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OCCUPATIONAL SEGREGATION DURING THE 1980s AND 1990s – THE CASE OF FINNISH MANUFACTURING**

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ABSTRACT: This descriptive paper investigates occupational segregation by gender during the 1980s and 1990s among white-collar workers in the Finnish manufacturing. Particular attention is paid to the relationship between education and segregation. Also the question how segregation evolves with work experience is analyzed. The results show that although occupational segregation has continuously declined, the level of segregation is still high. Occupational differences between men and women cannot be explained by relying on the gender differences in the educational background. The results also show that men and women segregate into different occupations already at the beginning of their careers, and the level of segregation realized at the entry moment is found to be enduring.

KEYWORDS: occupational segregation, education, work experience

JEL Classification numbers: J11, J16, J24

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TIIVISTELMÄ: Kuvainnollisessa tutkimuksessa tarkastellaan toimihenkilöiden ammattiaseman segregoitumista sukupuolen mukaan 1980- ja 1990-luvuilla Suomen teollisuudessa. Tutkimuksessa kiinnitetään erityistä huomiota koulutuksen ja segregaation yhteyteen sekä segregaation kehittymiseen työkokemuksen myötä. Tutkimustulokset osoittavat, että huolimatta segregaation jatkuvasta pienentymisestä Suomen teollisuudessa, niin sukupuolten väliset ammatilliset erot ovat yhä suuret. Sukupuolten ammatillisessa asemassa ilmeneviä eroja ei voida selittää yksinomaan naisten ja miesten koulutustaustaeroilla. Lisäksi tutkimuksessa havaitaan, että miehet ja naiset päätyvät erilaisiin ammatillisiin asemiin jo heti työuran alussa, ja että segregaation tasossa tapahtuu vain pieniä muutoksia työkokemuksen myötä.

AVAINSANAT: ammatillinen segregoituminen, koulutus, työkokemus

JEL Classification numbers: J11, J16, J24

Yhteenveto

Naisten ja miesten ammatillisia eroja on tutkittu laajasti erityisesti Yhdysvalloissa ja Britanniassa. Aihealue on nähty tärkeänä tutkimuksen kohteena eikä vähiten siksi, että sukupuolten väliset ammattierot ovat tutkimusten mukaan voimakkaasti yhteydessä esimerkiksi naisten ja miesten palkkaerojen kanssa. Tässä tutkimuksessa keskitytään sukupuolten ammattiasemassa ilmeneviin eroihin ja niiden kehittymiseen 1980- ja 1990-luvuilla Suomen teollisuuden toimihenkilöiden keskuudessa. Erityisenä mielenkiinnon kohteena on analysoida, millainen yhteys vallitsee koulutuksen ja ammattisegregaation välillä. Tutkimuksessa perehdytään lisäksi segregaation laajuuteen työuran alussa sekä analysoidaan, miten segregaatio kehittyy työkokemuksen myötä.

Tutkimustuloksemme osoittavat, että huolimatta sukupuolten ammattierojen kaventumisesta viimeisten 20 vuoden aikana, naisten ja miesten ammatillisissa asemissa on yhä selkeitä eroja Suomen teollisuuden toimihenkilöiden keskuudessa. Miehet työskentelevät esimerkiksi tyypillisemmin vaativimmissa tehtävissä kuin naiset. Osa sukupuolten ammattiasemissa ilmenevistä eroista selittyy naisten ja miesten erilaisilla koulutustaustoilla, mutta tuloksemme osoittavat, että huolimatta sekä koulutustason että koulutusalan kontrolloimisesta, naisten ammattiasema eroaa usein miehen ammattiasemasta.

Tutkimuksessa havaitaan, että miehet ja naiset päätyvät erilaisiin ammattiasemiin jo heti työuran alussa. Erot säilyvät huomattavina koulutustason kontrolloimisen jälkeenkin. Tulokset osoittavat lisäksi, että ammattisegregaation tasossa ei tapahdu merkittäviä muutoksia työkokemuksen myötä.

Tämä tutkimus antaa aihetta monille lisätutkimuksille. Eräs tärkeä ja Suomessa toistaiseksi vähän tutkittu aihe on selvittää tekijöitä ja mekanismeja, jotka ovat vaikuttaneet ammattierojen kaventumisen taustalla viimeisten 20 vuoden aikana. Myös ammattierojen kaventumisen rooli sukupuolten palkkaerojen kehittymisen kannalta on tärkeä lisätutkimuksen aihe.

1 Introduction

Social scientists have long shown interest in assessing the extent of occupational segregation among different demographic groups. The development of occupational distributions of men and women is one example of questions that has received much of economists' and sociologists' attention during the last decades. Investigation of occupational differences between genders has been seen important as they have direct implications on, for example, the unequal distribution of earnings between men and women. The actual importance of occupational segregation on the gender wage gap was, however, unclear until the recent availability of high quality data sets, which has made it possible to distinguish occupational segregation from other types of segregation (e.g. segregation among industries and firms). Recent studies using large matched employer-employee data sets have provided evidence that occupational segregation indeed is of great importance with respect to the pay gap between men and women. Petersen et al. (1997) and Meyersson-Milgrom et al. (2001) for example found that over 70 percent of the gender wage gap can be explained by occupational segregation.

In the United States, the patterns of occupational segregation by gender have been investigated already since the beginning of the 20th century. A common finding has been that segregation declined continuously after the 1950s and that the decline accelerated during the 1970s (Bianchi & Rytina 1986, Jacobs 1989). The pattern of decreasing occupational segregation has continued over the 1980s and 1990s although at slower pace (Blau et al. 1998, Wells 1998). The results for Europe are similar, although occupational segregation has been found to be generally higher among the EU countries compared to the U.S (Dolado et al. 2002). Evidence for the Nordic countries shows that the level of occupational segregation has decreased during the last decades, although the differences between men and women still appear to be high compared to other industrialized countries (Melkas & Anker 1997). [1]

[1] Occupational segregation has appeared very important with respect to gender wage gap in the Nordic labor markets. See e.g. Petersen et al. (1997), Meyersson-Milgrom et al. (2001), Gubta & Rothstein (2001) and Korkeamäki & Kyyrä (2002, 2003) for evidence from the Norwegian, Swedish, Danish and Finnish labor markets respectively.

In this descriptive paper, we investigate occupational segregation by gender over the period 1980-2002 using data on white-collar workers in the Finnish manufacturing. We explore the general patterns of occupational segregation during the last two decades and pay particular attention to the relationship between education and segregation. We also analyze the extent of occupational segregation by gender among individuals who are just entering the labor market separately from the other workers. We further study how segregation evolves as workers accumulate work experience. These two issues, the relationship between education and segregation, and the development of segregation with experience, have attracted surprisingly little attention among researchers so far. However, when factors affecting occupational segregation by gender are discussed, different educational background of men and women is probably the most often mentioned reason behind segregation. In this paper we do not only investigate occupational disparities among men and women who share the same level of education but we further control for the field of education. Also, when the means of desegregation are considered, it is of great importance to have knowledge concerning the extent to which men and women segregate into different jobs already at the entry-level of their careers and to what extent segregation is a matter of different occupational career paths. We explore this question by studying whether women and men grow apart or get more similar as they accumulate work experience.

Occupational segregation has been widely studied in the United States and Great Britain. In this paper, we concentrate on the Finnish labor markets where relatively little research has been done on occupational segregation by gender. Kolehmainen (1999) analyzed in her extensive study how occupational disparities between genders have changed in Finland between 1970 and 1990. In addition to the differences in the research questions between our paper and Kolehmainen's study, the methodological approaches used in the studies also differ. We use mostly the dissimilarity index to carry out our analysis whereas Kolehmainen based her analysis on the classification which separates between integrated and segregated occupations. Furthermore, the periods of investigations differ between the studies. Asplund (1993), Vartiainen (2002), and Kangasniemi (2003) also examined to some extent occupational disparities between men and women in the Finnish labor markets, but their main interest was in analyzing the gender wage differentials (Asplund, Vartiainen), and in the wage effects of occupational

changes (Kangasniemi). Asplund & Lilja (2003) studied (among other things) differences between men and women in jobs at the recruitment moment using data from the Finnish labor market over period 1995-2001. They focused on making comparative analysis between the IT and retail trade sectors. Melkas & Anker (1997) investigated occupational segregation in Nordic countries using data from Sweden, Norway and Finland covering the period 1970-1990. They mainly focused on comparing the general patterns in segregation between the three countries without paying attention to the questions that are in the center of our study, i.e. the relationship between education and segregation, and the extent of entry-level occupational segregation and its development with experience.

The main findings of this study are: i) Occupational segregation has continuously declined in the Finnish manufacturing. Unlike in many other studies, the rate of decline was greater in the 1990s compared to the 1980s. Despite the decline, however, occupational segregation is still strong. ii) Similarly to the results of some other recent studies, segregation seems to be smaller among individuals with high education. But even when the differences in the level and field of education are controlled for occupational segregation remains quite high, also at the higher educational levels. iii) Women seem to be located at lower levels of the occupational hierarchy and the differences cannot be explained simply by relying on the differences in the educational background. iv) Men and women segregate into different occupations already at the beginning of their careers. v) There are no significant changes in the level of segregation during the first ten years of workers' careers. We found, however, some evidence that the structure of occupational segregation changes with experience. The role of segregation at the managerial level with respect to total segregation seems to increase with time spent in the labor market.

The rest of the paper is organized as follows. In section 2, we describe the data used in the study. Then we will proceed to discuss the measuring approach used in the paper. In Section 4, we investigate the extent of occupational segregation by gender in the Finnish manufacturing and its development during 1980-2000. Section 5 examines segregation at the entry-level and how segregation evolves with work experience. The paper concludes with a summary section.

2 Data

The data used in the analysis are from the records of the Confederation of Finnish Industry and Employers (TT).[2] The degree of unionization is very high in the Finnish labor market[3], and TT is the largest organization on the employers' side. There are member firms from the transportation, construction and service sectors, but the most important sector represented in TT data is manufacturing: the member firms of TT account for over two thirds of the value added of the Finnish manufacturing sector and a clear majority of the workers employed in manufacturing work in member firms of TT. TT data contains information on both white-collar and blue-collar workers, but we concentrate on the former. One reason for this is that the occupational classifications are unified for white-collar workers: among them the occupational classification is common over all industries whereas most of the blue-collar occupations are industry specific. We have data from the period 1980-2002, but a large part of the analysis, however, is restricted to the period 1980-2000. In the late nineties new occupational coding variables came into play in the TT data and in order to guarantee the best possible comparability over time, we confine ourselves mainly to the period 1980-2000. Some analysis is also carried out for 2002 by use of the new occupational codes as they provide certain advantages over the former occupational measure.[4]

There are some great advantages in the TT data compared to conventional employee surveys. One of these is the very high reliability of the information provided by TT because the data come directly from the administrative records of the employer. The problem of non-response is negligible since it is compulsory for the member firms to provide information of the requested issues. Also, as the information is based on the employer records it is reasonable to believe that the possible measurement errors or missing information are purely random.

TT data contain rather detailed information on an individual's educational background. It is not only possible to distinguish between many different levels of education but the field of

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[2] The Confederation of Finnish Industry and Employers and Employers' Confederation of Service Industries merged into a new organization called Confederation of Finnish Industries (EK) in 2004. In this study we use the old name as the data come from the period before the merger.

[3] Approximately over 80 percent of salaried employees belong to unions (Vartiainen 1998).

[4] The new coding system allows one to divide each of the occupation groups into four parts according to skill requirements.

education can also be controlled. Furthermore, TT data are compound cross section and panel data which allows us to follow individuals through their careers and investigate how the level of segregation evolves with experience. TT data also contain information over a relatively long time period which is of particular importance with respect to our research interests.

The set of occupations used in the study consists of 75 occupations which can be grouped into seven larger occupational groups. This level of disaggregation is low enough to allow us to detect in detail occupational differences between genders, but at the same, it is high enough so that the problems of small cell sizes are likely to be minor. Unlike in some earlier studies (e.g. Dolado et al. 2002), in this paper we do not differentiate between occupations in different industries: a sales assistant working in the paper industry represents exactly the same occupation as a sales assistant occupied in the metal industry. One problem with differentiating occupations further by industries is that cell sizes of occupations would become rather small. As will be discussed in Section 3, a small cell size could cause some problems for the measure of segregation applied in this study. The level of aggregation used in this paper guarantees that the sample size of any given occupation is in most of the cases relatively high. During the period of investigation there are no changes in the occupational coding system meaning that the occupations that were part of the occupational set in 1980 are the same that comprise the occupational structure in 2000. There may be, however, some qualitative changes in the contents of occupations due to technological progress etc., but we do not have further information on that issue. Occupations form seven groups each of which contains a number of jobs of different skill- and demand-levels. Table 1A in the appendix shows the list of occupations and the average number of workers in each occupation during period 1980-2000.

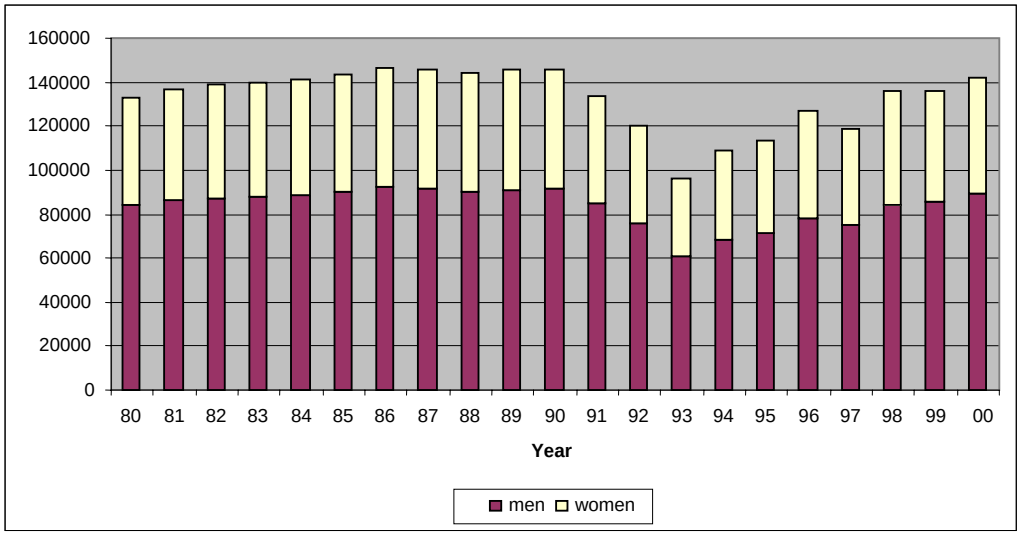
Besides that we analyze the general patterns of occupational segregation, we also investigate the extent of segregation within five educational groups: basic, lower secondary, higher secondary, first stage of tertiary education (non-university) and university education.[5] Further-

[5] In 1994 there was a change in the coding system of education variables in TT's data. We tried to transform the new codes into a format that would be comparable with the old coding system but unfortunately we did not succeed. Therefore in the following analysis where educational variables are used this change in the coding system should be kept in mind. At the same time, however, it must be mentioned that the changes in the educational distributions around the break point are not very large. Yearly educational distributions are available from the author upon request.

more, our study separates individuals at the entry-stage from the other workers. A worker is classified as an entry-stage worker in year t if he/she is observed in year t, but not in any years before t, and his/her work experience in year t is zero. Because any work experience accumulated before entering a member firm of TT does not come out from the records of TT, for an individual to be categorized as an entry-level worker, we further require that his/her age at year t must be equal to or below thirty.

In figure 1, we present the number of white-collar workers in the member firms of TT over the period 1980-2000. The shares of men and women of the total number of white-collar workers have remained approximately constant during the period of investigation: roughly 37 % of the white-collar workers are females. Also, the drastic economic downturn that the Finnish economy experienced during the beginning of the nineties shows clearly in the figure as well as the rapid growth in the latter part of the 90s. The average annual number of observations in the data is about 133 000.

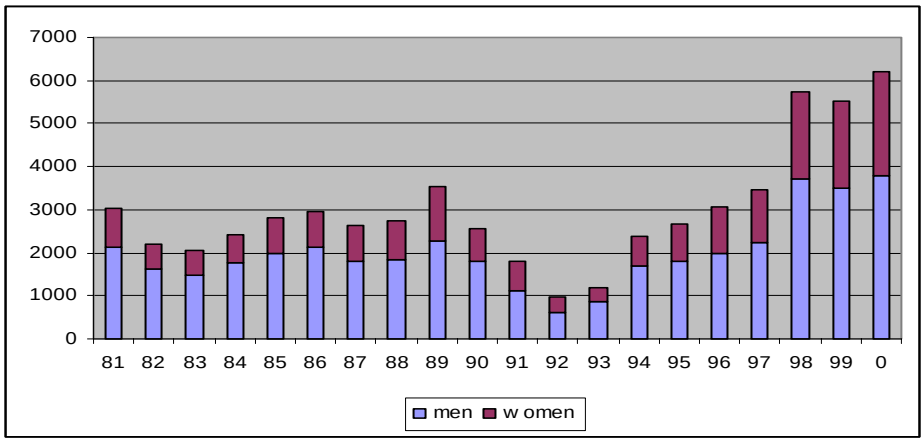
FIGURE 1: Total number of white-collar workers in TT member firms



The number of entry-level white-collar workers is shown in figure 2. The average annual number of entries in the period 1980-2000 was approximately 3000. When the recession was at its worst, the number of entry-level workers dropped to below one thousand whereas at the peak year 2000 the corresponding number was over 6200. Women's share of the entry-level

workers has increased somewhat during the period of investigation: during the eighties women's share was an on average below 30 %, but in the nineties the figure was nearly 34 %. During years 1995-2000, which was a period of strong economic growth in Finland, the female share of new workers increased to nearly 36 %.

FIGURE 2: Total number of entry-level white-collar workers

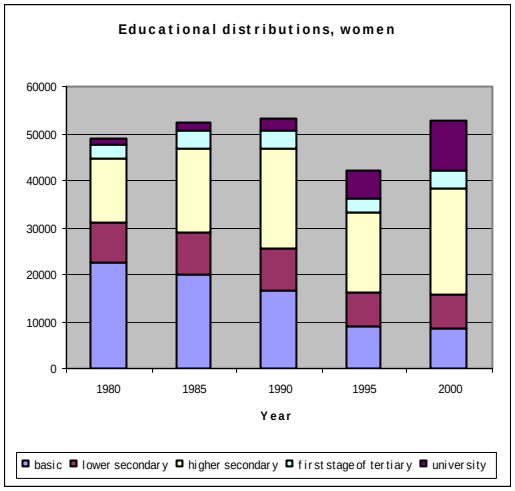


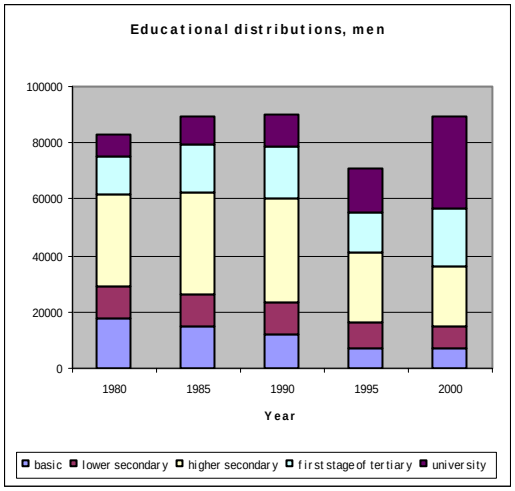
Figures 3.1 and 3.2 show the educational distributions of women and men, respectively. They show the increase in educational attainment that has generally taken place in Finland during the last two decades. Comparing the share of white-collar workers with a university level education to the share of those with only basic education between 1980 and 2000, we notice that the average educational levels have increased significantly, for both male and female white-collar workers. At the same time gender differences in educational levels have decreased somewhat, but male white-collar workers are still more highly educated than their female colleagues. [6]

Figures 4.1 and 4.2 show the educational distributions for entry-level workers. Considering the development of occupational segregation by gender, the most interesting issue in figures 4.1 and 4.2 is the increase in women's education during the last two decades. In the beginning of 1980s, nearly 17 percent of women at the entry-level had received only basic education, and the share of women with a university degree was below 16 percent. The corresponding numbers in the period 1996-2000 were 7.6 and

[6] When the Finnish labor markets as a whole are considered, females are on average more highly educated than males (Statistics Finland 2003).

