.5	77.6	79.1	77.9	79.4
- service station employees	46.8	47.0	64.5	57.2	55.4	49.5	60.7
- senior sales persons	33.3	42.1	33.3	39.1	40.0	45.9	43.8
- sales managers	52.8	50.0	54.1	55.0	62.0	50.0	66.4
- other working tasks	70.8	57.1	59.0	57.1	63.9	38.5	42.3
all older recruits:	78.6	76.9	73.5	75.4	76.5	77.0	80.2
- ADP	46.7	29.6	25.0	38.2	27.8	48.0	32.1
- administration	94.7	87.2	82.6	88.5	83.1	91.4	84.1
- sales and purchases	53.1	38.4	40.3	51.9	43.2	34.9	55.6
- marketing	70.6	50.6	84.2	70.0	78.0	75.4	83.0
- sales trainees	88.9	64.7	85.7	76.7	82.5	76.7	78.6
- sales persons	84.9	85.7	79.3	81.9	83.0	82.9	85.9
- service station employees	54.5	56.4	62.7	57.5	59.0	60.0	70.1
- senior sales persons	31.9	23.1	29.3	35.3	47.0	54.1	46.4
- sales managers	57.5	62.0	58.6	48.1	55.2	55.6	68.7
- other working tasks	68.4	60.8	61.9	51.9	55.4	53.1	67.4

Note: n.a. indicates that the cell contains less than six observations in total.

Table A3.8 Percentage shares of women, according to hierarchical position, among young and older recruits in IT and the retail trade, 1995 – 2001

IT sector	1995	1996	1997	1998	1999	2000	2001
<i>Young recruits</i>	50.0	24.6	37.0	24.6	26.6	31.5	27.7
Trainees	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Employees	50.0	23.8	37.8	28.0	33.3	38.4	32.2
Experts	n.a.	n.a.	n.a.	17.0	19.4	16.9	24.4
Managers	n.a.	n.a.	n.a.	47.4	0.0	23.8	25.9
Directors	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0
<i>Older recruits</i>	46.9	44.8	45.1	38.2	35.1	40.7	43.6
Trainees	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Employees	51.0	49.7	46.4	49.5	57.1	60.2	55.7
Experts	n.a.	n.a.	n.a.	38.1	29.2	36.1	46.0
Managers	35.9	34.6	37.2	24.4	24.9	25.3	31.0
Directors	n.a.	n.a.	n.a.	33.3	8.6	11.8	16.7
Retail trade							
<i>Young recruits</i>	76.7	74.4	72.7	74.3	75.7	75.0	76.7
Trainees	75.1	66.6	67.1	72.8	72.8	75.1	74.8
Employees	78.0	76.6	74.8	75.2	77.1	75.9	78.1
Experts	32.0	36.4	30.4	31.0	35.7	38.7	41.2
Managers	43.5	56.6	53.7	57.9	58.4	46.6	65.0
Directors	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Older recruits</i>	78.6	76.9	73.5	75.4	76.5	77.0	80.2
Trainees	80.0	64.7	86.2	71.4	81.4	77.4	78.6
Employees	83.1	84.9	76.7	80.3	81.2	81.3	85.1
Experts	30.0	18.8	26.1	29.3	43.9	48.8	44.1
Managers	60.4	49.5	55.6	47.4	53.8	58.0	63.4
Directors	14.3	12.7	47.8	19.2	22.7	23.4	36.2

Note: n.a. indicates that the cell contains less than six observations in total.

Table A4.1 Index of real average hourly wages of young and older recruits during their careers in IT and the retail trade, a restricted sample of those who remained employed throughout the 5-year observation period

<i>IT sector</i>	1	2	3	4	5
<i>Young recruits</i>	100	107	115	127	131
- men	100	107	118	130	134
- women	100	106	108	122	124
Women's average hourly wages relative to those of men	99	98	91	93	92
 <i>Older recruits</i>	 100	 104	 109	 114	 118
- men	100	104	109	113	118
- women	100	104	110	116	117
Women's average hourly wages relative to those of men	85	85	86	87	84
<hr/> Retail trade <hr/>					
<i>Young recruits</i>	100	105	107	109	112
- men	100	107	111	117	121
- women	100	104	105	107	108
Women's average hourly wages relative to those of men	96	93	90	88	86
 <i>Older recruits</i>	 100	 101	 101	 101	 101
- men	100	102	103	105	106
- women	100	100	100	100	100
Women's average hourly wages relative to those of men	80	79	78	76	75

Table A4.2 Index of real average hourly wages during the first 5 years of employment, among young and older recruits with full-time job contracts in IT and the retail trade