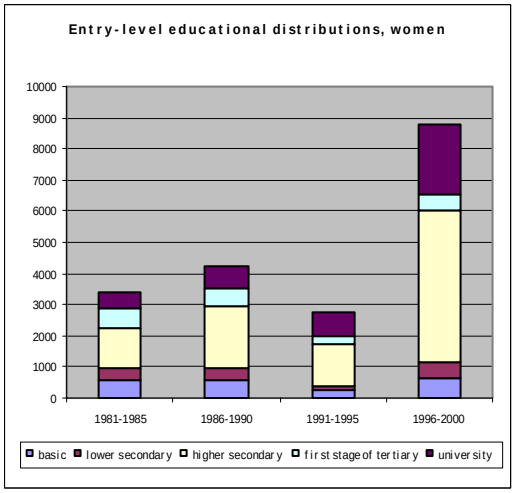
FIGURES 3.1 & 3.2: Educational distributions of white-collar workers

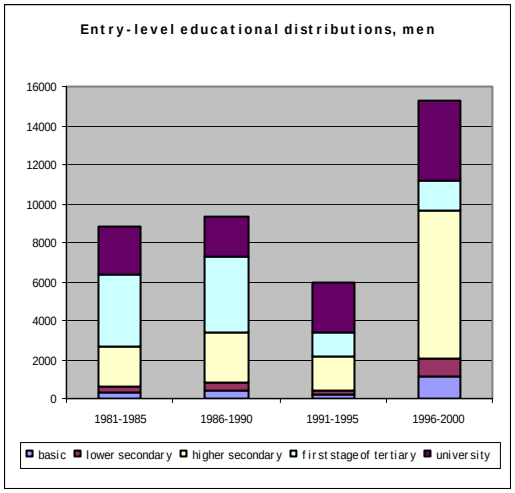




25.4 percent, respectively. Along with the increase in women's education the gap in education between men and women at the entry-level has decreased significantly. In the late 1990s, about 27 % of the entry-level males had received university education, which is only slightly higher than the corresponding figure for women. It is of great interest to investigate how this narrowing of educational gap has affected entry-level occupational segregation. We examine that issue in Section 5.2.

FIGURES 4.1 & 4.2: Entry-level educational distributions of white-collar workers





3 Measuring occupational segregation

The magnitude of occupational segregation and its development over time can be investigated by segregation indices. Various segregation indices exist, but the most commonly used index is the one developed by Duncan and Duncan (1955). We also use that index. The Duncan and Duncan dissimilarity index is defined as follows:

$$(1) \qquad S_t = 0.5\sum_i |m_{it} - f_{it}|,$$

where m_{it} denotes the share of the male labor force in occupation i in year t, and f_{it} is defined similarly for women. The index takes values between zero and one indicating the proportion of women (men) that would have to be redistributed among occupations in order to reach equal occupational distributions between genders. For example, if the index takes a value of 0, it means that the labor market is totally integrated by gender. The value of one, on the other hand, indicates complete segregation.

The value of the dissimilarity index depends upon the sex composition within an occupation and the relative size of an occupation. The mechanisms behind changes in the index can thus be several: women/men may enter into predominantly male/female occupations or/and the occupational structure in the economy may change in a way that changes the relative size of male/female-dominated occupations. In order to get some insight into the sources of the change in the index we have applied a standardization method which decomposes the change into a sex composition effect and an occupation mix effect. The sex composition effect shows the amount of change in the index that would have happened if there had not been any changes in the relative sizes of occupations. The occupation mix effect, on the other hand, keeps the sex composition within occupations constant and therefore all the changes in the index are due to changes in the occupational structure in the economy. Formally, the sex composition effect can be defined as follows:

$$(2) \qquad 0.5\sum_i \left| \frac{\frac{M_{it}}{T_{it}} T_{it-1}}{\sum_i \frac{M_{it}}{T_{it}} T_{it-1}} - \frac{\frac{F_{it}}{T_{it}} T_{it-1}}{\sum_i \frac{F_{it}}{T_{it}} T_{it-1}} \right| - S_{t-1},$$

where S_{t-1} is the value of the segregation index at time t-1, M_{it} (F_{it}) is the number of males (females) in occupation i in year t, and T_{it} is the total employment in occupation i in year t (i.e. $T_{it} = M_{it} + F_{it}$). The occupation mix effect for year t is calculated by deducting the sex composition effect from the segregation index at time t.

There are some important weaknesses associated with the dissimilarity index. One is the difficulty to calculate standard errors for it, which makes it hard to evaluate whether the observed changes in the index are statistically significant or not. The value of the dissimilarity index is also affected by the size distribution of occupations and the level of occupational aggregation. This complicates the comparability of the index over different subgroups. And as the dissimilarity index measures deviations from evenness rather than deviations from random allocation, the dissimilarity index may show segregation even when individuals are randomly allocated into occupations. As Carrington and Troske (1997) have shown, this is particularly the case when the cell sizes of occupations become small.

Although there exists measures of segregation that mitigate many of the problems mentioned above, we measure the extent of occupational segregation in this study by the traditional dissimilarity index defined in (1). The Duncan and Duncan dissimilarity index is straightforward to employ, and there are reasons to believe that some of the problems associated with the dissimilarity index are of little significance in our research. First, any potential bias created by the random allocation of individuals into occupations is likely to be minor in this study since the level of occupational aggregation used guarantees that the sample size of any given occupation is relatively high. Second, since our interest is more in analyzing the general trends in segregation than making comparisons between different subgroups (for example between different occupational groups or between different countries), problems related with the level of occupational aggregation are not much of an issue here. Thus, we consider that the commonly employed Duncan and Duncan dissimilarity index is convenient for our research interest.

4 Occupational segregation by gender in Finnish manufacturing during 1980-2000

4.1 General patterns of occupational segregation by gender

As can be seen from table 1, occupational segregation has shown a continuous declining trend during the last two decades in Finnish manufacturing. In 1980 the index[7] was nearly 74 compared to 58 at the turn of the millennium. Although the levels of the index cannot be directly compared between different studies due to differences in the data sets and classifications of occupations used, the general patterns of development should be comparable. The finding that occupational segregation has shown a declining trend in Finnish manufacturing matches the results obtained from other studies (see e.g. Blau et al. 1998 and Jacobs 1999 evidence from the U.S. labor markets, and Dolado et al. 2002 results from the EU countries). However, where previous studies have typically found that the rate of decline was smaller in the nineties compared to the eighties, in Finnish manufacturing the opposite seems to be the case. During the first and the second half of the 1980s the index declined by approximately 2.6 and 3.3 points respectively. Corresponding number in the period 1990-1995 was 4.8, and during the second half of the 1990s the index declined by 5.2 points.

TABLE 1: Dissimilarity index for white-collar workers in Finnish manufacturing

	1980	1985	1990	1995	2000
Dissimilarity index	73.8	71.2	67.9	63.1	57.9
Change in the index		-2.6	-3.3	-4.8	-5.2
Sex composition effect		-1.8	-2.3	-2.5	-3.3
Occupation mix effect		-0.8	-1.0	-2.3	-1.9

In the calculations regarding the sex composition and occupation mix effects we have standardized the indices for the occupational structure that prevailed five years before the year in question. For example in case of 1985, t-1 in expression (2) does not refer to 1984 but to 1980.

[7] We have multiplied the values of index by 100 in order to increase the readability of tables.

For the other years the indices are calculated in a similar fashion. From table 1 we see that the decline in segregation has been due to both effects, even though the sex composition effect has played a more significant role in both decades. However, the occupation mix effect seems to have increased its importance during the 1990s. Especially between 1990 and 1995 the contribution of the occupation mix effect to the decrease in occupational segregation was nearly of the same size as the influence of the sex composition effect. It appears that the dramatic economic downturn that the Finnish economy went through between 1991 and 1994 changed the occupation mix in a way that reduced occupational segregation by gender.

Since changes in the sex composition within occupations have played a major role in reducing occupational segregation in Finnish manufacturing, we shall next investigate those changes in more detail. Has the decline in segregation been a result of women entering into traditionally male occupations or has it been men who have entered into female jobs? To what extent have there been shifts into sex atypical occupations? Table 2, which uses the same kind of decomposition as Blau et al. (1998), sheds light on these questions. The table shows the distribution of men and women over occupations that are classified as male, integrated or female. An occupation's sex label is determined by looking at how the sex composition of the occupation deviates from the sex composition of the entire labor force. We denote P_{it} as the female proportion of employment in occupation i whereas P_t indicates the female share of the total labor force. An occupation is then classified as male if $P_{it} < P_t - 0.10$ and female if $P_{it} > P_t + 0.10$. If neither of the inequalities holds, then the occupation is classified as integrated. The choice of deviation is, of course, arbitrary. We made the analysis also using deviations of +/- 0.15, but that did not have a notable effect on the results. The sex labels of occupations also change over time as workers move into sex atypical occupations. As a result, occupations that were considered as typical male occupations in 1980 may not be appropriate representatives of typical male occupations in the 1990s. Therefore, in the following analysis, we have redefined the occupations' sex labels at ten years intervals (1980, 1990, and 2000).[8]

[8] There occurred some changes in the sex labels of occupations during the period of investigation. Between 1980 and 1990, in five cases the sex label changed from male dominated to integrated occupation, and in eight cases the label changed from integrated to female dominated occupation. Between 1990 and 2000, seven initially male dominated occupations turned into integrated occupations, and in two cases the sex label changed from male dominated to female dominated occupation. Furthermore, two occupations labeled as female occupations in 1990, had changed sex label to integrated by 2000. Also, two changes from integrated to female dominated occupation took place between 1990 and 2000.

TABLE 2: Distribution of white-collar workers over sex labels of occupations

	Sex Label of Occupation			
	Male	**Integrated**	**Female**	**Total**
1980 Definition				
1980				
Men	86.4	5.5	8.2	100.0
Women	12.7	6.7	80.6	100.0
Total	59.1	5.9	35.0	100.0
1985				
Men	87.5	5.0	7.5	100.0
Women	16.4	7.3	76.4	100.0
Total	61.2	5.8	33.0	100.0
1990				
Men	88.1	4.8	7.1	100.0
Women	20.2	7.9	71.9	100.0
Total	62.7	6.0	31.3	100.0
1990 Definition				
1990				
Men	83.9	5.5	10.6	100.0
Women	16.8	4.8	78.3	100.0
Total	58.9	5.2	35.9	100.0
1995				
Men	83.6	6.3	10.1	100.0
Women	21.6	5.6	72.9	100.0
Total	60.5	6.0	33.4	100.0
2000				
Men	83.5	5.8	10.7	100.0
Women	26.9	5.8	67.3	100.0
Total	62.5	5.8	31.7	100.0
2000 Definition				
2000				
Men	73.4	16.4	10.2	100.0
Women	17.8	14.4	67.8	100.0
Total	52.8	15.7	31.6	100.0

From table 2 it is evident that in both periods the decrease in segregation was primarily due women moving into male jobs and to lesser extent due to males moving into female jobs. In 1980, about 12.7 percent of women worked in male occupations. After ten years, using sex label classification based on sex composition in 1980, the corresponding figure was over twenty per-

cent. For men the share of male employees working in traditional female occupations dropped by approximately 1 percentage point during the same period. Likewise for the nineties, the percentage of women working in male occupations increased by 10 percentage points while the share of men working in female occupations remained practically unchanged. The finding that women seem to be more eager than men to move into sex atypical occupations is familiar also from earlier studies of segregation (see e.g. Kolehmainen 1999, Melkas & Anker 1997).

When comparing the distributions of men and women in table 2 between 1980 and 2000, we can see a clear fall in segregation. In 1980, 80.6 percent of women worked in female occupations while 86.4 percent of men were occupied in male occupations. The corresponding figures for 2000, using the definition of sex category based on the sex composition that prevailed in that year, were 67.8 and 73.4 percent respectively. Also, the share of workers in integrated occupations increased between 1980 and 2000 by nearly 10 percentage points.

TABLE 3: Average gap between genders in the occupational distributions

	1980	1985	1990	1995	2000
group level	16.7	15.9	15.0	13.7	13.4
	(17.7)	(17.2)	(17.0)	(15.3)	(12.3)
task level	11.1	10.5	9.8	9.3	8.6
	(11.5)	(10.5)	(9.4)	(8.1)	(7.3)
managerial level	10.1	10.4	10.1	10.2	9.2
	(7.4)	(8.0)	(8.3)	(9.2)	(7.4)

Table 3 summarizes the differences between genders in the occupational distributions by presenting the average gap between the shares of genders working in a particular occupational group or task (standard errors are in parenthesis). [9] The figures in table 3 are calculated from table 2A presented in the appendix. The main information contained in table 3 is as follows. First, gender differences in the occupational distributions seem to be greater at the occupational group level than at the task level. Second, the general decrease in occupational segregation which emerged from table 1 can also be seen here as a decline of the gender differences in

[9] As was discussed in chapter 2, our data set contains 75 different tasks (occupations), which can be grouped into seven larger occupational groups. Of the 75 tasks, thirteen are classified as managerial tasks.

occupational distributions both at the occupational group and task level.[10] Third, the decline of the average gender gap in shares has been somewhat smaller in the case of managerial tasks than among tasks in general.[11]

Men's higher concentration into high-demanding tasks becomes clear also from table 4A, where we have formed 55 occupation groups, and each group has been further divided into four parts.[12] The number codes under the groups refer to the status of an employee in an occupation group. Tasks coded as 1 are the most demanding and high-skilled tasks. Code four, on the other hand, refers to the least demanding tasks, and codes two and three are between the two polar cases in their competence demand. The figures in table 4A are interpreted similarly to those in table 2A. From table 4A we see that although there are some clear differences between men and women in the distributions over occupational groups, disparities in demand-levels are also large. In 51 occupational groups out of the total 55, men had a relative majority at status levels 1-2 whereas women beat men at level 4, and the differences were not small but ample. If we ignore occupational groups where the number of individuals was lower than one hundred we end up with 40 groups. Among these groups the average gender gap in the relative shares of employees at status level 1 was over 6 percentage points[13] in men's favor (5.7) [14]. The corresponding figure for status level 2 was roughly 12 percentage points[15] (9.6). In the case of status level 4, men's relative share was on an average over 17 percentage points (10.5) lower than women's.

4.2 Occupational segregation and education

In table 4 we have calculated dissimilarity indices across five educational groups: basic, lower and higher secondary, first stage of tertiary and university education. It could be expected that

[10] Table 3A in the appendix, which shows dissimilarity indices separately for occupation groups and tasks within groups, also confirms this conclusion.

[11] The gap between the shares of genders working in managerial jobs has been in men's favor: in 1980, men had a relative majority in all of the managerial jobs observed in the data whereas in 2000, men had still a relative majority in all but two cases.

[12] It has not been possible to use the same classification of occupations for the period 1980-2000 because the variables upon which the classification is based are for the first time observed in our data set in 2002.

[13] In 10 occupational groups out of 40 the gap was over 10 percentage points (in men's favor).

[14] Standard deviation is in parenthesis. This same notation is used throughout the paper.

[15] In 21 occupational groups the gap was over 10 percentage points.

when individuals with the same level of education are investigated occupational segregation by gender would be much lower than without controlling for educational differences. However, this seems not to be the case for all educational groups. As appears from table 4, during the 1990s the dissimilarity index got even higher values among individuals with basic or secondary education compared to the general case (table 1).

TABLE 4: Dissimilarity index across educational groups

	1980	1985	1990	1995[16]	2000
Dissimilarity index					
basic	72.1	70.8	68.0	*67.6*	66.3
lower secondary	71.0	69.3	67.3	*64.2*	61.1
higher secondary	77.6	75.2	72.5	*69.1*	60.9
first stage of tertiary	62.4	57.4	54.4	*46.1*	50.8
university	42.2	38.8	38.1	*43.3*	40.4
Change in the index					
basic		-1.2	-2.8	*-0.4*	-1.4
lower secondary		-1.7	-2.1	*-3.1*	-3.1
higher secondary		-2.4	-2.7	*-3.4*	-8.2
first stage of tertiary		-5.0	-2.9	*-8.3*	4.7
university		-3.4	-0.7	*5.1*	-2.9
Sex composition effect					
basic		-0.7	-2.3	*0.4*	-1.4
lower secondary		-0.3	0.2	*-1.8*	-2.5
higher secondary		-2.3	-2.5	*-1.6*	-6.6
first stage of tertiary		-2.0	-0.3	*-3.0*	2.0
university		-1.8	-1.5	*-0.4*	-0.2
Occupation mix effect					
basic		-0.6	-0.5	*-0.8*	0.0
lower secondary		-1.4	-2.3	*-1.3*	-0.6
higher secondary		-0.1	-0.2	*-1.8*	-1.6
first stage of tertiary		-3.0	-2.6	*-5.3*	2.7
university		-1.5	0.8	*5.5*	-2.7

[16] Italicization refers to the change in the educational coding system.

Changes in the index between 1990 and 1995 deviate quite much from other years, especially in the case of first stage of tertiary and university group. We suspect this to be due to the change in the coding system of the educational variables that took place in 1994, and which was discussed earlier in Section 2. To confirm this we calculated the dissimilarity indices for 1993 and 1994. This examination revealed that, indeed, the major variations in the index between 1990 and 1995 results from the change in the coding system. Therefore, table 4 should be read in two parts: period 1980-1990 constitutes one part, and period 1995-2000 another. This applies also for table 5. From table 4 we see that the decline in occupational segregation has continued during the whole period of investigation among all educational categories, except for the first stage of tertiary group. In the case of secondary education the rate of decline has even accelerated towards the end of the nineties.

The figures in table 4 support the findings of some earlier studies which have found that occupational segregation is smaller at the higher educational levels (e.g. Carrington & Troske 1998). Individuals with the first stage of tertiary and university education seem to stand out from the other groups with more equal occupational distributions, and in all periods the dissimilarity index is lowest among workers with a university degree.

Unlike in the general case, the sources causing the decline in the segregation index show no clear patterns when individuals with the same level of education are investigated. This holds for all educational groups. In some periods, changes in the sex composition within occupations was the primary reason for the decline in the index, but there were also periods when the sex composition effect was very minor or even caused an increase in occupational segregation.

Table 5 summarizes the development of the average gender gap in the occupational distributions across educational groups. The more detailed presentation of the employment shares of men and women across different occupational groups and tasks can be found from table 5A in the appendix. The conclusions made from table 5 are very similar to those made earlier from table 3, and so we discuss table 5 only in short here.[17] Perhaps the most interesting issue to be

[17] Table 6A in the appendix shows the values of dissimilarity indices calculated for occupation groups and tasks across educational categories. The figures in table 6A support conclusions made from table 5.

highlighted from table 5 is the significant contraction of shares between genders in managerial tasks among highly educated individuals. Although men were still clearly in larger extent represented in managerial tasks than women in 2000, the gap between genders in that respect has continuously decreased among individuals with first stage of tertiary or university education.

TABLE 5: Average gap between genders in the occupational distributions across educational groups

	1980	1985	1990	1995	2000
basic:					
group level	16.8	16.2	15.4	*14.6*	14.5
	(17.4)	(17.1)	(16.4)	*(16.7)*	(13.0)
task level	9.8	9.8	9.5	*9.9*	9.9
	(13.7)	(13.3)	(12.4)	*(12.2)*	(11.4)
managerial level	4.7	5.2	5.1	*6.9*	6.4
	(7.3)	(8.4)	(8.7)	*(10.8)*	(9.3)
lower secondary:					
group level	17.0	16.1	15.7	*13.9*	10.8
	(19.4)	(19.1)	(18.0)	*(17.1)*	(14.4)
task level	9.9	9.8	9.3	*9.1*	8.7
	(13.0)	(12.1)	(11.8)	*(10.7)*	(10.3)
managerial level	4.2	4.6	4.3	*5.9*	5.8
	(5.3)	(5.6)	(6.7)	*(10.1)*	(9.3)
higher secondary:					
group level	18.5	17.8	17.3	*15.8*	13.4
	(23.0)	(22.8)	(22.1)	*(19.4)*	(14.1)
task level	11.0	10.2	9.4	*9.8*	8.5
	(10.7)	(9.5)	(8.4)	*(8.5)*	(8.1)
managerial level	8.3	8.6	8.3	*8.7*	7.6
	(7.0)	(7.0)	(7.2)	*(8.0)*	(6.8)
first stage of tertiary:					
group level	15.3	14.1	13.1	*10.5*	12.4
	(18.4)	(17.1)	(15.8)	*(9.4)*	(13.9)
task level	9.0	8.1	7.0	*8.2*	7.9
	(9.8)	(9.4)	(7.8)	*(11.9)*	(10.9)
managerial level	17.6	15.7	12.4	*10.6*	7.7
	(13.0)	(13.4)	(10.0)	*(7.6)*	(7.8)
university:					
group level	7.3	6.6	6.7	*10.0*	9.2
	(6.2)	(5.1)	(5.5)	*(10.2)*	(7.6)
task level	8.2	7.1	6.6	*6.8*	5.9
	(9.7)	(8.3)	(7.2)	*(7.5)*	(6.1)
managerial level	17.0	14.9	13.1	*12.9*	10.0
	(11.5)	(13.8)	(11.3)	*(11.2)*	(8.5)

Earlier in Section 4.1 we found evidence that female white-collar workers tend to work in less demanding jobs than their male colleagues. It would be interesting to investigate how large gender differences in demand levels are among individuals who share not only a similar level but also the same field of education. In table 7A we have done this. Table 7A is similar to table 4A, but instead of using 55 occupational groups we have classified individuals into 18 groups. In order to minimize any potential problems due to small number of observations in occupations we have focused on workers with either technical or business education. These two fields of education are by far the most common in our data: over 70 % of individuals in 2002 had received either technical or business related education. In the case of business oriented education, we further added the first stage of tertiary level and university level together because there were only few individuals at the tertiary level.

Despite applying a less detailed classification system and focusing on the two largest fields of education, the cell sizes turned out to be quite small in many cases because of high concentration of individuals into certain occupational groups. In the following analysis we only consider occupation groups where the number of both men and women in an occupation group is at least 50. Although this rules out in some cases quite many occupational groups, generally over 80 % of men and women in each of the educational categories are included in the analysis, and for the two highest education groups the corresponding figure is over 90 percent.

As in the general case (table 4A), also here the same pattern repeats itself: men have a relative majority at the demand-level 1 whereas women beat men at the status-level 4. This is irrespective of the education level or field. For individuals with a secondary education, the average gap at the demand-level 1 was rather low. This was the case especially with the technical field of education, where the average gap in men's favor was under 1.5 percentage points (standard deviation for the lower secondary level was 1.2 and for the higher secondary level 0.4). When business education is considered, the corresponding figures were 3.1 (1.7) percentage points at the lower secondary level and 5.9 (3.7) percentage points at the higher secondary level. However, at the highest educational levels the gap increases. For workers with a university degree in technology, the average gap at the status level 1 was 9.1 (4.1) percentage points in men's favor. For individuals who had received business education from a tertiary or higher level, the corresponding gap was even higher, with 11.0 (5.0) percentage points.

If the relationship between a high-level education and a high-status job is stronger for men than for women, the opposite seems to hold when a lower level education and less-demanding jobs are considered. For employees with a technology related education, the average gap in women's favor at the status level 4 was 32.9 (12.0) percentage points in the case of a lower secondary education, and 29.5 (9.4) percentage points among individuals with higher secondary education. For workers with a lower secondary education in business, the corresponding gap was 28.8 (12.3) percentage points.

4.3 Summary

In Section 4, we investigated the extent of occupational segregation among white-collar workers in Finnish manufacturing during the period 1980-2000. Segregation measured by the dissimilarity index was observed to have declined significantly during the last two decades but it was still, at the beginning of the new millennium, considerably high. By decomposing the decrease in segregation to the sex composition and occupation mix effect, we noticed that the decline had been mostly due to changing sex composition within occupations. This gave us a reason to study changes in the sex composition more closely. We found that it was mainly women who had moved into occupations traditionally considered as male occupations.

We also formed larger occupational groups containing a number of tasks with different skill requirements and studied how the gender gaps in group and task shares had evolved during the period of investigation. We found that the average gap at the group level was notably lower in 2000 compared to 1980. The decline of the gap in task shares has been smaller, and when the managerial jobs were considered, we found that the decline of the average gender gap in shares has been somewhat smaller in the case of managerial tasks than among tasks in general.

We also studied the development of segregation within educational groups. We found that segregation seemed to be lower at the higher educational levels, a finding that is in line with earlier studies. Besides controlling for educational level, we also made some analysis by taking into account the field of education. The most interesting finding was that even when differences in educational backgrounds were taken into account, women were less likely than men to end up with jobs of high skill requirements.

5 Do men and women become more similar or do they grow apart?

Occupational segregation is not a static phenomenon, but the extent of segregation by gender may change during the careers of workers due to differences between men and women in occupational career paths. In the following, we first study the magnitude of occupational segregation at the moment of labor market entry. Then we will proceed to analyze how occupational disparities between men and women evolve as they accumulate work experience.

5.1 Segregation at the entry-level

In table 6, we have calculated the dissimilarity index for white-collar workers at the entry-level using the same number of occupations as in the general case (table 1). We added up entries over five-year periods in order to overcome the problems of small cell sizes. The average annual number of entries in our data set is about 3000 and the indices have thus been calculated from a population of 15 000 on an average. Despite the summation, there were some occupations where the number of observations was quite small. We calculated the indices by both allowing occupations with cell size below 50 and by deleting them from the analysis, but this had only a minor effect on the results.

TABLE 6: Dissimilarity index at the entry-level of white-collar workers

	1981-1985	1986-1990	1991-1995	1996-2000
Dissimilarity index	55.7	52.5	45.0	46.9
Change in the index		-3.2	-7.5	1.9
Sex composition effect		-2.9	-6.1	-0.8
Occupational mix effect		-0.3	-1.4	2.7

According to table 6, men and women segregate into different occupations already at the entry-stage of their careers. Compared to the general case (table 1), the figures in table 6 are, however, significantly lower. Interestingly, the dissimilarity index for the entry-level takes a somewhat higher value in the period 1996-2000 compared to period 1991-1995. This may be

partly explained by the economic depression that took place in the Finnish economy in the beginning of the nineties. Men and women who succeeded in getting a job during those years may well form a selective group whose characteristics differ from the entry-level workers in general. This argument gets some support from the educational distributions in figures 4.1 and 4.2. In period 1991-1995, the share of entries with a university degree was higher than in any other period. The finding that dissimilarity index takes a considerably lower value in period 1996-2000 compared to the beginning of the eighties, is not surprising considering that at the same time the gap in educational levels between men and women has contracted significantly.

TABLE 7: Distribution of entry-level white-collar workers over sex labels of occupations

	Sex Label of Occupation			
	Male	**Integrated**	**Female**	**Total**
1980 Definition				
1981-1985				
Men	85.1	6.0	8.8	100.0
Women	30.4	7.7	61.9	100.0
Total	69.7	6.5	23.8	100.0
1986-1990				
Men	83.1	6.5	10.4	100.0
Women	33.0	9.6	57.4	100.0
Total	67.1	7.5	25.4	100.0
1990 Definition				
1991-1995				
Men	74.0	8.9	17.1	100.0
Women	32.1	8.8	59.1	100.0
Total	60.5	8.9	30.7	100.0
1996-2000				
Men	71.6	7.0	21.3	100.0
Women	30.3	7.6	62.1	100.0
Total	56.5	7.2	36.3	100.0
1995 Definition				
1996-2000				
Men	66.3	15.0	18.7	100.0
Women	23.8	14.9	61.3	100.0
Total	50.8	15.0	34.3	100.0

The relation of segregation and education among entries will be discussed in more detail in Section 5.2. Decomposition of the changes in the index to the sex composition and occupation mix effect reveals that most of the decline in segregation has been due to changes in the entry-level sex composition within occupations.

In table 7, we have calculated distributions of entry-level workers over occupational sex categories similarly to table 2. Construction of occupational sex labels was based on the total data set, not on a sample of entry workers. The lower level of segregation among entries compared to the general case also becomes clear when tables 2 and 7 are compared. In Finnish manufacturing, entries seem to work in sex atypical occupations to a greater extent than white-collar workers in general. By comparing male and female entries we notice, similarly to the general case, that men tend to work less often in sex atypical occupations than women. However, the figures in table 7 show that the share of men working in typical female occupations has continuously increased. During period 1981-1985 8.8 percent of male entries chose an occupation typically considered as a female occupation. For period 1996-2000 the corresponding figure was nearly 19 percent.

TABLE 8: Average gap between genders in the occupational distributions at the entry-level

	1981-1985	1986-1990	1991-1995	1996-2000
group level	12.2	11.3	10.6	11.2
	(13.1)	(12.9)	(12.8)	(10.4)
task level	8.6	8.0	7.3	7.1
	(8.7)	(7.8)	(6.9)	(7.6)
managerial level	5.6	4.6	3.9	2.6
	(5.8)	(4.4)	(3.6)	(1.9)

Table 8 presents the average gap between genders in the occupational distributions at the entry-level. The more detailed distributions over occupational groups and tasks are given in table 8A in the appendix.[18] From table 8 we see that the changes in gender gaps have been quite moderate both at the group and task level in the period 1980-2000. In managerial jobs deseg-

[18] Dissimilarity indices for occupation groups and tasks under the groups are presented in table 9A in the appendix.

regation has, however, been rather strong. Although men still dominated women at the entry-level in most of the managerial jobs in 1996-2000, the magnitude of dominance was much smaller compared to the beginning of the eighties.

5.2 Relationship between occupational segregation and education in the case of entry-level white-collar workers

In the following, we have combined basic and secondary groups into a single category due to the small number of observations. The figures in table 9 illustrate that occupational segregation by gender seem to decrease with education also among entry-level workers. Interestingly,

TABLE 9: Dissimilarity index across educational groups in the case of entry-level white-collar workers

	1981-1985	1986-1990	1991-1995	1996-2000
Dissimilarity index				
secondary or lower	62.0	54.1	51.7	50.7
first stage of tertiary	39.8	40.7	39.2	46.7
university	30.0	31.4	34.1	39.7
Change in the index				
secondary or lower		-8.0	-2.3	-1.1
first stage of tertiary		0.9	-1.5	7.5
university		1.4	2.7	5.6
Sex composition effect				
secondary or lower		-6.1	-2.5	-0.8
first stage of tertiary		9.0	-9.1	1.1
university		-0.4	1.9	-0.8
Occupation mix effect				
secondary or lower		-1.8	0.2	-0.3
first stage of tertiary		-8.1	7.6	6.4
university		1.8	0.9	6.4

where segregation for individuals with a secondary or lower education has declined rather constantly, men and women with higher education seem to be more dispersed over occupa-

tions in 1996-2000 than in the first period of investigation. Especially for entry-level white-collar workers with a university degree, the increase in segregation has been continuous and during the nineties relatively strong as well.[19]

In table 10, we have calculated the average gap of shares between genders over occupational groups and tasks. The figures in table 10 are based on the distributions presented in table 10A in the appendix. Investigation of occupational distributions is complicated by the lack of observations in some occupation groups. Both male and female entries are heavily concentrated in a few groups and as a result there are occupation groups where the number of both men and women is less than one hundred.

Some issues from tables 10 and 10A are, however, worth mentioning. Among the high educated white-collar entries, the direction of development seems to have been more towards greater segregation than towards more equal occupational distributions between men and women. This holds true whether we investigate distributions at the group level or at the task level. When the managerial tasks are explored we notice, however, that the gender differences in shares have declined markedly.

Tables 9 and 10 show that quite substantial occupational differences remain between genders among entry-level white-collar workers even after we control for differences in the educational levels. The finding that occupational segregation by gender is not only due to the different educational choices between men and women, but that genders with similar educational background also enter into different jobs is familiar from some earlier studies as well (e.g. Smyth 2002).

[19] We calculated the dissimilarity indices also for periods 1991-1993, 1994-1996, and 1997-2000 in order to examine to what extent the trend towards increasing occupational segregation among high educated entries is due to the change in the educational coding system that took place in 1994. Results for those periods also show increase in segregation among high educated white-collar entries.

TABLE 10: Average gap between genders in the occupational distributions across educational groups at the entry-level

	1981-1985	1986-1990	1991-1995	1996-2000
secondary or lower:				
group level	13.6	12.1	11.2	11.9
	(14.2)	(13.2)	(14.9)	(11.3)
task level	8.8	7.6	7.9	7.4
	(10.7)	(7.8)	(8.1)	(8.1)
managerial level	3.8	3.3	3.8	2.7
	(5.3)	(3.8)	(3.2)	(2.2)
first stage of tertiary:				
group level	9.5	7.7	8.3	10.8
	(11.3)	(8.6)	(8.0)	(7.9)
task level	7.2	6.4	8.8	8.3
	(8.6)	(6.9)	(11.3)	(12.0)
managerial level	8.0	5.0	5.2	1.7
	(10.8)	(5.8)	(6.5)	(2.4)
university:				
group level	4.4	5.1	6.9	9.4
	(4.1)	(4.3)	(6.3)	(8.2)
task level	6.5	6.0	5.8	6.3
	(6.9)	(6.8)	(6.3)	(6.7)
managerial level	9.7	9.1	4.7	3.8
	(9.2)	(9.7)	(5.6)	(3.0)

5.3 Development of segregation with work experience

In Sections 5.1 and 5.2 we investigated occupational segregation at the moment of a white-collar worker's labor market entry. In this section we study the question how occupational segregation evolves as workers accumulate work experience. Do men and women become more similar or do they grow apart?

In table 11 below, we have gathered entry-level white-collar workers together over the whole period 1980-2000, and calculated how the index of segregation develops as entries accumulate work experience. It seems that the level of segregation that is realized at the entry moment is rather enduring. At first segregation appears to decrease somewhat, but after a few years of

experience segregation starts to increase again and for white-collar workers with ten years of work experience the index of segregation gets a value of 49.8. This is roughly 1.5 percentage points higher than at the moment of labor market entry.

TABLE 11: Development of segregation with work experience

	Experience in years									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Dissimilarity index	48.2	47.6	46.9	46.3	47.7	48.2	49.2	50.4	50.2	49.8
Management's contribution to the index (%)	3.5	4.4	5.7	7.1	8.3	9.8	10.4	11.5	12.1	13.3
Men's share of the employees in management (%)	81.6	84.2	85.2	87.1	88.1	88.0	88.4	88.9	89.2	89.5
Management's share of all employees (%)	4.4	5.6	7.0	8.3	9.9	11.7	13.3	14.7	15.6	16.5

Although the level of segregation does not change that much with experience, changes in the occupational standings of men and women might still take place as workers accumulate work experience. Segregation could increase in some occupations while decreasing simultaneously in others leaving the total index unchanged. In table 11, we have calculated the contribution of segregation at the managerial level to the index of segregation with different levels of work experience. As the figures show, the contribution of segregation at management level to the total index increases constantly with experience. At the moment of labor market entry, segregation at managerial jobs accounts for only 3.5 percent of the total index. After ten years of labor market experience the corresponding figure is 13.3 percent.

There are many possible reasons for the finding that the contribution of segregation at management to the total index grows with experience. One is that men may have more favorable occupational career development compared to women. Another possible explanation is that at the managerial level there are fewer exits from the data than in other, less demanding jobs. As a result, the contribution of managerial jobs to the total index increases with experience even

though the level of segregation in management itself has not changed. Furthermore, the observed pattern of the development of the dissimilarity index with work experience could simply be due to the fact that individuals who made their labor market entry in the late nineties drop out of the data first because we cannot follow individuals after year 2000. As we saw above, the gap between the shares of genders working in managerial jobs was smaller among individuals who entered the labor market in the late nineties compared to entries in other periods, and therefore their exit from the data can make it seem that inequality between genders in management increases with experience.

In order to investigate the various explanations, we re-examined the issues presented in table 11 by categorizing white-collar entries into three groups according to the year of entry. The first group was formed by those who made their entry in the period 1981-1985. The second group was comprised of those who made entry during 1986-1990, and the last group of those who entered between 1991 and 1995. After this we analyzed how segregation develops with the first five years of work experience separately for the three groups. The results for each group were similar to those for the total data. This would imply that the explanation for the stated problem cannot be based solely on the fact that individuals who entered the labor market in the late nineties drop out of the investigation first.

The last row in table 11 shows how management's share of all employees develops with experience. The figures reveal that management's weight in relation to other occupations increases with work experience which explains, at least partly, why the contribution of segregation at managerial level to the total index increases with experience. The figures in table 11 do not, however, exclude the explanation based on the different occupational career paths between genders either. When we look how the share of male workers in management develops with experience, we notice that it increases constantly. At the entry stage, men account for 81.5 percent of workers in managerial job but after ten years of experience the corresponding figure is over 89 percent. This may imply that compared to women, relatively more men ascend to the management from the lower occupational standings. Naturally, if women in managerial jobs are relatively more prone to exit the data than their male colleagues, this could also explain why the share of men in management increases with experience.

If we were to study thoroughly why management's contribution to the index of segregation increases with work experience, we would have to investigate the occupational mobility behavior of entry-level workers. This topic, although interesting, is beyond the scope of this paper. Also, investigating how occupational segregation develops with experience across different educational groups would have been interesting, but unfortunately the cell sizes became quickly too small to make this study worthwhile.

5.4 Summary

In Section 5, we investigated the level of occupational segregation by gender at the moment a worker enters a white-collar job in manufacturing. Furthermore, we studied how segregation evolves as entry-level white-collar workers accumulate work experience.

The main results are as follows. Segregation is substantial already at the entry stage of a white-collar worker's career. In the beginning of our study period, the index of segregation among entry-level workers received a value of 55.7 and during the period 1996-2000 the corresponding figure was still nearly 47. Changes in the occupational group and task distributions have been rather minor during the last two decades. When managerial jobs are considered, gender differences in shares have, however, become much smaller.

As in the general case, also for entries occupational differences are smaller among highly educated individuals. But at the same time as the differences in the level of education between genders have contracted, occupational segregation among highly educated entries has continuously increased.

The level of occupational segregation that takes place at the entry stage seems to be long lasting. What is interesting is the finding that the importance of segregation at managerial level in relation to the total segregation grows with experience. We find that men's share of employees in management also grows with work experience. This may suggest that there are differences in the occupational career paths between genders.

6 Conclusions

In this paper we have investigated the patterns of occupational segregation by gender among white-collar workers in Finnish manufacturing over the period of 1980-2002. Particular attention was paid to the occupational differences between men and women across educational groups. We also distinguished entry-level white-collar workers from the other individuals to study the level of segregation at the moment of white-collar job entry. Furthermore, we analyzed how work experience affects segregation.

Occupational segregation measured by the dissimilarity index was found to have declined considerably in the Finnish manufacturing during the last twenty years. However, the occupational distribution of men and women is still far from equal. Investigation of occupational group and task distributions revealed that compared to 1980, in 2000 women worked more often in the same occupational group than men but that tasks under the groups were still considerably segmented by gender. Our research results also supported the finding of some earlier studies according to which men concentrate into more demanding jobs than women.

Segregation was found to be smaller at the higher educational levels. We also investigated the extent of segregation by taking into account the field of education. To our surprise, occupational differences between genders were still notably high even though educational backgrounds were controlled for.

Occupational segregation is substantial already at the entry moment. Furthermore, the level of segregation that realizes at the entry stage was found to be long-lasting. Some evidence was also found that there may be differences between genders in the occupational career paths.

This descriptive paper has raised many questions that would deserve further study. One potentially important research topic to explore would be occupational career paths of genders. We have little knowledge of questions such as to what extent men and women move between female/male or integrated occupations, what kind of individuals change occupations and how initial occupation affects an individual’s occupational career later on during his/her career. It

would also be interesting to examine factors behind the observed development of occupational segregation by gender. Furthermore, the question of the importance of occupational desegregation with respect to development of the gender wage gap in Finnish manufacturing during the last decades would deserve attention. These are issues that we are going to examine in subsequent papers.