IT sector	1	2	3	4	5
<i>Young recruits</i>	100	112	120	126	125
- men	100	110	118	125	125
- women	100	115	123	128	126
Women's average hourly wages relative to those of men	88	92	92	90	89
 <i>Older recruits</i>	 100	 105	 106	 107	 113
- men	100	104	103	104	113
- women	100	106	110	111	114
Women's average hourly wages relative to those of men	81	83	87	87	83
<hr/>					
Retail trade					
<i>Young recruits</i>	100	107	112	116	120
- men	100	108	114	120	126
- women	100	106	111	114	117
Women's average hourly wages relative to those of men	94	93	91	89	87
 <i>Older recruits</i>	 100	 103	 105	 106	 106
- men	100	104	109	111	109
- women	100	102	104	104	105
Women's average hourly wages relative to those of men	79	77	75	75	76

Table A4.3 Average percentage distribution of basic characteristics calculated from the pair-wise comparisons over the 5-year observation period, among those new recruits who remained employed in or exited from the IT sector

It sector	Men		Women	
	Stayed	Exited	Stayed	Exited
Working time				
- full-time	96.5	95.2	96.4	90.8
- part-time	3.5	4.8	3.6	9.2
Level of education				
- <i>basic</i>	4.5	4.4	9.9	7.9
- secondary	42.7	42.3	40.1	40.2
- higher	52.8	53.3	50.0	51.9
Field of education				
- general education	28.7	28.3	27.9	22.5
- vocational education	2.0	2.3	2.7	2.2
- commercial & business adm.	28.6	31.7	54.6	55.8
- mathematics & natural sciences	7.8	8.9	6.1	7.6
- <i>technology</i>	28.6	24.8	3.9	4.9
- other	4.3	3.9	4.7	7.0
Hierarchical position				
- trainees	0.0	0.0	0.0	0.1
- employees	30.0	29.7	41.5	48.7
- experts	47.4	40.9	42.5	33.6
- managers	19.8	25.2	13.4	14.6
- <i>directors</i>	2.8	4.2	2.5	3.0
Working task				
- Adp	93.4	89.7	80.7	77.2
- Administration	1.0	1.8	11.6	12.8
- Sales & purchases	4.7	7.6	3.9	4.1
- Marketing	0.5	0.4	1.5	2.5
- Other	0.3	0.4	2.3	3.4

Table A4.4 Average percentage distribution of basic characteristics calculated from the pair-wise comparisons over the 5-year observation period, among those new recruits who remained employed in or exited from the retail trade

Retail trade	Men		Women	
	Stayed	Exited	Stayed	Exited
Working time				
- full-time	68.7	51.9	41.3	30.9
- part-time	31.3	48.1	58.7	69.1
<i>Level of education</i>				
- <i>basic</i>	37.7	39.7	49.1	43.9
- secondary	34.5	38.1	33.6	40.2
- higher	27.8	22.2	17.3	15.8
Feld of education				
- general education	53.4	60.2	66.9	71.0
- vocational education	8.3	8.6	6.6	5.9
- commercial & business adm.	29.2	22.5	22.5	19.0
- mathematics & natural sciences	0.3	0.1	0.1	0.0
- <i>technology</i>	6.5	6.4	1.8	1.6
- other	2.3	2.2	2.2	2.5
Herarchical position				
- trainees	5.1	8.3	4.1	6.5
- employees	70.6	75.3	88.9	88.7
- experts	5.8	3.6	0.9	0.7
- managers	15.3	11.3	5.9	3.9
- <i>directors</i>	3.1	1.6	0.2	0.2
Wrking task				
- Adp	1.9	1.7	0.4	0.3
- Administration	3.4	2.7	6.6	5.9
- Sales & purchases	9.6	10.1	2.4	1.9
- Marketing	1.9	1.1	1.5	1.1
- <i>Sales personnel</i>	81.5	83.2	88.6	90.0
- Other	1.6	1.3	0.5	0.8

Table A4.5 Survival rates in different career phases, by full-time and part-time status and gender among new recruits in IT and the retail trade

IT sector	2	3	4	5
<i>Full-time jobs</i>	73	55	41	30
- men	75	56	42	30
- women	69	52	39	29
<i>Part-time jobs</i>	60	35	24	n.a.
- men	65	40	n.a.	n.a.
- women	52	28	16	n.a.
Retail trade				
<i>Full-time jobs</i>	64	48	37	28
- men	62	44	33	26
- women	66	50	39	30
<i>Part-time jobs</i>	51	31	21	15
- men	45	25	15	9
- women	52	33	22	17

Note: n.a. indicates that the cell contains less than six observations either for the women or for the men, or both.