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APPENDIX

TABLE 1A: List of occupations

	men		women	
	mean	**st.dev.**	**mean**	**st.dev.**
R & D:				
management	1008,3	138,4	96,1	44,9
product design, demanding	3491,9	1195,2	328,9	221,8
product design	7042,5	1684,1	876,5	386,9
element design	6237,2	812,8	935,6	198,3
product design, assisting	1512,0	345,2	2203,0	578,0
quality control	1014,3	79,4	378,1	123,3
quality control, assisting	1539,9	147,8	1566,8	159,4
research and design	898,2	140,8	176,3	80,5
research and settlement	1375,3	299,3	542,2	174,2
research and settlement, assisting	672,0	61,0	718,0	183,3
Production:				
production management	2125,5	266,5	58,2	32,3
operation management	3823,2	634,0	89,8	29,2
operation supervision	2843,4	589,4	90,7	41,1
indirect supervision	2524,3	395,8	87,9	20,6
direct supervision	12937,9	2275,9	1004,9	225,7
supervision, assisting	1457,2	351,0	290,3	74,2
design management	906,1	116,3	42,7	26,8
material and capacity design	1106,3	159,4	163,6	97,3
industrial engineering design and maintenance, demanding	2728,4	250,7	205,6	60,0
technical work design and maintenance	3546,2	618,3	394,0	35,8
maintenance, assisting	791,0	165,7	522,0	122,7
Logistics:				
storing management	383,9	60,2	18,8	8,8
storing supervision	1286,2	375,9	94,1	12,4
storing	1616,4	554,2	485,6	63,2
purchasing management	597,0	57,1	52,4	32,7
purchasing	1138,7	153,8	406,3	122,7
purchasing, assisting	130,0	45,7	805,0	188,8
dispatching	161,9	22,5	315,0	68,9
dispatching, assisting	58,1	9,3	317,6	49,3
Sales & Marketing:				
sales management	1611,6	154,3	152,6	115,8
sales, specialized	2518,4	256,2	389,9	207,6
sales, export	907,0	87,7	353,5	135,2
sales	3998,7	646,9	985,1	370,7
sales, assisting	660,1	129,4	2219,1	321,4
product demonstration and customer service	495,5	173,1	2223,4	1510,9
sales promotion management	201,6	49,5	69,7	43,3
sales promotion	358,4	61,2	347,4	89,7
production and marketing co-operation	787,6	165,1	278,6	135,0

TABLE 1A (continued)

PR:				
PR and edition management	99,6	14,6	86,0	33,5
PR, specialized edition	106,7	13,9	250,0	69,6
edition	81,2	8,4	311,6	34,7
data processing management	449,4	80,3	65,5	21,2
information specialist	285,5	86,6	199,4	52,9
operation	593,2	184,8	484,9	85,7
register maintenance	120,0	25,2	1784,5	898,6
Admistration:				
law and tax affairs, internal auditing	303,8	42,8	95,8	64,8
administration management	842,0	146,2	377,0	80,3
administration supervision	478,6	136,3	610,4	65,0
pay office, responsible	32,3	9,7	809,4	207,0
pay office, assisting	66,3	17,3	1835,4	430,0
bookkeeping	124,6	16,0	1599,7	140,0
ledger and stock accounting	113,9	25,6	2127,0	396,3
pricing	389,8	83,5	129,0	13,3
accounting	700,8	116,9	762,0	105,9
reporting	146,3	57,4	1136,0	521,4
executive secretary	3,7	1,3	1444,0	119,5
translation, interpreting, and correspondence	74,9	38,3	921,9	247,1
department secretary	18,3	9,0	3744,0	447,9
typing	6,3	3,7	1332,9	629,3
caretaker	216,0	78,2	114,7	16,8
switchboard	8,4	3,2	1368,0	318,5
copying and mailing	64,1	12,4	876,6	282,2
messenger	127,2	37,5	592,9	260,5
office work, small firms	85,5	27,5	1969,0	598,0
HR:				
HR management	295,0	51,0	104,2	59,4
training and teaching	251,9	25,0	138,7	64,7
occupational guidance	97,0	31,9	101,9	32,5
employment affairs	157,0	42,2	75,4	49,7
recruiting	68,6	31,1	69,7	9,7
responsible wages clerk	52,7	17,9	634,0	79,8
wages clerk	37,9	19,1	1872,8	567,7
health care management and design	328,7	36,6	17,2	7,8
occupational medicine	86,1	12,1	9,3	3,3
occupational health care	29,1	6,6	451,3	74,7
personal services	128,3	32,7	615,3	148,1

TABLE 2A: Occupational group and task distributions

Occupational category	Male 1980	1985	1990	1995	2000	Female 1980	1985	1990	1995	2000
R & D:	**23,1**	**26,3**	**28,6**	**33,2**	**38,0**	**12,5**	**14,6**	**15,9**	**17,9**	**20,0**
management	4,8	4,4	4,2	3,8	4,0	0,9	0,9	1,2	1,4	2,2
product design, demanding	11,7	12,2	13,6	13,7	20,0	2,3	3,0	3,2	4,0	9,2
product design	24,3	25,5	27,8	30,8	32,1	6,4	8,5	10,1	13,8	17,3
element design	25,2	26,8	26,3	24,2	19,9	8,9	11,8	12,9	11,0	11,3
product design, assisting	8,9	8,0	6,3	4,6	5,1	38,9	35,9	30,7	19,4	15,5
quality control	4,7	4,4	3,9	4,1	3,5	4,3	4,1	4,6	6,0	6,5
quality control, assisting	8,8	7,0	6,2	5,9	4,1	25,2	21,2	20,6	21,4	15,7
research and design	3,4	3,5	3,7	3,8	3,6	1,1	1,4	2,1	3,2	3,2
research and settlement	4,9	5,1	5,4	6,3	5,7	4,5	5,6	7,3	7,9	8,6
research and settlement, assisting	3,3	3,1	2,7	2,7	2,1	7,4	7,6	7,5	11,7	10,4
Production:	**46,6**	**44,1**	**42,2**	**39,1**	**35,2**	**5,8**	**5,9**	**5,9**	**6,4**	**6,5**
production management	5,3	6,0	6,5	6,4	6,9	0,8	1,4	1,3	2,7	3,6
operation management	9,8	11,1	11,9	10,5	11,2	2,0	2,0	3,5	4,0	4,5
operation supervision	7,9	8,5	8,6	6,9	8,9	1,6	2,3	2,7	3,8	5,8
indirect supervision	7,9	7,2	7,0	7,7	6,6	2,7	2,5	2,5	3,3	3,6
direct supervision	39,4	37,6	36,9	37,1	33,2	35,6	38,0	37,9	31,5	24,8
supervision, assisting	5,0	4,5	3,6	5,3	4,2	13,6	11,5	7,6	10,0	6,7
design management	2,2	2,5	2,6	2,6	3,4	0,5	0,9	1,3	1,3	3,8
material and capacity design	3,0	3,1	2,8	3,0	4,2	2,5	4,0	4,6	5,9	13,3
industrial engineering design and maintenance, demanding	6,5	7,0	7,6	8,6	10,1	3,7	5,9	7,1	8,3	10,3
technical work design and maintenance	10,5	10,3	10,3	9,6	9,4	11,7	12,3	13,3	14,3	12,9
maintenance, assisting	2,6	2,3	2,3	2,3	1,9	25,2	19,2	18,2	15,1	10,7
Logistics:	**8,0**	**7,1**	**6,7**	**5,4**	**4,6**	**4,8**	**4,9**	**5,1**	**5,4**	**5,0**
storing management	6,3	6,7	7,3	8,5	7,3	0,3	0,5	0,7	0,9	1,2
storing supervision	25,4	24,8	24,7	21,3	19,3	3,2	3,6	3,8	4,5	4,2
storing	35,0	32,3	29,8	25,6	23,3	22,3	20,6	18,6	18,0	17,0
purchasing management	8,8	10,0	10,6	13,4	16,2	0,5	0,7	2,0	3,2	4,6
purchasing	17,3	20,0	21,5	24,0	26,4	9,0	12,4	17,5	18,9	25,0
purchasing, assisting	3,2	2,6	2,4	2,2	2,4	39,7	37,6	34,0	25,9	22,2
dispatching	3,0	2,7	2,4	3,7	4,1	9,7	10,3	10,2	17,1	17,0
dispatching, assisting	1,0	0,9	1,3	1,3	1,0	15,3	14,2	13,1	11,5	8,8
Sales & Marketing:	**12,7**	**13,8**	**14,4**	**14,2**	**14,2**	**8,9**	**10,3**	**12,5**	**16,5**	**23,6**
sales management	13,3	12,9	13,3	15,1	15,5	0,8	1,4	1,8	2,9	3,5
sales, specialized	21,6	21,6	22,5	22,5	20,5	2,9	3,9	5,5	7,7	6,3
sales, export	7,5	8,1	7,1	8,0	7,5	4,2	4,2	5,1	7,0	4,4
sales	35,6	37,7	35,4	33,2	29,2	8,3	13,6	16,6	15,5	12,9
sales, assisting	7,1	6,0	6,0	5,3	5,0	40,2	39,5	37,7	33,9	22,7
product demonstration and customer service	3,9	3,3	4,5	3,7	6,5	35,0	27,7	22,8	22,1	39,0
sales promotion management	2,0	1,6	1,5	1,5	2,8	0,7	0,7	0,9	1,0	1,5
sales promotion	3,8	3,1	2,9	3,0	3,4	5,3	5,6	5,4	4,8	4,8
production and marketing co-operation	5,3	5,8	6,7	7,6	9,6	2,5	3,3	4,3	5,2	5,0
PR:	**1,7**	**1,7**	**2,0**	**2,3**	**2,9**	**8,8**	**7,3**	**6,0**	**5,3**	**5,0**
PR and edition management	6,9	7,1	4,6	5,1	4,5	0,9	1,5	2,4	5,0	6,4
PR, specialized edition	7,5	7,3	6,5	5,9	4,9	3,8	5,2	8,0	11,6	17,4
edition	5,5	4,8	3,5	5,0	3,7	6,4	7,8	8,0	13,2	15,0
data processing management	21,5	26,4	28,5	29,2	22,9	0,9	1,3	2,5	3,2	4,4
information specialist	12,6	14,4	17,6	19,6	18,3	2,8	4,0	6,9	10,2	11,2
operation	35,2	31,7	32,5	29,7	40,9	9,6	14,4	17,9	17,1	19,2
register maintenance	10,9	8,3	6,9	5,6	4,7	75,6	65,7	54,2	39,6	26,4
Admistration:	**5,4**	**5,0**	**4,4**	**4,1**	**3,6**	**49,1**	**48,0**	**46,3**	**41,2**	**33,3**
law and tax affairs, internal auditing	6,9	6,2	7,2	9,6	12,2	0,1	0,2	0,3	0,7	1,4
administration management	21,9	22,3	22,1	24,0	19,6	0,9	1,3	2,0	2,4	2,6
administration supervision	15,2	12,9	12,6	11,4	9,5	2,2	2,5	2,9	3,4	3,3
pay office, responsible	0,4	0,5	1,0	1,5	1,1	4,3	3,9	3,6	3,5	2,8
pay office, assisting	1,0	1,5	1,5	1,9	2,8	9,6	8,6	8,1	7,4	8,1
bookkeeping	3,0	2,7	3,0	3,7	4,2	6,4	6,4	7,2	8,4	8,8
ledger and stock accounting	3,5	2,9	2,9	3,3	2,9	10,4	9,8	9,4	9,8	9,5
pricing	9,5	11,1	10,3	9,7	11,3	0,4	0,5	0,5	0,7	0,7
accounting	16,7	18,2	19,1	18,6	20,1	2,5	2,9	3,5	4,3	5,5
reporting	5,0	4,5	3,6	2,8	3,4	8,0	6,0	4,8	3,7	3,1
executive secretary	0,1	0,1	0,1	0,1	0,1	5,6	5,9	6,8	7,8	8,1
translation, interpreting, and correspondence	2,6	2,6	1,7	1,0	1,1	4,3	4,7	4,1	3,8	3,2
department secretary	0,3	0,4	0,5	0,5	1,1	11,9	14,5	17,5	20,4	23,8
typing	0,1	0,3	0,2	0,1	0,3	8,8	7,6	5,5	4,2	2,6
caretaker	6,9	6,2	5,5	4,9	2,9	0,4	0,5	0,5	0,5	0,5
switchboard	0,1	0,1	0,2	0,3	0,5	6,6	6,6	6,5	6,2	5,2
copying and mailing	1,8	1,6	1,8	1,7	2,3	5,1	4,4	3,8	3,4	2,8
messenger	2,8	3,4	4,0	3,2	2,2	3,3	3,4	2,9	2,0	1,2
office work, small firms	2,3	2,6	2,6	1,6	2,3	9,0	10,3	10,0	7,4	6,8
HR:	**2,4**	**1,9**	**1,8**	**1,7**	**1,4**	**10,1**	**9,0**	**8,3**	**7,4**	**6,8**
HR management	19,3	19,5	19,8	20,2	19,2	0,9	1,4	2,3	3,0	7,2
training and teaching	12,2	15,1	17,1	18,6	20,2	0,8	2,0	3,7	5,2	8,0
occupational guidance	7,4	6,9	5,5	4,4	6,0	2,4	3,0	2,5	1,7	1,6
employment affairs	11,2	11,0	10,3	9,4	8,5	0,7	1,0	1,3	2,9	6,1
recruiting	6,4	5,3	4,7	2,8	2,8	1,4	1,5	1,8	1,9	2,0
responsible wages clerk	4,5	3,4	3,5	3,0	2,3	14,4	14,0	16,6	17,6	15,9
wages clerk	3,3	3,1	2,8	1,4	1,2	53,9	49,8	45,2	40,1	34,4
health care management and design	19,9	19,8	20,4	24,5	24,2	0,3	0,3	0,4	0,5	1,1
occupational medicine	5,2	5,3	5,0	6,6	5,6	0,3	0,2	0,1	0,4	0,5
occupational health care	1,8	2,2	1,7	1,9	1,9	10,5	11,0	10,9	12,2	10,2
personal services	8,9	8,4	9,1	7,1	8,0	14,5	15,8	15,2	14,5	13,1

The figures in table 2A are read as follows. The figures in bold give the share of male (female) white-collar workers occupied in a particular occupation group. The numbers under groups, on the other hand, give the distribution of individuals over tasks employed in a particular occupation group. For example, in 2000 38 percent of the white-collar male workers in Finnish manufacturing were employed with R & D, and 4 percent of those worked in managerial tasks.

TABLE 3A: Segregation over occupation groups and tasks within groups measured by D&D -index

D&D -index for occupation groups				
1980	**1985**	**1990**	**1995**	**2000**
58,5	58,5	52,5	48,1	46,7

D&D -index for tasks within occupation groups

	1980	**1985**	**1990**	**1995**	**2000**
R&D	50,4	47,2	46,3	42,8	36,3
Production	32,4	27,3	25,8	25,0	24,4
Logistics	57,4	56,0	51,3	47,3	40,5
Sales & Marketing	65,8	60,5	52,5	48,8	51,5
PR	65,7	60,4	53,4	47,9	47,4
Admistration	70,5	69,0	68,0	67,6	63,0
HR	74,8	73,6	70,9	70,9	60,2

TABLE 4A: Occupational group and demand level distributions in 2002

	Male	Female		Male	Female
Company planning	**0,7**	**0,4**	**Shipping**	**1,0**	**0,4**
1	19,7	8,7	1	1,7	0,5
2	52,5	35,8	2	9,4	5,4
3	27,3	52,3	3	47,2	46,1
4	0,5	3,2	4	41,7	48,0
Research	**3,3**	**3,5**	**Distribution**	**1,0**	**0,5**
1	4,7	1,4	1	0,2	0,0
2	29,5	12,3	2	3,1	1,9
3	58,2	43,6	3	32,1	24,5
4	7,6	42,7	4	64,6	73,6
Product development and design	**18,8**	**7,6**	**Storing**	**1,0**	**0,6**
1	5,5	2,3	1	1,1	1,0
2	39,7	27,9	2	8,7	3,7
3	46,0	48,1	3	54,5	28,9
4	8,8	21,8	4	35,8	66,3
Production process development	**2,5**	**0,8**	**Shipping**	**0,3**	**1,1**
1	7,6	3,1	1	2,2	0,6
2	46,4	32,0	2	10,3	3,2
3	40,4	43,7	3	52,2	46,1
4	5,6	21,2	4	35,3	50,1
Quality control	**2,5**	**4,1**	**Data administration**	**1,1**	**0,3**
1	4,8	2,0	1	30,9	11,0
2	24,4	14,2	2	45,2	35,4
3	48,4	34,6	3	21,5	45,7
4	22,4	49,2	4	2,4	7,9
Production planning	**7,8**	**2,4**	**Data processing and telecommunication planning**	**4,4**	**2,1**
1	7,0	2,1	1	1,7	0,6
2	23,3	10,4	2	36,1	33,8
3	61,3	50,3	3	56,1	55,1
4	8,4	37,2	4	6,1	10,6
Production	**12,4**	**2,9**	**Data processing and telecommunication operation and maintenance**	**3,0**	**1,7**
1	5,9	2,0	1	1,8	0,4
2	16,7	12,2	2	13,7	6,6
3	68,4	55,8	3	65,4	60,8
4	9,0	29,9	4	19,1	32,2
Construction planning	**4,4**	**1,9**	**Data processing and telecommunication support**	**1,5**	**1,5**
1	6,6	0,4	1	1,0	0,3
2	35,1	13,9	2	11,7	4,9
3	52,9	52,7	3	64,0	49,7
4	5,5	32,9	4	23,2	45,2
Construction	**5,8**	**0,4**	**Real estates admistration***	**0,3**	**0,1**
1	9,3	0,5	1	17,2	3,8
2	41,4	18,1	2	44,5	11,5
3	45,5	55,3	3	34,4	53,8
4	3,8	26,0	4	4,0	30,8
Logistics planning	**1,2**	**1,2**	**Machines maintenance and service**	**4,2**	**0,2**
1	8,2	1,7	1	4,8	2,6
2	35,7	20,0	2	15,1	13,7
3	34,1	34,6	3	56,6	39,3
4	22,0	43,8	4	23,5	44,4

TABLE 4A (continued)

	Male	Female		Male	Female
Real estates, trafic lines etc. maintenance and service*	**0,4**	**0,1**	**PR**	**0,2**	**1,2**
1	3,2	0,0	1	14,6	4,5
2	16,3	7,5	2	44,4	29,2
3	62,2	56,6	3	34,0	48,0
4	18,3	35,8	4	6,9	18,4
Purchasing planning	**0,8**	**0,4**	**Law, insurance and taxation**	**0,2**	**0,4**
1	17,8	4,3	1	14,1	3,9
2	51,0	31,8	2	54,9	52,5
3	27,7	50,7	3	30,5	37,0
4	3,4	13,3	4	0,5	6,6
Purchasing	**2,6**	**2,4**	**Environmental matters**	**0,2**	**0,3**
1	4,9	0,8	1	10,5	4,6
2	16,1	8,3	2	34,0	42,3
3	70,3	47,3	3	45,5	45,4
4	8,7	43,5	4	10,0	7,7
Marketing	**2,0**	**3,7**	**Financing and investment****	**0,1**	**0,2**
1	14,5	3,9	1	20,6	7,3
2	53,5	28,6	2	49,5	41,5
3	28,6	46,1	3	24,7	35,0
4	3,3	21,4	4	5,2	16,3
Export sales	**1,6**	**2,1**	**Accounting**	**0,7**	**5,7**
1	10,5	1,4	1	7,0	1,6
2	60,7	17,7	2	29,7	13,4
3	25,6	47,8	3	46,1	50,2
4	3,2	33,0	4	17,2	34,7
Sales	**6,8**	**7,8**	**Payments, invoicing and debt collecting**	**0,2**	**5,7**
1	6,0	1,0	1	2,3	0,2
2	29,6	11,1	2	9,4	2,5
3	47,2	36,8	3	56,1	33,9
4	17,2	51,1	4	32,2	63,4
Customer service and demonstration	**2,1**	**9,0**	**Internal auditing**	**0,3**	**0,7**
1	2,6	0,8	1	8,3	2,8
2	15,7	3,7	2	53,5	38,5
3	40,0	20,0	3	33,8	31,8
4	41,7	75,5	4	4,4	26,9
Broad sales and marketing	**1,6**	**1,1**	**Financial admistration**	**0,8**	**2,2**
1	19,3	5,0	1	29,5	14,4
2	44,4	30,8	2	50,0	36,6
3	29,3	36,2	3	18,2	34,3
4	7,0	27,9	4	2,3	14,7
Publishing	**0,1**	**0,6**	**Secretarial work****	**0,1**	**9,6**
1	16,5	8,6	1	7,7	0,2
2	22,0	12,9	2	28,8	3,9
3	45,9	51,8	3	21,2	36,0
4	15,6	26,6	4	42,3	59,9
Editing	**0,1**	**0,3**	**Translation****	**0,0**	**0,7**
1	39,1	20,0	1	0,0	0,0
2	21,8	15,0	2	24,2	4,1
3	32,7	32,5	3	54,5	44,1
4	6,4	32,5	4	21,2	51,9

TABLE 4A (continued)

	Male	Female		Male	Female
Information service**	**0,1**	**0,6**	**Personnel management**	**0,2**	**0,5**
1	1,8	0,0	1	43,9	21,2
2	19,6	8,0	2	46,8	38,4
3	48,2	31,2	3	8,2	32,4
4	30,4	60,8	4	1,2	8,0
Switchboard operations**	**0,0**	**1,2**	**Occupational health care****	**0,1**	**0,6**
1	0,0	0,2	1	26,6	0,3
2	0,0	0,0	2	45,3	12,9
3	50,0	13,5	3	20,3	63,3
4	50,0	86,3	4	7,8	23,5
Copying, mailing and messenger service	**0,1**	**1,1**	**Occupational safety***	**0,2**	**0,0**
1	0,0	0,0	1	5,8	0,0
2	0,0	0,5	2	40,3	36,4
3	5,0	8,5	3	52,6	54,5
4	95,0	91,0	4	1,3	9,1
Office service	**0,1**	**2,0**	**Data security*****	**0,0**	**0,0**
1	8,7	0,9	1	5,9	10,0
2	15,7	5,3	2	44,1	20,0
3	16,5	22,3	3	23,5	30,0
4	59,1	71,5	4	26,5	40,0
Recruiting and personnel development	**0,4**	**1,0**	**Guarding*****	**0,1**	**0,0**
1	6,0	3,2	1	0,0	0,0
2	40,7	31,7	2	13,3	0,0
3	45,1	48,1	3	21,7	8,7
4	8,2	17,0	4	65,1	91,3
Empoyment relations and hiring	**0,2**	**1,1**	**Protection***	**0,1**	**0,0**
1	8,8	2,5	1	6,9	0,0
2	57,4	19,0	2	13,7	0,0
3	29,4	52,6	3	52,9	100,0
4	4,4	25,9	4	26,5	0,0
Payroll**	**0,1**	**2,9**	**Security*****	**0,1**	**0,0**
1	9,1	0,2	1	11,4	4,2
2	25,0	5,1	2	53,3	20,8
3	47,7	54,3	3	19,0	8,3
4	18,2	40,3	4	16,2	66,7
Personnel service**	**0,1**	**0,8**			
1	8,1	0,8			
2	20,2	3,3			
3	16,2	36,8			
4	55,6	59,3			

Codes 1 to 4 under the occupational groups refers to the position of a worker in occupation. The most demanding and high-powered tasks are denoted by one. The least demanding, supportive and assistance tasks are marked with 4. The asterisks on some of the occupations denotes following: * = the number of women in an occupation group is below 100, ** = the number of men in an occupation group is below 100, and *** = the number of both women and men in an occupation group is below 100.

TABLE 5A: Occupational group and task distributions across educational groups

	BASIC									
	Male					Female				
Occupational category	**1980**	**1985**	**1990**	**1995**	**2000**	**1980**	**1985**	**1990**	**1995**	**2000**
R & D:	**11,2**	**12,1**	**12,0**	**15,7**	**22,6**	**11,9**	**13,1**	**12,5**	**10,4**	**10,2**
management	0,5	0,4	0,8	1,4	1,6	0,1	0,0	0,0	0,1	0,2
product design, demanding	2,4	2,4	2,2	5,5	14,2	0,5	0,5	0,6	1,2	2,6
product design	8,6	8,4	9,9	19,0	29,5	0,9	1,2	2,1	4,5	13,0
element design	15,7	15,5	14,6	18,8	15,2	3,9	4,9	6,9	7,6	8,3
product design, assisting	18,2	20,4	16,4	10,5	8,5	49,8	50,7	45,8	38,1	32,5
quality control	7,3	7,6	8,3	6,3	3,8	2,4	2,5	2,2	3,1	3,5
quality control, assisting	32,8	30,4	31,3	22,1	12,6	34,0	32,0	34,0	32,7	26,1
research and design	0,8	0,6	1,2	1,7	1,5	0,1	0,0	0,2	0,1	0,7
research and settlement	2,6	3,1	3,8	7,4	8,9	2,5	2,4	1,9	2,2	3,0
research and settlement, assisting	11,2	11,1	11,6	7,1	4,4	5,8	5,8	6,4	10,4	10,1
Production:	**49,7**	**48,3**	**46,1**	**45,6**	**39,8**	**7,5**	**7,4**	**8,4**	**7,2**	**6,1**
production management	1,2	1,7	1,6	2,3	3,6	0,7	0,6	0,3	0,6	1,0
operation management	2,5	2,5	3,3	3,4	4,0	0,6	0,5	2,0	1,8	2,0
operation supervision	3,2	4,1	4,7	3,5	4,9	1,0	1,1	0,6	1,1	2,2
indirect supervision	5,9	6,4	7,0	7,1	7,3	2,1	2,4	2,0	1,0	2,2
direct supervision	54,8	53,1	54,0	50,9	44,1	37,6	38,3	42,6	29,1	21,2
supervision, assisting	11,2	9,6	7,9	8,5	8,3	17,3	15,3	9,0	11,8	12,0
design management	0,6	0,9	0,9	1,0	1,5	0,2	0,3	0,5	0,3	1,2
material and capacity design	1,4	1,9	1,7	2,4	3,5	1,4	2,9	3,0	4,6	7,5
industrial engineering design and maintenance, demanding	4,2	3,9	4,3	6,5	7,7	1,5	3,0	3,9	6,7	10,6
technical work design and maintenance	10,5	11,0	9,8	10,3	11,5	10,9	11,3	10,8	15,9	15,1
maintenance, assisting	4,6	4,8	4,7	4,2	3,6	26,8	24,3	25,3	27,1	25,3
Logistics:	**17,4**	**16,7**	**17,1**	**13,0**	**10,4**	**4,9**	**5,2**	**5,7**	**6,2**	**5,8**
storing management	3,8	4,2	5,1	5,0	4,1	0,2	0,2	0,5	0,6	0,4
storing supervision	30,8	31,5	32,2	29,7	30,5	4,5	5,2	5,6	7,6	7,2
storing	51,6	50,5	48,9	44,2	43,7	34,1	32,4	30,0	31,1	33,3
purchasing management	1,8	2,3	2,0	2,9	3,4	0,3	0,2	0,1	0,4	0,4
purchasing	7,9	7,9	8,5	13,1	13,7	6,8	7,6	12,3	14,4	15,7
purchasing, assisting	2,1	1,8	1,3	1,4	1,2	38,4	38,8	36,3	29,3	25,0
dispatching	1,4	1,2	1,1	2,5	2,9	5,2	5,2	4,9	8,3	10,3
dispatching, assisting	0,6	0,6	0,9	1,3	0,5	10,6	10,3	10,2	8,5	7,6
Sales & Marketing:	**13,1**	**14,7**	**17,0**	**18,5**	**19,1**	**8,9**	**10,5**	**12,1**	**18,1**	**30,1**
sales management	7,5	7,8	7,0	10,1	10,6	0,3	0,8	0,7	1,5	1,5
sales, specialized	13,6	13,6	14,5	17,4	17,2	1,0	1,1	1,5	4,0	2,7
sales, export	1,1	1,5	1,8	3,7	4,0	1,6	1,4	1,7	2,7	1,3
sales	49,6	53,7	50,0	47,2	40,4	6,7	12,6	16,2	15,6	11,4
sales, assisting	12,5	10,8	9,9	8,0	6,9	41,6	42,0	44,2	41,7	23,7
product demonstration and customer service	7,2	6,0	9,3	5,9	9,1	44,2	38,3	31,9	29,3	55,1
sales promotion management	1,4	0,8	0,7	0,9	3,2	0,2	0,3	0,1	0,2	0,2
sales promotion	5,6	4,4	4,0	3,5	5,0	3,6	2,8	2,3	2,5	2,5
production and marketing co-operation	1,5	1,4	2,8	3,3	3,7	0,7	0,7	1,4	2,4	1,5
PR:	**2,0**	**2,0**	**2,0**	**1,8**	**3,2**	**11,2**	**9,7**	**7,9**	**6,9**	**5,5**
PR and edition management	2,3	1,0	1,2	1,5	3,5	0,0	0,1	0,3	0,0	0,4
PR, specialized edition	3,7	4,5	3,7	6,1	5,7	0,5	0,5	1,4	3,2	5,9
edition	2,8	3,2	4,1	7,6	4,3	3,4	4,2	5,2	9,0	16,3
data processing management	7,9	12,9	11,6	13,7	10,4	0,1	0,3	0,2	0,8	1,3
information specialist	9,9	14,9	14,9	15,3	10,0	0,6	1,0	2,5	3,6	5,9
operation	53,0	48,9	50,4	42,7	55,2	8,5	12,9	15,9	16,6	17,0
register maintenance	20,4	14,6	14,0	13,0	10,9	86,9	81,1	74,5	66,8	53,2
Admistration:	**4,4**	**4,3**	**3,9**	**3,6**	**3,2**	**45,6**	**44,7**	**44,1**	**42,9**	**35,1**
law and tax affairs, internal auditing	1,1	1,2	0,8	4,3	5,2	0,0	0,0	0,0	0,4	0,2
administration management	1,5	3,2	2,5	3,9	3,4	0,3	0,3	0,2	0,3	0,4
administration supervision	8,7	6,8	6,1	5,9	6,5	1,1	1,1	1,4	2,2	1,8
pay office, responsible	0,0	0,6	1,0	0,4	0,0	3,8	3,9	3,9	3,6	3,3
pay office, assisting	2,0	1,7	1,9	1,6	9,1	10,9	10,4	10,0	9,8	11,9
bookkeeping	1,4	1,2	0,8	0,8	1,3	3,2	3,2	3,4	3,8	4,3
ledger and stock accounting	8,4	6,0	5,7	6,7	3,9	11,7	12,0	11,7	12,1	12,7
pricing	5,0	3,2	3,1	3,9	3,0	0,3	0,3	0,2	0,3	0,3
accounting	6,3	5,9	5,9	5,1	7,8	1,5	1,5	1,6	1,8	2,6
reporting	7,9	5,9	2,7	1,2	3,0	10,2	8,6	7,0	5,3	4,0
executive secretary	0,3	0,2	0,2	0,0	0,0	1,0	1,1	1,3	2,1	2,7
translation, interpreting, and correspondence	3,5	2,9	0,8	0,8	2,6	0,7	0,7	0,7	0,6	0,7
department secretary	0,4	0,5	0,6	0,8	1,3	8,0	10,1	12,7	16,5	18,8
typing	0,1	0,5	0,6	0,4	0,9	10,1	9,2	7,6	6,7	4,1
caretaker	29,8	33,1	31,7	32,2	21,1	0,7	1,1	1,2	1,3	1,3
switchboard	0,1	0,5	0,8	1,6	1,7	11,6	11,7	12,5	12,6	12,0
copying and mailing	7,5	7,3	11,1	10,2	14,7	9,8	9,1	8,9	8,8	7,8
messenger	13,1	17,2	20,8	18,4	11,6	6,4	6,3	5,6	4,6	3,1
office work, small firms	2,9	2,2	2,7	2,0	3,0	8,6	9,7	10,0	7,3	8,0
HR:	**2,2**	**1,9**	**1,8**	**1,8**	**1,8**	**9,9**	**9,4**	**9,3**	**8,4**	**7,3**
HR management	5,7	3,1	2,7	9,5	9,4	0,2	0,4	0,2	0,3	1,8
training and teaching	8,2	7,2	4,5	10,3	17,2	0,1	0,3	0,6	1,5	3,1
occupational guidance	12,4	11,7	7,2	5,6	7,8	2,7	4,1	3,7	2,3	2,4
employment affairs	7,4	6,5	9,9	7,1	5,5	0,4	0,6	0,5	1,0	1,8
recruiting	7,2	6,9	7,6	4,0	5,5	1,2	1,1	1,6	1,4	1,0
responsible wages clerk	5,2	3,8	1,3	2,4	0,8	14,1	13,5	16,1	20,7	22,4
wages clerk	4,0	3,8	2,2	0,8	2,3	61,0	58,2	53,3	60,6	55,8
health care management and design	27,5	30,9	32,3	40,5	35,9	0,0	0,1	0,1	0,1	0,2
occupational medicine	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
occupational health care	1,7	1,7	1,3	0,8	0,8	1,0	0,8	1,2	0,4	0,8
personal services	20,8	24,4	30,9	19,0	14,8	19,1	20,9	22,8	11,7	10,7

TABLE 5A (continued)

	LOWER SECONDARY									
	Male					Female				
Occupational category	**1980**	**1985**	**1990**	**1995**	**2000**	**1980**	**1985**	**1990**	**1995**	**2000**
R & D:	**19,1**	**20,7**	**21,6**	**20,6**	**24,5**	**17,3**	**22,0**	**29,0**	**25,8**	**26,6**
management	0,1	0,1	0,1	0,7	1,5	0,0	0,0	0,0	0,1	0,3
product design, demanding	1,1	1,2	2,2	2,4	9,2	0,3	0,5	0,2	0,2	0,9
product design	7,7	7,7	8,4	11,6	22,0	1,6	1,7	2,3	2,4	4,4
element design	19,2	21,3	22,4	22,1	17,5	4,0	3,8	4,5	4,5	5,2
product design, assisting	20,5	19,2	18,4	12,1	12,7	44,4	48,9	45,2	33,8	30,6
quality control	6,4	6,7	7,2	7,9	5,4	2,6	1,9	3,7	5,1	6,2
quality control, assisting	33,4	31,2	28,8	30,5	19,8	31,4	28,0	27,3	35,1	30,0
research and design	0,8	0,7	0,7	0,5	1,4	0,1	0,2	0,0	0,0	0,2
research and settlement	2,6	2,6	3,1	2,8	2,4	1,9	1,8	4,4	2,2	2,6
research and settlement, assisting	8,1	9,3	8,5	9,4	8,2	13,7	13,4	12,3	16,5	19,6
Production:	**55,2**	**54,9**	**54,1**	**53,6**	**44,0**	**7,3**	**7,5**	**6,7**	**9,5**	**8,1**
production management	0,9	1,1	1,4	2,2	2,3	0,2	0,3	0,7	1,6	1,2
operation management	1,6	1,8	2,2	3,1	3,4	1,3	1,7	1,8	1,4	1,2
operation supervision	2,6	2,6	3,1	3,4	6,9	1,0	0,9	1,0	3,9	5,8
indirect supervision	6,0	6,2	6,3	6,1	5,4	2,8	2,7	2,8	4,2	4,4
direct supervision	48,3	48,1	44,4	42,0	34,5	40,0	37,9	32,9	36,2	30,5
supervision, assisting	6,2	5,9	4,8	7,7	9,0	10,5	10,3	8,3	13,8	9,0
design management	0,8	0,9	1,0	0,9	1,0	0,2	0,2	1,0	0,0	1,2
material and capacity design	2,0	2,1	1,7	1,7	2,9	1,2	2,0	3,7	3,2	7,4
industrial engineering design and maintenance, demanding	6,9	8,3	9,3	10,0	12,7	5,9	7,4	7,2	5,2	9,5
technical work design and maintenance	19,2	18,8	20,5	17,1	16,5	11,4	14,9	20,0	14,3	16,2
maintenance, assisting	5,5	4,2	5,5	5,7	5,3	25,5	21,9	20,5	16,4	13,7
Logistics:	**9,0**	**8,8**	**8,3**	**7,5**	**6,5**	**4,3**	**4,2**	**4,7**	**5,1**	**4,5**
storing management	2,9	4,2	4,2	5,0	5,0	0,0	0,0	0,0	0,5	0,6
storing supervision	29,1	28,6	29,7	27,8	25,2	2,5	2,7	3,9	5,4	6,3
storing	40,4	39,7	36,7	42,5	43,4	23,4	22,6	23,4	27,3	26,2
purchasing management	6,3	5,7	5,8	4,1	2,1	0,3	0,0	0,2	0,5	0,9
purchasing	16,4	17,8	19,0	16,5	18,2	6,2	9,5	12,6	14,2	19,6
purchasing, assisting	3,4	2,7	2,6	1,8	2,3	48,2	46,5	41,8	31,4	31,0
dispatching	1,0	1,0	1,5	1,4	2,1	4,2	4,1	5,6	8,0	7,5
dispatching, assisting	0,4	0,4	0,5	0,9	1,7	15,2	14,7	12,6	12,6	7,8
Sales & Marketing:	**11,1**	**10,7**	**11,4**	**13,6**	**17,7**	**6,0**	**6,4**	**7,4**	**11,6**	**21,0**
sales management	8,1	7,1	5,8	7,0	8,8	0,2	0,4	0,9	1,6	1,9
sales, specialized	15,2	16,8	16,9	13,3	12,6	1,0	2,0	2,3	3,9	3,1
sales, export	1,2	2,0	1,9	1,9	2,1	0,6	1,2	0,9	1,3	1,2
sales	53,0	52,4	49,3	53,5	44,9	10,9	16,7	20,0	16,6	14,6
sales, assisting	9,6	9,7	10,9	8,9	8,2	45,3	41,8	41,0	40,9	23,9
product demonstration and customer service	7,4	6,4	9,6	7,7	10,5	36,4	32,7	28,7	30,9	50,6
sales promotion management	0,7	0,8	0,5	0,9	2,9	0,0	0,2	0,2	0,1	0,5
sales promotion	3,1	2,7	2,2	3,6	3,5	4,8	3,9	4,5	2,7	2,3
production and marketing co-operation	1,9	2,0	2,8	3,1	6,6	0,8	1,1	1,5	2,0	1,8
PR:	**0,7**	**0,5**	**0,8**	**1,2**	**3,6**	**8,4**	**6,6**	**4,8**	**4,6**	**3,9**
PR and edition management	0,0	3,3	0,0	0,0	0,4	0,1	0,0	0,2	0,0	0,0
PR, specialized edition	8,2	11,7	8,7	4,6	3,8	0,3	0,7	1,2	1,5	8,1
edition	5,5	8,3	5,4	5,5	2,7	1,9	2,9	5,4	9,1	10,6
data processing management	6,8	8,3	8,7	8,3	10,4	0,4	0,5	1,2	1,2	1,8
information specialist	6,8	10,0	6,5	9,2	14,2	0,4	0,5	1,4	2,1	6,3
operation	46,6	38,3	57,6	56,0	60,4	8,7	13,3	18,9	24,1	24,6
register maintenance	26,0	20,0	13,0	16,5	8,1	88,1	82,1	71,8	62,1	48,6
Admistration:	**2,7**	**2,3**	**1,9**	**1,9**	**1,9**	**44,9**	**42,1**	**37,6**	**34,2**	**28,3**
law and tax affairs, internal auditing	2,1	2,4	1,9	1,2	3,6	0,0	0,5	0,0	0,2	0,0
administration management	4,8	5,5	2,9	6,6	5,8	0,4	0,5	0,5	0,4	0,7
administration supervision	14,7	12,9	12,0	11,4	12,2	1,9	2,0	2,2	2,4	2,9
pay office, responsible	1,0	1,6	1,0	0,0	1,4	6,6	5,8	5,5	4,1	3,3
pay office, assisting	2,7	3,5	5,3	5,4	7,2	12,7	11,7	10,9	10,8	11,9
bookkeeping	6,2	3,5	2,4	1,2	1,4	7,7	7,5	7,4	7,0	6,4
ledger and stock accounting	8,6	5,1	5,3	4,2	4,3	15,4	14,2	13,8	15,0	12,6
pricing	9,6	11,4	10,5	6,0	7,2	0,3	0,5	0,3	0,3	0,5
accounting	15,8	16,1	15,8	12,0	8,6	1,8	2,0	2,8	3,4	3,3
reporting	9,2	9,0	6,2	5,4	5,8	8,5	7,2	5,3	5,1	4,3
executive secretary	0,0	0,4	0,5	0,0	0,0	0,5	0,7	0,7	1,1	2,3
translation, interpreting, and correspondence	1,7	2,0	1,0	0,0	0,7	0,3	0,4	0,4	0,2	0,6
department secretary	0,3	0,4	1,4	2,4	2,2	7,9	9,0	12,3	15,0	20,3
typing	0,0	0,4	0,0	0,6	0,0	11,5	9,0	7,0	5,4	3,8
caretaker	13,4	12,9	17,7	21,0	12,9	0,3	0,6	0,5	0,9	1,0
switchboard	0,0	0,4	0,5	1,2	2,2	4,5	5,8	5,8	7,8	8,0
copying and mailing	3,1	2,7	3,8	3,0	6,5	3,6	4,0	4,7	5,3	4,3
messenger	2,7	4,3	6,7	14,4	13,7	2,3	2,8	2,8	2,8	1,8
office work, small firms	4,1	5,5	5,3	4,2	4,3	14,0	15,6	17,0	12,9	11,9
HR:	**2,3**	**2,1**	**1,8**	**1,6**	**1,8**	**11,7**	**11,2**	**9,8**	**9,1**	**7,6**
HR management	4,8	4,4	4,9	7,6	6,8	0,0	0,2	0,3	0,1	0,9
training and teaching	9,6	17,2	18,2	16,6	13,6	0,2	0,7	0,9	0,6	2,0
occupational guidance	18,5	18,5	15,8	7,6	8,3	4,1	4,3	3,0	2,1	0,9
employment affairs	7,2	7,5	6,4	7,6	6,1	0,2	0,1	0,5	0,6	1,1
recruiting	8,4	5,3	5,9	0,7	0,0	0,6	1,0	0,9	1,3	1,4
responsible wages clerk	5,2	4,0	3,4	2,1	1,5	15,0	16,8	19,1	18,8	20,2
wages clerk	5,6	3,5	3,4	1,4	0,8	64,3	56,4	54,0	45,1	44,0
health care management and design	19,3	21,1	25,1	38,6	35,6	0,1	0,1	0,1	0,1	0,4
occupational medicine	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,2
occupational health care	1,6	2,2	1,5	1,4	1,5	1,0	1,0	1,7	2,7	3,8
personal services	19,7	16,3	15,3	16,6	25,8	14,4	19,3	19,4	28,5	25,2