Table A4.6 Survival rates in different career phases, by educational level and gender among new recruits in IT and the retail trade

IT sector	2	3	4	5
<i>Secondary education</i>	71	53	39	27
- men	70	52	37	27
- women	72	54	42	27
<i>Higher education</i>	72	53	37	26
- men	73	54	38	26
- women	69	51	35	26
Retail trade				
<i>Basic education</i>	59	42	32	26
- men	54	35	26	20
- women	60	44	34	28
<i>Secondary education</i>	54	35	25	19
- men	53	34	24	19
- women	54	35	26	19
<i>Higher education</i>	65	47	35	29
- men	66	49	37	30
- women	64	46	35	28

Table A4.7 Survival rates in different career phases, by field of education and gender among new recruits in IT and the retail trade

IT sector	2	3	4	5
<i>General education</i>	70	53	40	29
- men	70	52	38	27
- women	70	55	42	34
<i>Commercial and business administration</i>	70	52	36	25
- men	69	51	35	24
- women	70	52	38	26
<i>Technology programmes</i>	74	54	40	30
- men	74	56	41	31
- women	67	43	n.a.	n.a.
Retail trade				
<i>General education</i>	56	37	28	22
- men	53	33	24	19
- women	56	38	29	23
<i>Commercial and business administration</i>	65	48	37	30
- men	65	48	37	31
- women	64	47	37	30
<i>Technology programmes</i>	64	45	33	26
- men	65	43	31	24
- women	63	46	35	27

Note: n.a. indicates that the cell contains less than six observations either for the women or for the men, or both.

Table A4.8 Survival rates in different career phases, by hierarchical position and gender among new recruits in IT and the retail trade

IT sector	2	3	4	5
<i>Employees</i>	68	52	39	26
- men	72	56	43	29
- women	62	46	33	23
<i>Experts</i>	78	59	43	35
- men	76	58	42	34
- women	82	62	47	37
<i>Managers</i>	73	50	37	24
- men	75	50	38	24
- women	67	47	35	25
<i>Directors</i>	71	49	33	21
- men	73	47	31	n.a.
- women	61	56	n.a.	n.a.
Retail trade				
<i>Employees</i>	56	37	27	20
- men	53	34	22	16
- women	57	38	28	21
<i>Experts</i>	62	43	33	29
- men	60	40	32	28
- women	65	48	36	n.a.
<i>Managers</i>	74	58	47	35
- men	72	57	47	33
- women	76	60	46	37
<i>Directors</i>	78	56	45	38
- men	81	58	49	40
- women	66	47	33	n.a.

Note: n.a. indicates that the cell contains less than six observations either for the women or for the men, or both.

Table A4.9 Average percentage distribution of basic characteristics, calculated from the pair-wise comparisons over the 5-year observation period, among those new recruits whose status remained unchanged or who were promoted in the IT sector

It sector	Men		Women	
	No change	Promotion	No change	Promotion
Working time				
- full-time	96.8	100.0	96.6	97.4
- part-time	3.2	0.0	3.4	2.6
<i>Level of education</i>				
- <i>basic</i>	3.8	0.9	10.1	0.0
- secondary	44.6	35.6	40.8	57.3
- higher	51.6	63.5	49.1	42.7
Field of education				
- general education	29.4	17.1	25.6	27.4
- vocational education	1.1	0.9	2.5	0.0
- commercial & business adm.	27.7	36.0	55.5	57.4
- mathematics & natural sciences	8.5	7.5	8.3	7.8
- <i>technology</i>	29.5	35.8	3.3	3.6
- other	3.8	2.7	4.7	3.7
Hierarchical position				
- trainee	0.0	0.4	0.0	0.0
- employees or experts	74.0	82.1	83.2	86.3
- managers	23.4	17.5	14.3	13.6
- <i>directors</i>	2.6	--	2.5	--
Working task				
- Adp	93.3	93.3	79.8	91.9
- Administration	1.5	0.5	14.1	3.4
- Sales & purchases	4.5	5.4	2.9	2.7
- Marketing	0.4	0.4	1.9	0.0
- Other	0.4	0.4	1.3	2.0

Table A4.10 Average percentage distribution of basic characteristics, calculated from the pair-wise comparisons over the 5-year observation period, among those new recruits whose status remained unchanged or who were promoted in the retail trade

	Men		Women	
	No change	Promotion	No change	Promotion
Working time				
- full-time	70.0	61.9	42.1	40.9
- part-time	30.0	38.1	57.9	59.1
<i>Level of education</i>				
- <i>basic</i>	38.0	43.8	50.7	39.5
- secondary	34.6	25.1	32.0	41.4
- higher	27.4	31.2	17.3	19.1
Field of education				
- general education	53.8	57.9	67.2	64.3
- vocational education	8.1	3.6	6.2	6.3
- commercial & business adm.	29.7	29.8	22.8	22.9
- mathematics & natural sciences	0.2	0.8	0.1	0.0
- <i>technology</i>	6.1	7.0	1.6	2.6
- other	2.1	0.9	2.1	3.9
Hierarchical position				
- trainees	2.4	36.6	1.5	43.2
- employees or experts	77.7	59.0	92.5	54.9
- managers	17.3	4.4	5.8	1.9
- <i>directors</i>	2.6	--	0.2	--
Working task				
- Adp	1.7	2.8	0.4	2.2
- Administration	3.5	1.5	7.1	6.2
- Sales & purchases	9.4	8.2	2.1	3.1
- Marketing	1.8	1.1	1.4	1.3
- <i>Sales personnel</i>	82.1	85.7	88.5	87.3
- Other	1.4	0.7	0.5	0.0

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