TABLE 5A (continued):

	HIGHER SECONDARY									
	Male					Female				
Occupational category	**1980**	**1985**	**1990**	**1995**	**2000**	**1980**	**1985**	**1990**	**1995**	**2000**
R & D:	**19,8**	**19,9**	**20,6**	**23,8**	**29,0**	**7,2**	**8,4**	**8,3**	**11,5**	**12,5**
management	0,8	0,8	0,7	1,0	1,5	0,3	0,3	0,6	0,4	1,0
product design, demanding	5,4	6,3	6,3	6,6	13,3	4,6	4,1	3,6	2,2	6,0
product design	25,9	25,1	25,6	29,1	31,9	12,0	15,0	12,6	12,2	16,5
element design	41,5	40,7	42,0	37,2	22,2	20,7	20,0	21,9	12,9	11,1
product design, assisting	10,2	10,4	9,4	6,9	10,8	34,4	28,4	27,2	19,6	17,9
quality control	4,8	4,3	3,6	4,3	3,5	5,4	4,3	3,3	4,9	5,0
quality control, assisting	4,2	4,6	4,8	5,7	6,9	13,9	14,4	18,1	26,2	21,4
research and design	0,8	0,8	0,9	1,1	1,8	0,3	0,3	0,8	0,5	0,8
research and settlement	3,5	3,8	3,7	4,2	3,9	3,7	4,8	3,6	3,4	5,2
research and settlement, assisting	2,9	3,2	3,0	4,1	4,1	4,9	8,4	8,2	17,8	15,1
Production:	**53,3**	**52,6**	**51,5**	**47,0**	**34,2**	**2,3**	**2,8**	**3,6**	**4,2**	**4,7**
production management	3,1	3,6	3,9	3,8	3,5	1,9	2,6	1,2	2,8	2,1
operation management	10,4	12,1	12,8	9,9	6,1	3,4	1,6	4,0	3,3	2,4
operation supervision	9,2	9,2	8,8	6,2	6,5	1,9	3,2	3,3	1,9	5,0
indirect supervision	11,1	9,5	8,5	9,3	7,1	2,5	1,8	2,1	2,6	3,0
direct supervision	40,2	39,6	40,8	43,4	40,0	17,3	26,8	35,7	26,2	23,8
supervision, assisting	2,8	3,3	3,0	4,8	5,6	7,7	10,3	7,4	7,4	6,1
design management	1,2	1,3	1,3	1,2	1,5	0,6	1,2	1,1	1,7	3,2
material and capacity design	2,7	2,5	2,2	2,3	3,9	5,2	6,9	5,7	8,5	17,2
industrial engineering design and maintenance, demanding	7,3	7,4	7,6	8,0	10,9	6,2	9,7	11,3	11,5	9,9
technical work design and maintenance	10,4	10,1	9,7	9,5	12,6	20,7	17,7	16,3	19,3	15,9
maintenance, assisting	1,5	1,4	1,3	1,6	2,3	32,7	18,1	12,0	14,8	11,5
Logistics:	**5,8**	**5,8**	**5,8**	**5,8**	**6,4**	**5,8**	**5,8**	**5,6**	**6,4**	**5,9**
storing management	7,7	7,1	7,4	8,1	6,0	0,1	0,4	0,4	0,5	0,7
storing supervision	21,0	20,8	21,3	20,0	18,3	0,6	1,4	2,1	2,5	2,4
storing	15,2	17,4	17,3	17,8	23,3	8,1	10,4	9,3	11,2	11,8
purchasing management	10,7	11,6	12,5	12,6	13,2	0,4	0,6	2,2	2,8	3,0
purchasing	31,3	32,1	30,9	30,6	26,5	10,6	15,1	20,1	18,2	25,8
purchasing, assisting	5,5	4,0	3,7	2,6	3,6	41,2	36,6	33,1	26,2	22,4
dispatching	6,4	5,5	4,3	6,4	7,4	16,4	16,5	16,5	24,5	22,8
dispatching, assisting	2,3	1,6	2,6	1,9	1,6	22,6	19,0	16,4	14,3	11,0
Sales & Marketing:	**10,9**	**12,5**	**13,3**	**14,3**	**18,8**	**9,9**	**11,6**	**14,5**	**17,9**	**25,7**
sales management	11,0	10,4	11,1	13,1	12,8	1,0	1,1	1,5	2,2	2,7
sales, specialized	21,9	19,7	21,1	22,2	15,9	3,5	4,4	5,1	6,0	4,0
sales, export	5,1	5,4	4,3	5,7	4,8	5,1	3,8	4,8	6,3	4,2
sales	40,0	45,3	42,4	38,8	35,3	8,4	13,0	16,8	17,0	13,7
sales, assisting	8,2	6,7	7,5	6,4	6,8	42,3	43,1	39,6	36,4	25,2
product demonstration and customer service	3,4	3,5	4,0	4,2	10,6	29,0	23,0	21,1	22,5	40,6
sales promotion management	1,8	1,4	1,4	1,2	2,7	1,1	0,6	0,9	0,6	0,9
sales promotion	3,8	3,2	2,8	3,1	3,9	6,9	7,4	6,5	4,6	4,6
production and marketing co-operation	4,9	4,4	5,3	5,5	7,1	2,7	3,5	3,7	4,4	4,3
PR:	**1,9**	**1,9**	**2,3**	**2,7**	**4,8**	**5,5**	**5,0**	**4,6**	**4,2**	**4,3**
PR and edition management	3,6	4,7	2,3	3,1	3,3	1,3	1,0	1,8	2,4	3,7
PR, specialized edition	6,3	5,8	4,6	5,4	4,5	7,6	7,5	10,5	12,9	15,7
edition	4,2	2,6	2,2	3,8	3,5	11,3	9,5	9,4	14,9	16,2
data processing management	18,2	19,9	22,4	24,0	17,8	1,7	1,9	2,6	2,9	3,7
information specialist	14,9	14,5	20,1	21,1	17,2	4,6	5,2	8,6	11,1	10,3
operation	43,5	42,8	40,6	35,9	48,4	16,7	24,0	27,6	20,6	22,4
register maintenance	9,4	9,8	7,7	6,6	5,3	56,8	50,9	39,4	35,3	28,1
Admistration:	**6,2**	**5,6**	**4,8**	**4,9**	**5,4**	**58,1**	**57,0**	**54,8**	**49,3**	**40,6**
law and tax affairs, internal auditing	2,6	2,5	2,7	3,3	5,2	0,1	0,1	0,1	0,1	0,5
administration management	20,0	18,8	19,2	19,7	17,1	1,1	1,1	1,8	1,7	1,7
administration supervision	20,1	18,4	16,1	13,7	11,5	2,6	2,9	3,0	3,2	3,0
pay office, responsible	0,6	0,5	0,9	1,9	1,7	4,9	3,9	3,5	4,0	3,1
pay office, assisting	1,0	1,9	2,2	3,1	4,5	8,6	7,7	7,6	7,3	8,1
bookkeeping	4,3	4,0	4,4	5,8	6,4	10,5	9,5	10,4	12,0	12,0
ledger and stock accounting	2,9	3,5	3,8	5,5	5,8	8,7	8,4	8,5	9,9	10,3
pricing	10,5	11,1	9,6	8,7	6,2	0,4	0,4	0,4	0,6	0,6
accounting	24,1	23,5	24,1	23,9	21,9	3,7	3,8	4,1	4,8	5,2
reporting	5,8	6,0	5,6	4,6	4,9	6,5	4,6	3,8	3,4	3,0
executive secretary	0,1	0,0	0,1	0,1	0,2	7,4	7,3	8,0	6,7	7,0
translation, interpreting, and correspondence	1,7	1,3	1,3	1,1	1,2	5,5	4,8	4,0	3,3	2,5
department secretary	0,3	0,5	0,7	0,4	2,0	18,9	21,0	23,2	24,2	26,9
typing	0,1	0,4	0,1	0,1	0,5	7,7	7,1	4,8	3,8	2,6
caretaker	1,6	1,7	1,6	2,0	2,1	0,1	0,2	0,2	0,2	0,2
switchboard	0,1	0,1	0,3	0,2	0,7	2,8	3,6	4,1	4,6	3,9
copying and mailing	0,5	0,8	0,6	1,4	2,3	1,0	1,3	1,2	1,4	1,7
messenger	0,4	0,8	2,3	1,8	2,1	0,7	1,6	1,6	1,1	0,8
office work, small firms	3,2	4,1	4,3	2,8	3,8	8,9	10,8	9,7	7,7	7,0
HR:	**2,0**	**1,7**	**1,6**	**1,7**	**1,3**	**11,1**	**9,3**	**8,6**	**6,6**	**6,4**
HR management	14,8	15,0	14,4	15,6	17,6	0,8	1,1	1,7	1,9	3,5
training and teaching	13,3	16,7	16,9	17,3	17,6	0,8	2,6	4,3	4,9	6,7
occupational guidance	5,4	5,6	5,7	6,2	8,7	1,0	1,2	1,6	1,5	1,9
employment affairs	16,6	15,7	15,7	16,4	9,0	0,7	1,0	0,9	2,9	6,3
recruiting	9,5	7,8	7,1	5,2	4,8	1,8	1,5	1,8	2,2	2,3
responsible wages clerk	7,7	6,5	7,6	6,9	7,3	14,9	14,2	17,6	22,4	20,5
wages clerk	5,3	5,2	5,6	3,3	2,8	42,0	41,4	39,8	42,6	41,7
health care management and design	18,5	18,3	18,2	21,6	21,1	0,1	0,2	0,1	0,0	0,6
occupational medicine	0,0	0,0	0,0	0,0	0,3	0,0	0,0	0,0	0,1	0,1
occupational health care	3,5	3,8	3,2	2,4	3,1	30,7	29,4	24,9	10,5	4,2
personal services	5,3	5,4	5,6	5,2	7,6	7,0	7,4	7,2	11,1	12,0

TABLE 5A (continued):

	FIRST STAGE OF TERTIARY									
	Male					Female				
Occupational category	**1980**	**1985**	**1990**	**1995**	**2000**	**1980**	**1985**	**1990**	**1995**	**2000**
R & D:	**35,5**	**39,4**	**43,2**	**41,5**	**30,6**	**15,4**	**18,2**	**21,9**	**28,5**	**27,3**
management	4,7	3,4	3,3	3,7	2,0	2,0	1,9	1,5	1,4	1,7
product design, demanding	18,8	16,9	18,0	18,3	17,0	6,6	7,3	6,4	8,4	14,0
product design	36,5	35,8	39,5	39,4	33,3	24,5	22,3	30,0	30,6	24,4
element design	23,5	29,9	27,8	24,6	29,4	27,7	37,3	32,1	22,7	17,5
product design, assisting	4,8	3,7	2,2	2,6	4,6	6,6	5,1	3,0	6,7	8,3
quality control	3,6	3,3	2,5	3,0	4,3	8,3	7,0	8,6	6,9	7,9
quality control, assisting	0,5	0,6	0,6	2,4	3,8	6,1	3,8	3,6	9,5	11,9
research and design	2,9	2,2	2,3	1,8	1,1	1,5	1,7	2,3	1,9	1,1
research and settlement	3,9	3,6	3,2	3,4	3,0	10,9	8,6	8,2	5,4	5,0
research and settlement, assisting	0,9	0,6	0,4	0,9	1,5	5,9	5,0	4,2	6,6	8,2
Production:	**33,6**	**31,7**	**30,3**	**38,3**	**54,0**	**6,2**	**7,3**	**7,1**	**14,7**	**14,0**
production management	16,9	16,8	17,7	11,6	5,0	1,1	2,2	4,3	2,4	3,1
operation management	27,4	25,1	23,9	17,2	13,1	8,6	6,2	9,0	5,1	3,8
operation supervision	18,1	18,3	17,4	11,7	9,8	5,9	8,0	10,8	7,5	6,7
indirect supervision	3,2	3,6	4,4	8,0	8,1	9,2	4,4	4,3	5,1	6,3
direct supervision	7,6	8,2	8,1	22,9	39,1	40,0	40,0	37,3	43,9	43,3
supervision, assisting	1,0	1,6	1,0	4,5	2,5	2,7	3,6	1,4	9,0	6,2
design management	7,7	8,0	7,6	4,8	2,0	3,8	4,7	2,9	1,7	1,7
material and capacity design	6,9	5,8	5,7	4,2	3,2	9,7	9,1	9,0	5,3	7,5
industrial engineering design and maintenance, demanding	8,2	8,7	9,8	8,9	8,3	10,3	11,6	10,0	9,7	8,7
technical work design and maintenance	2,7	3,5	4,2	5,6	7,9	7,6	7,6	9,0	8,0	9,8
maintenance, assisting	0,2	0,4	0,3	0,6	1,1	1,1	2,5	2,2	2,2	2,9
Logistics:	**3,5**	**3,2**	**3,5**	**3,5**	**3,2**	**3,2**	**3,2**	**3,2**	**3,2**	**3,3**
storing management	19,4	17,8	15,4	14,8	8,4	4,3	5,0	3,2	3,4	3,3
storing supervision	6,2	8,6	7,9	10,1	22,3	11,7	10,0	3,2	4,5	9,0
storing	1,3	0,9	1,9	6,0	11,8	1,1	1,7	1,6	11,2	14,8
purchasing management	40,4	35,7	32,0	31,3	17,7	4,3	7,5	15,1	16,9	6,6
purchasing	26,5	33,1	39,0	33,3	36,3	30,9	39,2	44,4	33,7	38,5
purchasing, assisting	2,4	1,7	1,6	2,7	2,2	11,7	10,0	13,5	10,1	13,9
dispatching	3,6	2,0	1,9	1,6	1,1	26,6	19,2	9,5	15,7	11,5
dispatching, assisting	0,2	0,2	0,3	0,2	0,3	9,6	7,5	9,5	4,5	2,5
Sales & Marketing:	**16,9**	**16,7**	**15,6**	**12,7**	**8,3**	**11,0**	**12,8**	**14,4**	**15,7**	**18,2**
sales management	19,5	16,9	17,0	16,7	14,4	3,4	6,2	4,6	4,1	6,5
sales, specialized	30,5	30,6	31,8	29,4	24,4	10,2	12,0	18,6	19,8	15,5
sales, export	15,9	14,8	12,4	12,2	8,1	20,3	18,0	16,3	9,5	8,6
sales	17,3	20,5	20,7	23,5	31,7	12,0	13,9	14,2	17,7	16,1
sales, assisting	1,9	2,4	1,5	2,7	4,0	25,5	23,2	18,8	18,6	18,0
product demonstration and customer service	0,8	1,0	2,1	1,7	3,8	8,6	4,6	4,3	11,8	18,2
sales promotion management	2,3	2,0	1,9	0,3	1,2	2,8	3,1	3,2	1,1	2,8
sales promotion	2,7	2,2	2,5	1,8	1,9	8,6	9,3	9,8	5,7	6,1
production and marketing co-operation	9,2	9,7	10,1	11,6	10,7	8,6	9,5	10,3	11,6	8,1
PR:	**1,1**	**1,1**	**1,4**	**1,6**	**1,6**	**4,6**	**4,6**	**4,9**	**4,1**	**5,5**
PR and edition management	13,5	7,8	6,8	3,6	2,5	8,1	13,4	12,0	7,8	7,4
PR, specialized edition	10,6	8,8	10,4	4,5	2,8	30,9	29,1	29,7	19,1	21,6
edition	4,3	4,1	3,6	2,3	1,5	21,3	19,2	16,1	4,3	6,4
data processing management	46,8	56,5	46,2	26,2	21,2	8,8	8,1	8,9	6,1	7,4
information specialist	17,7	16,1	18,7	24,9	23,3	18,4	19,8	20,3	25,2	14,2
operation	4,3	4,7	12,0	36,2	45,4	6,6	4,7	6,8	31,3	37,3
register maintenance	2,8	2,1	2,4	2,3	3,4	5,9	5,8	6,3	6,1	5,9
Admistration:	**7,3**	**6,2**	**4,7**	**1,3**	**1,1**	**57,0**	**51,8**	**46,0**	**22,9**	**22,0**
law and tax affairs, internal auditing	8,9	6,5	7,8	6,6	3,9	0,8	0,6	0,8	0,2	0,1
administration management	42,5	36,2	32,2	4,4	3,4	4,5	6,3	8,4	0,6	0,4
administration supervision	13,1	9,2	10,4	3,8	5,6	6,1	6,8	6,8	1,9	1,6
pay office, responsible	0,4	0,3	0,9	0,0	0,0	0,9	0,6	0,7	0,3	0,4
pay office, assisting	0,0	0,5	0,0	0,5	0,0	0,6	0,5	0,7	1,6	2,6
bookkeeping	1,2	1,6	2,0	0,5	0,9	3,9	3,2	3,2	0,8	0,9
ledger and stock accounting	0,3	0,5	0,5	1,1	1,3	0,5	0,3	0,4	1,4	2,9
pricing	12,5	18,0	19,2	44,5	38,2	1,5	1,7	2,5	1,2	0,9
accounting	14,9	21,0	21,6	35,7	33,9	3,8	5,4	6,8	4,0	3,1
reporting	1,6	0,7	1,5	1,6	4,7	1,1	0,9	1,0	1,1	1,2
executive secretary	0,1	0,0	0,0	0,5	0,4	34,7	30,5	31,2	31,4	32,2
translation, interpreting, and correspondence	4,2	5,2	3,3	0,0	1,7	27,6	28,3	22,1	9,2	9,4
department secretary	0,1	0,2	0,1	0,5	0,0	11,5	12,8	12,7	41,0	38,0
typing	0,0	0,1	0,1	0,0	0,0	1,4	1,0	1,1	1,6	1,2
caretaker	0,0	0,0	0,2	0,0	0,4	0,0	0,0	0,0	0,2	0,1
switchboard	0,0	0,0	0,0	0,0	0,4	0,1	0,3	0,3	0,6	2,1
copying and mailing	0,1	0,0	0,0	0,0	0,9	0,0	0,1	0,1	0,3	0,6
messenger	0,0	0,0	0,0	0,0	0,4	0,0	0,0	0,6	0,2	0,2
office work, small firms	0,0	0,2	0,2	0,0	3,9	0,9	0,8	0,6	2,6	2,1
HR:	**2,1**	**1,6**	**1,4**	**1,2**	**1,3**	**2,6**	**2,0**	**2,5**	**10,9**	**9,7**
HR management	34,5	35,3	34,4	22,0	14,9	15,6	20,8	30,6	1,0	2,5
training and teaching	20,1	22,9	32,0	35,7	25,6	18,2	20,8	29,6	5,2	8,4
occupational guidance	1,8	4,1	2,0	3,0	6,5	1,3	0,0	0,0	0,7	1,4
employment affairs	13,4	13,2	10,0	6,5	15,6	7,8	15,6	12,2	3,6	3,6
recruiting	1,4	2,3	0,8	0,0	1,9	5,2	6,5	5,1	1,0	0,6
responsible wages clerk	1,8	0,0	0,4	0,0	0,0	11,7	2,6	2,0	1,0	1,1
wages clerk	0,0	0,4	0,0	0,0	0,4	9,1	10,4	5,1	1,6	2,5
health care management and design	25,7	20,3	18,0	23,8	29,0	6,5	5,2	4,1	0,7	0,3
occupational medicine	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
occupational health care	0,4	1,1	0,4	5,4	1,9	7,8	6,5	0,0	75,5	68,5
personal services	1,1	0,4	2,0	3,6	4,2	16,9	11,7	11,2	9,8	11,1

TABLE 5A (continued):

	UNIVERSITY									
	Male					Female				
Occupational category	**1980**	**1985**	**1990**	**1995**	**2000**	**1980**	**1985**	**1990**	**1995**	**2000**
R & D:	**50,7**	**55,9**	**56,9**	**55,9**	**55,1**	**48,0**	**51,3**	**47,9**	**33,1**	**37,0**
management	16,4	13,4	11,9	6,9	6,0	7,7	5,4	5,9	4,5	4,5
product design, demanding	24,2	21,9	23,9	19,1	25,0	9,8	10,3	10,2	9,1	16,1
product design	24,0	26,8	27,0	31,8	33,0	22,3	22,3	21,2	24,1	23,5
element design	8,8	11,7	10,0	16,3	16,3	10,2	16,2	14,1	12,2	13,5
product design, assisting	0,7	0,9	0,6	2,0	2,2	1,9	1,8	1,1	1,8	4,3
quality control	3,8	3,9	3,6	3,7	3,0	13,1	10,6	8,9	9,1	8,1
quality control, assisting	0,1	0,2	0,2	1,2	1,0	0,8	0,8	1,0	2,8	3,0
research and design	11,0	10,5	10,7	7,8	5,5	11,7	9,8	10,6	11,3	7,7
research and settlement	10,7	10,1	11,3	10,3	7,4	19,8	21,2	26,1	21,6	16,5
research and settlement, assisting	0,4	0,8	0,8	1,0	0,7	2,7	1,6	1,0	3,4	2,9
Production:	**20,7**	**16,7**	**15,3**	**16,0**	**20,9**	**3,6**	**3,6**	**3,6**	**4,0**	**6,9**
production management	35,4	34,1	31,8	21,0	17,4	5,6	16,9	9,1	11,7	10,1
operation management	26,7	26,9	26,4	21,5	20,2	33,3	27,7	19,2	18,2	12,7
operation supervision	11,0	10,9	11,1	10,7	12,7	13,9	13,8	14,1	9,5	8,9
indirect supervision	0,9	1,2	0,8	3,2	3,6	2,8	7,7	5,1	5,6	2,9
direct supervision	1,2	0,9	1,2	10,5	10,9	11,1	6,2	4,0	17,7	10,9
supervision, assisting	0,7	0,2	0,1	1,2	1,3	0,0	0,0	1,0	3,5	2,4
design management	10,4	12,2	13,6	10,0	9,6	5,6	6,2	12,1	6,1	10,2
material and capacity design	7,7	8,1	7,5	7,1	7,4	11,1	9,2	14,1	10,8	20,6
industrial engineering design and maintenance, demanding	4,6	4,6	6,3	10,8	12,1	16,7	4,6	14,1	9,1	12,6
technical work design and maintenance	1,2	0,9	0,9	3,7	4,2	0,0	6,2	4,0	5,6	6,4
maintenance, assisting	0,1	0,0	0,3	0,4	0,4	0,0	1,5	3,0	2,2	2,2
Logistics:	**1,8**	**1,7**	**1,6**	**2,2**	**2,7**	**0,7**	**0,6**	**1,3**	**2,6**	**3,2**
storing management	20,4	17,7	20,1	17,8	12,5	0,0	20,0	11,1	5,2	3,9
storing supervision	2,9	2,9	4,3	7,4	5,9	0,0	10,0	8,3	5,9	2,7
storing	2,2	0,6	2,2	3,6	3,6	0,0	0,0	0,0	2,0	6,3
purchasing management	55,5	52,6	45,1	37,7	38,4	28,6	10,0	22,2	14,4	20,4
purchasing	13,9	24,0	26,1	27,3	34,2	28,6	40,0	36,1	43,1	35,9
purchasing, assisting	0,0	0,0	1,6	2,4	1,7	42,9	10,0	5,6	7,8	11,7
dispatching	5,1	2,3	0,5	3,0	3,1	0,0	10,0	8,3	17,6	14,4
dispatching, assisting	0,0	0,0	0,0	0,9	0,6	0,0	0,0	8,3	3,9	4,8
Sales & Marketing:	**14,1**	**14,8**	**14,9**	**13,8**	**13,1**	**9,5**	**10,6**	**12,5**	**16,5**	**17,3**
sales management	26,7	24,5	26,8	25,0	22,1	3,2	3,6	5,9	7,8	9,2
sales, specialized	27,7	26,0	25,6	25,4	26,8	17,9	16,1	16,2	17,0	17,8
sales, export	19,4	18,9	16,7	14,6	12,6	10,5	13,0	14,7	20,0	10,8
sales	7,1	10,5	9,1	12,2	14,1	12,6	15,6	14,4	8,8	9,6
sales, assisting	0,5	0,6	1,0	2,0	2,2	13,7	13,5	9,4	13,8	13,8
product demonstration and customer service	0,3	0,8	0,7	1,0	1,5	7,4	4,2	4,4	5,6	9,0
sales promotion management	4,5	3,5	3,0	3,5	3,3	1,1	3,1	3,5	4,2	5,8
sales promotion	3,1	2,8	3,8	3,3	3,1	11,6	11,5	8,8	10,8	10,4
production and marketing co-operation	10,6	12,5	13,2	13,0	14,3	22,1	19,3	22,6	12,0	13,7
PR:	**2,7**	**2,5**	**2,9**	**3,0**	**2,3**	**14,3**	**10,5**	**9,3**	**7,7**	**6,6**
PR and edition management	21,2	19,1	12,4	10,9	8,9	10,5	10,5	13,0	19,2	16,8
PR, specialized edition	13,9	12,5	10,2	7,5	6,6	30,8	32,5	29,6	26,6	30,3
edition	6,7	7,0	5,9	7,0	5,2	21,7	19,9	19,0	21,4	16,8
data processing management	45,2	45,9	50,8	47,1	38,7	5,6	6,3	11,5	7,8	7,6
information specialist	10,6	14,4	16,1	18,6	21,4	28,0	27,2	23,7	20,1	17,1
operation	1,4	0,8	4,3	7,9	17,8	1,4	2,1	0,8	3,3	8,5
register maintenance	1,0	0,4	0,3	1,1	1,3	2,1	1,6	2,4	1,6	2,9
Admistration:	**5,1**	**5,0**	**5,5**	**6,9**	**4,4**	**16,8**	**18,6**	**20,6**	**31,9**	**23,4**
law and tax affairs, internal auditing	38,8	28,7	26,1	20,0	21,3	6,5	7,7	10,0	4,4	8,0
administration management	35,0	41,4	38,0	39,7	28,2	8,9	16,3	19,4	12,8	11,1
administration supervision	8,9	7,9	11,0	11,2	8,6	10,1	8,6	12,3	8,4	7,1
pay office, responsible	0,0	0,2	1,4	1,9	1,0	0,0	0,6	1,4	1,4	1,4
pay office, assisting	0,0	0,0	0,2	0,3	0,5	0,6	2,7	0,5	1,0	1,8
bookkeeping	1,5	1,4	2,1	2,9	3,7	4,8	5,6	3,0	5,8	6,5
ledger and stock accounting	0,5	0,2	0,5	0,1	0,6	0,6	0,6	0,4	1,0	2,0
pricing	6,6	7,1	5,6	6,9	12,8	3,0	3,6	3,2	2,2	2,2
accounting	4,8	8,9	12,6	14,0	19,6	6,5	10,9	9,3	7,8	12,8
reporting	1,0	1,0	0,3	0,8	1,9	0,6	0,9	0,7	0,8	1,9
executive secretary	0,3	0,2	0,2	0,0	0,0	17,3	12,7	12,6	25,2	16,0
translation, interpreting, and correspondence	1,5	2,4	1,6	1,3	0,8	28,0	18,9	17,4	15,5	9,0
department secretary	0,8	0,2	0,5	0,4	0,3	9,5	9,2	7,7	11,5	16,6
typing	0,0	0,0	0,0	0,0	0,1	1,2	0,6	0,7	0,8	0,6
caretaker	0,0	0,0	0,0	0,1	0,1	0,0	0,0	0,0	0,0	0,0
switchboard	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,4	0,6	0,7
copying and mailing	0,0	0,0	0,0	0,3	0,1	0,0	0,3	0,0	0,1	0,4
messenger	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,1
office work, small firms	0,3	0,4	0,0	0,1	0,5	2,4	0,9	1,1	0,7	1,8
HR:	**4,9**	**3,4**	**2,9**	**2,2**	**1,4**	**7,0**	**4,8**	**4,8**	**4,3**	**5,6**
HR management	39,9	39,8	38,8	34,4	28,9	25,7	27,3	27,5	26,1	30,9
training and teaching	10,6	11,2	13,8	15,7	21,6	11,4	20,5	29,0	29,6	21,8
occupational guidance	0,3	0,0	0,0	1,2	2,8	0,0	1,1	0,0	0,8	0,9
employment affairs	6,1	5,6	3,7	3,9	5,8	10,0	10,2	12,2	14,2	16,3
recruiting	2,4	1,2	0,9	1,5	2,2	4,3	4,5	6,9	5,1	3,9
responsible wages clerk	0,0	0,0	0,0	0,3	1,1	4,3	5,7	3,1	4,0	2,6
wages clerk	0,0	0,0	0,0	0,0	0,4	1,4	2,3	2,3	2,4	4,3
health care management and design	11,4	12,7	15,7	16,6	17,0	5,7	3,4	6,1	4,7	4,3
occupational medicine	27,7	27,4	24,9	23,4	15,3	18,6	10,2	4,6	4,0	2,4
occupational health care	0,3	0,6	0,6	0,3	1,5	1,4	1,1	0,8	2,4	5,0
personal services	1,3	1,5	1,5	2,7	3,4	17,1	13,6	7,6	6,7	7,7

TABLE 6A : Segregation over occupational groups and tasks within groups measured by D&D -index: inspection across educational categories

D&D -index for occupational groups

	1980	1985	1990	1995	2000
basic	58,9	58,7	54,0	51,0	50,8
lower secondary	59,5	57,3	55,0	48,5	38,0
higher secondary	64,6	64,4	60,5	55,1	47,0
first stage of tertiary	53,7	56,6	45,9	36,9	43,2
university	25,5	44,1	23,4	34,9	32,1

Basic — **D&D -index for tasks within occupation groups**

	1980	1985	1990	1995	2000
R&D	32,8	31,8	32,0	41,3	43,3
Production	28,7	26,5	24,0	34,2	35,7
Logistics	50,0	50,8	51,9	42,2	40,4
Sales & Marketing	66,6	63,5	57,0	57,3	62,9
PR	67,1	67,6	61,5	55,2	54,5
Admistration	57,9	62,3	63,0	64,4	57,8
HR	66,0	64,2	65,8	78,2	75,2

Lower secondary — **D&D -index for tasks within occupation groups**

	1980	1985	1990	1995	2000
R&D	29,5	33,8	31,9	33,4	40,5
Production	24,4	22,1	20,7	18,6	13,2
Logistics	62,8	61,1	55,3	47,9	41,6
Sales & Marketing	66,5	59,6	51,5	55,2	55,8
PR	62,2	62,1	59,0	49,2	52,6
Admistration	58,2	59,9	59,7	62,3	57,5
HR	68,5	68,7	70,6	74,3	65,8

Higher secondary — **D&D -index for tasks within occupation groups**

	1980	1985	1990	1995	2000
R&D	36,6	34,1	36,3	47,5	35,4
Production	49,0	37,9	28,8	35,7	28,1
Logistics	66,1	61,1	55,3	54,0	43,5
Sales & Marketing	62,9	60,2	53,2	50,4	48,9
PR	55,8	49,7	44,7	47,2	47,1
Admistration	70,9	68,9	66,3	62,5	56,7
HR	72,9	71,4	67,6	68,9	57,7

First stage of tertiary — **D&D -index for tasks within occupation groups**

	1980	1985	1990	1995	2000
R&D	28,4	25,0	22,9	22,9	24,0
Production	50,7	47,2	39,8	31,5	16,2
Logistics	51,5	41,0	34,2	31,5	29,5
Sales & Marketing	42,4	35,9	32,1	30,7	34,8
PR	43,4	48,3	42,5	25,1	31,1
Admistration	75,7	70,3	66,9	87,7	85,0
HR	46,1	36,0	22,5	80,0	76,8

University — **D&D -index for tasks within occupation groups**

	1980	1985	1990	1995	2000
R&D	24,8	24,7	25,6	24,3	22,8
Production	36,7	23,4	31,4	19,4	19,4
Logistics	57,6	43,1	34,1	39,0	29,8
Sales & Marketing	45,7	36,9	32,3	30,0	29,0
PR	50,3	48,2	42,9	43,8	44,8
Admistration	62,4	49,8	40,6	57,0	49,4
HR	29,3	39,0	41,2	40,1	27,6

* There is great variation in the index values across years, especially when tertiary or higher educational groups are investigated. This may be due to small number of observations in some occupation groups.

TABLE 7A: Occupational group and demand level distributions across educational fields and levels

	TECHNICAL EDUCATION							
	Lower secondary		Higher secondary		Tertiary		University	
	Male	Female	Male	Female	Male	Female	Male	Female
Business management and development	**0,2**	**0,1**	**0,2**	**0,1**	**0,4**	**0,4**	**1,2**	**1,2**
1	12,5	0,0	26,7	0,0	20,5	33,3	19,5	3,5
2	50,0	50,0	40,0	0,0	51,3	33,3	59,5	63,2
3	37,5	50,0	33,3	100,0	28,2	33,3	20,7	31,6
4	0,0	0,0	0,0	0,0	0,0	0,0	0,3	1,8
Research and product development	**15,5**	**18,2**	**13,1**	**37,1**	**16,3**	**20,3**	**44,4**	**43,5**
1	1,7	0,3	1,5	0,1	3,9	1,8	7,2	3,1
2	16,6	2,3	17,5	1,5	33,8	26,1	47,0	42,3
3	55,2	33,0	55,1	32,0	53,4	55,0	41,0	48,5
4	26,5	64,5	25,9	66,4	8,9	17,1	4,8	6,1
Quality control	**4,3**	**11,4**	**5,4**	**27,5**	**2,0**	**6,0**	**2,5**	**8,2**
1	0,0	0,0	0,8	0,0	2,2	3,0	12,1	7,0
2	4,2	2,3	4,5	2,0	22,1	25,3	50,0	43,2
3	44,0	32,9	57,1	33,3	59,1	47,5	34,4	39,3
4	51,8	64,8	37,5	64,8	16,6	24,2	3,5	10,4
Production	**25,9**	**21,4**	**34,5**	**11,6**	**26,5**	**16,3**	**17,4**	**9,4**
1	3,0	0,5	1,8	1,1	5,0	3,0	13,7	6,4
2	7,9	4,1	7,6	3,9	16,3	13,1	36,6	36,7
3	65,6	45,3	79,1	54,3	71,6	65,9	47,5	51,6
4	23,5	50,1	11,5	40,7	7,1	18,0	2,2	5,3
Construction	**8,3**	**11,6**	**5,3**	**1,3**	**24,5**	**16,1**	**7,8**	**7,7**
1	0,3	0,0	4,4	0,0	8,9	0,0	10,1	1,1
2	12,8	2,3	26,1	3,1	43,8	18,2	39,1	27,9
3	56,1	18,9	56,7	34,4	45,6	76,1	48,9	67,4
4	30,8	78,8	12,8	62,5	1,6	5,7	1,8	3,6
Shipping and storing	**6,9**	**1,7**	**4,3**	**1,9**	**1,9**	**2,4**	**1,6**	**2,2**
1	0,7	0,0	1,2	0,0	3,0	0,0	10,2	3,0
2	7,1	0,0	8,9	4,4	21,5	22,5	46,7	44,6
3	40,9	33,3	42,1	35,6	52,8	50,0	34,5	37,6
4	51,3	66,7	47,8	60,0	22,7	27,5	8,6	14,9
Data processing	**13,3**	**5,7**	**13,8**	**4,5**	**7,1**	**17,2**	**8,0**	**7,7**
1	1,0	0,0	1,6	0,0	5,4	1,1	9,2	3,9
2	12,8	5,5	14,6	13,0	26,6	18,4	41,9	36,7
3	64,2	38,5	65,9	53,7	61,0	66,3	45,0	54,1
4	22,1	56,0	17,9	33,3	7,0	14,2	3,9	5,3
Maintenance and service	**10,2**	**1,4**	**8,2**	**0,8**	**8,6**	**1,5**	**2,6**	**0,5**
1	0,3	0,0	1,7	0,0	4,7	4,2	16,2	8,3
2	4,3	0,0	7,1	10,0	16,1	25,0	38,9	37,5
3	44,9	30,8	53,2	60,0	66,7	50,0	38,6	37,5
4	50,5	69,2	38,0	30,0	12,5	20,8	6,3	16,7
Purchasing	**1,2**	**1,8**	**1,6**	**1,3**	**2,3**	**2,1**	**2,0**	**2,1**
1	2,1	0,0	4,6	0,0	7,2	5,7	15,5	5,1
2	14,6	0,0	21,6	9,7	31,1	22,9	50,3	37,4
3	64,6	68,6	54,2	45,2	55,2	57,1	29,9	47,5
4	18,8	31,4	19,6	45,2	6,5	14,3	4,3	10,1
Sales and marketing	**11,3**	**10,3**	**10,9**	**6,2**	**8,8**	**10,7**	**10,6**	**10,3**
1	3,2	0,0	3,0	2,0	9,3	4,5	14,5	5,8
2	18,0	4,0	26,5	6,8	39,3	23,3	54,2	44,2
3	50,7	29,8	49,4	35,1	44,5	44,3	27,8	40,2
4	28,1	66,2	21,1	56,1	6,9	27,8	3,4	9,8
Communication	**0,3**	**1,0**	**0,2**	**0,5**	**0,0**	**0,7**	**0,1**	**0,8**
1	0,0	0,0	5,3	0,0	55,6	18,2	29,3	22,2
2	0,0	5,3	10,5	9,1	33,3	18,2	39,0	27,8
3	90,0	36,8	63,2	18,2	11,1	18,2	29,3	44,4
4	10,0	57,9	21,1	72,7	0,0	45,5	2,4	5,6
Law, insurance and taxation	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,2**	**0,5**
1	0,0	0,0	0,0	0,0	0,0	0,0	11,5	0,0
2	0,0	0,0	0,0	0,0	60,0	0,0	61,5	56,5
3	100,0	0,0	100,0	100,0	40,0	0,0	26,9	43,5
4	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Environment	**0,2**	**0,1**	**0,2**	**0,4**	**0,2**	**0,2**	**0,3**	**2,0**
1	0,0	0,0	0,0	0,0	11,4	0,0	16,9	5,4
2	12,5	0,0	18,2	0,0	17,1	100,0	47,2	48,4
3	50,0	50,0	63,6	66,7	57,1	0,0	36,0	45,2
4	37,5	50,0	18,2	33,3	14,3	0,0	0,0	1,1
Financial admistration	**0,3**	**4,6**	**0,3**	**2,0**	**0,3**	**2,3**	**0,5**	**1,1**
1	0,0	0,0	3,8	0,0	3,2	0,0	16,5	9,6
2	9,1	1,1	15,4	6,3	27,0	13,5	56,1	61,5
3	72,7	29,5	50,0	33,3	46,0	54,1	25,2	19,2
4	18,2	69,3	30,8	60,4	23,8	32,4	2,2	9,6
Office and secretary service	**0,5**	**9,5**	**0,3**	**3,4**	**0,1**	**2,2**	**0,1**	**1,3**
1	0,0	0,0	3,4	0,0	3,3	0,0	12,2	1,6
2	0,0	0,5	6,9	0,0	36,7	8,3	36,6	24,2
3	5,0	16,4	10,3	12,0	26,7	33,3	41,5	58,1
4	95,0	83,1	79,3	88,0	33,3	58,3	9,8	16,1
Personnel management	**0,6**	**1,2**	**1,1**	**1,2**	**0,6**	**1,6**	**0,4**	**1,3**
1	0,0	0,0	11,0	0,0	13,2	3,7	23,9	6,7
2	45,5	0,0	36,0	7,1	49,3	40,7	50,4	60,0
3	27,3	39,1	32,0	42,9	31,6	44,4	25,7	33,3
4	27,3	60,9	21,0	50,0	5,9	11,1	0,0	0,0
Occupational health care and safety	**0,2**	**0,0**	**0,2**	**0,0**	**0,2**	**0,0**	**0,1**	**0,0**
1	0,0	0,0	4,5	0,0	0,0	0,0	17,1	0,0
2	12,5	0,0	31,8	0,0	48,9	0,0	51,4	50,0
3	87,5	0,0	63,6	100,0	48,9	0,0	31,4	50,0
4	0,0	0,0	0,0	0,0	2,2	0,0	0,0	0,0
Security	**0,8**	**0,1**	**0,5**	**0,2**	**0,1**	**0,1**	**0,1**	**0,2**
1	0,0	0,0	2,1	0,0	10,0	0,0	30,3	27,3
2	19,4	0,0	35,4	0,0	43,3	0,0	54,5	54,5
3	41,9	0,0	37,5	60,0	40,0	100,0	9,1	9,1
4	38,7	100,0	25,0	40,0	6,7	0,0	6,1	9,1

TABLE 7A (continued)

	BUSINESS EDUCATION					
	Lower secondary		Higher secondary		University	
	Male	Female	Male	Female	Male	Female
Business management and development	**0,0**	**0,0**	**0,3**	**0,2**	**2,5**	**1,6**
1	0,0	0,0	50,0	14,3	21,0	15,2
2	0,0	100,0	37,5	25,0	37,0	31,5
3	0,0	0,0	12,5	57,1	40,7	51,1
4	0,0	0,0	0,0	3,6	1,2	2,2
Research and product development	**4,2**	**1,2**	**4,7**	**1,9**	**14,0**	**6,0**
1	0,0	0,0	4,1	1,1	14,7	7,7
2	28,6	0,0	30,6	12,7	33,5	26,4
3	53,6	25,8	55,4	50,4	48,0	56,8
4	17,9	74,2	9,9	35,8	3,8	9,1
Quality control	**0,7**	**0,6**	**0,7**	**0,4**	**0,7**	**0,7**
1	0,0	0,0	3,1	0,0	0,0	2,4
2	20,0	0,0	28,1	14,5	26,1	29,3
3	40,0	26,7	53,1	30,6	69,6	53,7
4	40,0	73,3	15,6	54,8	4,3	14,6
Production	**9,1**	**3,4**	**5,1**	**1,9**	**1,5**	**0,9**
1	4,9	0,0	3,3	0,0	4,2	3,7
2	9,8	2,2	14,5	6,0	29,2	11,1
3	63,9	55,1	62,8	50,9	54,2	59,3
4	21,3	42,7	19,4	43,0	12,5	25,9
Construction	**1,5**	**0,6**	**0,7**	**0,3**	**0,5**	**0,2**
1	0,0	0,0	3,2	0,0	17,6	0,0
2	20,0	0,0	29,0	0,0	52,9	58,3
3	50,0	29,4	48,4	52,3	23,5	33,3
4	30,0	70,6	19,4	47,7	5,9	8,3
Shipping and storing	**18,0**	**4,7**	**10,1**	**4,9**	**3,0**	**3,6**
1	1,7	0,0	3,1	0,6	8,4	2,8
2	5,0	0,8	15,6	6,2	31,6	15,9
3	51,7	35,5	37,9	40,6	28,4	33,2
4	41,7	63,7	43,3	52,7	31,6	48,1
Data processing	**7,3**	**3,5**	**14,8**	**4,4**	**12,7**	**6,5**
1	0,0	0,0	3,5	0,8	9,1	1,0
2	2,0	4,3	24,2	15,5	37,7	30,1
3	65,3	39,1	56,0	55,4	48,0	57,9
4	32,7	56,5	16,3	28,3	5,1	11,0
Maintenance and service	**1,8**	**0,2**	**0,7**	**0,2**	**0,4**	**0,1**
1	0,0	0,0	2,9	0,0	0,0	0,0
2	25,0	0,0	5,9	8,3	30,8	25,0
3	50,0	20,0	67,6	62,5	46,2	50,0
4	25,0	80,0	23,5	29,2	23,1	25,0
Purchasing	**5,1**	**3,2**	**7,0**	**3,8**	**4,3**	**3,0**
1	0,0	0,0	6,3	0,6	11,6	2,9
2	17,6	0,0	29,1	8,3	42,8	18,9
3	64,7	39,3	50,5	49,3	41,3	53,7
4	17,6	60,7	14,1	41,8	4,3	24,6
Sales and marketing	**44,2**	**26,1**	**41,5**	**26,8**	**25,4**	**23,9**
1	3,1	0,3	6,6	0,8	17,2	4,8
2	21,7	4,5	27,9	8,9	42,1	26,0
3	45,8	22,7	41,1	34,6	30,4	38,4
4	29,5	72,5	24,5	55,7	10,3	30,8
Communication	**0,3**	**0,5**	**0,5**	**1,3**	**2,3**	**4,5**
1	0,0	0,0	26,1	3,9	25,3	9,9
2	0,0	0,0	30,4	13,4	49,3	29,0
3	100,0	35,7	34,8	54,2	24,0	48,5
4	0,0	64,3	8,7	28,5	1,3	12,6
Law, insurance and taxation	**0,0**	**0,0**	**0,1**	**0,1**	**4,0**	**2,0**
1	0,0	0,0	0,0	0,0	18,0	5,2
2	0,0	0,0	0,0	5,3	60,2	67,0
3	0,0	0,0	100,0	73,7	21,9	26,1
4	0,0	100,0	0,0	21,1	0,0	1,7
Environment	**0,0**	**0,0**	**0,0**	**0,0**	**0,2**	**0,1**
1	0,0	0,0	0,0	0,0	20,0	0,0
2	0,0	0,0	50,0	0,0	40,0	25,0
3	0,0	0,0	50,0	50,0	40,0	75,0
4	0,0	0,0	0,0	50,0	0,0	0,0
Financial admistration	**4,0**	**23,1**	**10,6**	**24,6**	**23,9**	**21,4**
1	11,1	0,3	12,5	2,1	23,9	11,3
2	29,6	4,9	31,0	10,5	48,6	40,7
3	37,0	36,4	38,7	43,9	24,7	34,6
4	22,2	58,4	17,8	43,5	2,9	13,3
Office and secretary service	**1,3**	**21,1**	**1,3**	**21,5**	**0,5**	**17,7**
1	0,0	0,0	6,7	0,1	25,0	0,7
2	0,0	1,4	11,7	2,5	18,8	9,7
3	22,2	23,8	18,3	32,3	43,8	44,8
4	77,8	74,7	63,3	65,0	12,5	44,8
Personnel management	**1,6**	**11,7**	**1,7**	**7,4**	**3,7**	**7,8**
1	9,1	0,3	13,9	0,9	32,2	10,5
2	18,2	3,2	41,8	9,8	44,9	32,9
3	27,3	52,6	27,8	53,2	20,3	44,7
4	45,5	43,9	16,5	36,2	2,5	12,0
Occupational health care and safety	**0,1**	**0,1**	**0,0**	**0,0**	**0,1**	**0,1**
1	0,0	0,0	0,0	0,0	33,3	0,0
2	100,0	0,0	0,0	0,0	0,0	57,1
3	0,0	0,0	100,0	0,0	33,3	42,9
4	0,0	100,0	0,0	100,0	33,3	0,0
Security	**0,4**	**0,1**	**0,4**	**0,1**	**0,2**	**0,0**
1	0,0	0,0	0,0	0,0	0,0	0,0
2	0,0	0,0	5,9	0,0	66,7	0,0
3	66,7	0,0	35,3	23,1	0,0	0,0
4	33,3	100,0	58,8	76,9	33,3	0,0

TABLE 8A: Occupational group and task distributions for entry-level white-collar workers

	Male				Female			
Occupational category	**1981-1985**	**1986-1990**	**1991-1995**	**1996-2000**	**1981-1985**	**1986-1990**	**1991-1995**	**1996-2000**
R & D:	**54,6**	**56,9**	**62,2**	**54,2**	**32,2**	**32,3**	**33,2**	**29,3**
management	0,9	1,0	0,8	0,5	0,9	0,8	0,8	0,9
product design, demanding	10,1	6,2	5,7	8,1	3,6	2,4	3,4	4,7
product design	28,2	30,9	36,1	34,3	11,3	13,7	21,6	20,0
element design	36,8	39,0	30,9	29,3	25,7	21,6	18,8	18,1
product design, assisting	7,5	7,6	6,0	9,2	23,3	18,5	9,4	11,9
quality control	2,3	1,3	2,2	1,8	2,7	4,0	3,7	4,7
quality control, assisting	1,5	1,6	4,4	4,5	10,4	12,6	13,8	12,7
research and design	3,3	2,8	2,2	2,2	3,4	2,6	3,3	2,6
research and settlement	6,7	6,7	8,9	7,3	9,7	13,8	15,2	13,6
research and settlement, assisting	2,7	2,7	2,8	2,9	9,1	10,1	9,8	10,7
Production:	**18,1**	**15,9**	**13,7**	**19,6**	**4,5**	**4,5**	**5,5**	**5,7**
production management	5,7	4,6	4,1	2,6	5,0	1,5	2,5	1,6
operation management	9,8	9,6	12,0	6,5	6,3	6,3	7,5	4,6
operation supervision	10,9	12,2	9,1	9,7	4,4	3,4	4,3	5,0
indirect supervision	4,7	5,0	3,8	3,5	3,8	4,9	3,1	1,8
direct supervision	20,6	21,3	20,4	26,1	28,1	51,0	32,3	19,5
supervision, assisting	8,5	6,6	5,6	5,3	8,1	7,3	14,3	8,3
design management	4,4	4,0	4,1	2,6	3,1	1,5	3,1	4,6
material and capacity design	9,3	5,8	5,9	6,1	7,5	6,3	8,7	21,3
industrial engineering design and maintenance, demanding	13,4	13,9	19,4	18,4	11,3	2,9	8,1	12,5
technical work design and maintenance	7,8	12,6	12,2	15,6	10,0	7,8	10,6	14,3
maintenance, assisting	4,9	4,4	3,2	3,5	12,5	7,3	5,6	6,6
Logistics:	**2,7**	**2,8**	**2,8**	**3,2**	**1,9**	**2,2**	**3,2**	**4,4**
storing management	8,3	7,2	6,4	3,7	3,0	0,0	2,2	1,3
storing supervision	20,7	18,8	11,0	12,7	3,0	9,8	3,3	2,8
storing	32,8	36,1	37,6	31,1	14,9	26,5	26,1	15,6
purchasing management	7,9	3,2	4,0	5,7	1,5	3,9	2,2	1,5
purchasing	24,1	25,3	26,0	30,9	22,4	16,7	20,7	25,4
purchasing, assisting	3,7	4,7	6,9	7,2	38,8	22,5	21,7	25,6
dispatching	2,1	2,2	5,2	5,7	3,0	10,8	14,1	12,8
dispatching, assisting	0,4	2,5	2,9	3,1	13,4	9,8	9,8	14,9
Sales & Marketing:	**16,2**	**15,5**	**12,2**	**12,8**	**10,3**	**12,7**	**15,8**	**22,5**
sales management	5,2	4,7	5,0	4,2	1,4	1,5	1,3	2,1
sales, specialized	19,7	16,1	16,7	11,6	5,8	7,7	5,4	5,2
sales, export	10,9	9,4	12,7	7,3	8,0	6,0	12,6	4,6
sales	43,0	42,2	36,8	31,7	18,1	19,1	20,8	12,0
sales, assisting	4,5	6,8	9,1	11,5	28,8	30,3	26,2	22,6
product demonstration and customer service	4,2	6,0	4,8	15,4	20,9	16,4	17,4	38,6
sales promotion management	0,5	1,4	2,1	1,2	0,5	1,7	1,7	0,7
sales promotion	4,0	4,9	5,2	7,1	8,8	8,7	7,4	6,8
production and marketing co-operation	8,1	8,6	7,5	10,1	7,7	8,7	7,2	7,4
PR:	**1,6**	**2,0**	**2,3**	**4,7**	**4,0**	**5,0**	**4,0**	**4,3**
PR and edition management	2,8	1,5	0,7	0,0	1,4	1,7	1,7	1,6
PR, specialized edition	9,9	6,6	6,5	4,1	11,9	15,6	27,6	22,8
edition	5,7	4,5	4,3	3,5	13,3	8,7	15,5	15,7
data processing management	22,0	18,2	12,9	6,9	2,1	4,3	0,0	2,1
information specialist	17,0	16,2	23,7	16,7	9,8	10,0	15,5	12,6
operation	27,7	40,4	38,1	63,3	9,1	14,3	7,8	26,4
register maintenance	14,9	12,6	13,7	5,5	52,4	45,5	31,9	18,8
Admistration:	**6,2**	**6,2**	**6,0**	**4,9**	**42,7**	**39,8**	**35,1**	**29,4**
law and tax affairs, internal auditing	11,3	9,4	9,8	13,7	1,2	1,5	2,4	2,7
administration management	14,4	9,9	9,6	5,6	2,4	1,9	1,9	1,1
administration supervision	13,5	11,5	9,3	6,7	2,5	2,2	2,4	1,5
pay office, responsible	0,7	1,8	3,6	1,2	0,9	0,7	2,1	0,8
pay office, assisting	2,9	1,6	1,9	4,0	6,0	6,3	4,7	5,4
bookkeeping	3,4	5,6	6,0	7,6	3,0	4,4	5,3	5,4
ledger and stock accounting	2,5	3,4	3,3	4,4	5,1	5,1	6,2	7,0
pricing	7,4	4,6	5,7	4,5	0,9	0,9	0,9	0,7
accounting	22,4	25,1	26,2	24,5	3,0	5,4	5,9	7,7
reporting	3,4	4,1	5,2	5,1	4,5	4,1	3,5	2,6
executive secretary	0,0	0,3	0,0	0,1	5,2	4,1	3,6	4,3
translation, interpreting, and correspondence	2,7	0,8	1,6	1,6	8,1	3,9	4,2	3,2
department secretary	0,4	0,8	1,1	3,3	9,4	12,3	16,5	30,1
typing	0,0	1,0	0,3	0,5	5,6	6,4	2,5	2,9
caretaker	2,0	2,1	0,3	0,3	0,4	0,4	0,5	0,5
switchboard	0,2	0,7	0,0	0,9	10,1	8,2	7,7	6,2
copying and mailing	1,6	1,1	1,9	3,5	5,2	6,0	4,6	4,3
messenger	10,1	13,6	12,8	9,1	13,4	16,2	13,7	7,7
office work, small firms	1,3	2,5	1,4	3,3	13,2	9,8	11,5	5,9
HR:	**0,7**	**0,6**	**0,8**	**0,6**	**4,3**	**3,6**	**3,3**	**4,3**
HR management	13,8	10,2	8,5	4,3	4,6	2,4	2,1	5,9
training and teaching	36,9	50,8	55,3	52,1	5,9	16,5	23,2	19,8
occupational guidance	3,1	5,1	4,3	9,6	2,0	3,0	0,0	1,6
employment affairs	7,7	5,1	4,3	2,1	4,6	2,4	6,3	13,1
recruiting	6,2	3,4	2,1	4,3	2,6	12,2	6,3	5,9
responsible wages clerk	0,0	0,0	4,3	2,1	5,9	3,7	4,2	2,4
wages clerk	6,2	5,1	4,3	3,2	34,6	23,8	20,0	21,7
health care management and design	9,2	10,2	6,4	10,6	0,0	0,0	1,1	3,7
occupational medicine	12,3	0,0	4,3	1,1	1,3	1,2	0,0	0,3
occupational health care	4,6	0,0	2,1	2,1	14,4	13,4	11,6	8,0
personal services	0,0	10,2	4,3	8,5	24,2	21,3	25,3	17,6

TABLE 9A: Segregation of entry-level white-collar workers over occupation groups and tasks within groups measured by D&D -index

D&D -index for occupation groups			
1981-1985	**1986-1990**	**1991-1995**	**1996-2000**
42,6	39,5	37,2	39,1

	D & D -index for tasks within occupation groups			
	1981-1985	**1986-1990**	**1991-1995**	**1996-2000**
R&D	34,5	39,0	28,8	28,7
Production	17,4	33,7	25,7	23,3
Logistics	49,0	34,4	30,6	37,4
Sales & Marketing	45,9	38,2	31,8	34,4
PR	47,1	46,2	51,5	45,8
Admistration	61,1	52,4	51,1	47,8
HR	68,3	57,0	52,5	48,0

TABLE 10A: Occupational group and task distributions across educational groups for entry-level white-collar workers

	SECONDARY OR LOWER							
	Male				Female			
Occupational category	**1981-1985**	**1986-1990**	**1991-1995**	**1996-2000**	**1981-1985**	**1986-1990**	**1991-1995**	**1996-2000**
R & D:	**31,6**	**38,3**	**52,6**	**52,4**	**24,2**	**25,6**	**24,8**	**25,9**
management	0,2	0,9	0,8	0,3	0,2	0,4	0,7	0,4
product design, demanding	6,7	4,3	5,2	7,8	2,4	1,5	2,1	4,3
product design	16,0	21,0	27,5	33,6	3,7	7,5	14,0	18,0
element design	30,3	31,1	30,8	27,4	12,3	11,2	13,8	14,6
product design, assisting	23,2	20,1	10,0	11,2	42,2	30,9	15,2	14,4
quality control	1,6	1,2	1,6	1,6	1,3	1,6	2,1	4,5
quality control, assisting	6,8	5,5	7,1	5,1	19,7	23,0	26,4	17,3
research and design	1,2	1,8	1,4	1,7	0,9	0,5	1,4	1,7
research and settlement	4,3	5,7	9,6	7,3	2,9	6,6	8,9	11,4
research and settlement, assisting	9,7	8,4	6,0	4,1	14,4	16,9	15,4	13,5
Production:	**25,6**	**21,5**	**14,2**	**18,7**	**3,7**	**3,4**	**4,8**	**4,8**
production management	3,4	3,2	3,7	2,0	3,6	1,0	1,2	1,0
operation management	3,9	4,8	11,0	5,8	1,2	2,9	3,6	4,5
operation supervision	5,0	5,0	6,7	9,1	0,0	2,0	2,4	5,5
indirect supervision	3,3	3,7	3,7	3,3	4,8	6,9	2,4	1,7
direct supervision	35,9	33,1	25,7	24,4	34,9	42,2	37,3	19,5
supervision, assisting	16,7	12,0	9,3	6,0	13,3	13,7	25,3	9,6
design management	1,8	2,9	2,0	1,5	1,2	1,0	2,4	5,1
material and capacity design	5,2	1,9	2,3	6,0	6,0	2,0	3,6	17,1
industrial engineering design and maintenance, demanding	5,9	7,2	14,7	18,7	4,8	2,0	2,4	9,6
technical work design and maintenance	8,9	18,3	14,3	18,0	8,4	13,7	12,0	16,4
maintenance, assisting	10,1	7,9	6,7	5,0	21,7	12,7	7,2	9,9
Logistics:	**5,3**	**4,2**	**4,8**	**3,5**	**1,9**	**2,5**	**3,4**	**4,9**
storing management	5,0	2,1	4,0	2,1	0,0	0,0	0,0	0,7
storing supervision	20,0	23,1	12,9	13,0	2,4	8,2	1,7	2,7
storing	52,9	44,1	52,5	38,6	21,4	27,4	37,9	17,4
purchasing management	2,1	2,1	1,0	4,7	2,4	1,4	0,0	1,3
purchasing	12,9	15,4	14,9	25,1	7,1	8,2	6,9	20,4
purchasing, assisting	5,0	6,3	4,0	6,5	45,2	28,8	24,1	26,8
dispatching	1,4	2,1	8,9	6,2	2,4	15,1	13,8	13,4
dispatching, assisting	0,7	4,9	2,0	3,8	19,0	11,0	15,5	17,4
Sales & Marketing:	**24,9**	**22,8**	**16,8**	**14,1**	**10,2**	**12,7**	**16,3**	**24,2**
sales management	4,7	4,2	4,5	3,4	0,0	1,1	0,7	1,6
sales, specialized	9,6	10,8	11,8	8,9	2,2	4,2	4,6	3,2
sales, export	5,2	3,6	7,6	5,8	3,0	2,4	10,4	3,7
sales	59,2	52,7	46,6	32,6	17,8	20,2	20,4	11,6
sales, assisting	6,4	8,7	11,0	12,5	35,2	37,1	31,4	24,0
product demonstration and customer service	7,0	8,9	7,9	19,4	30,9	21,5	21,1	45,0
sales promotion management	0,5	0,3	1,7	1,2	0,4	1,1	1,1	0,2
sales promotion	4,3	5,1	4,5	7,6	7,8	9,0	5,0	5,3
production and marketing co-operation	3,2	5,7	4,5	8,6	2,6	3,4	5,4	5,3
PR:	**2,8**	**3,8**	**3,2**	**5,6**	**4,3**	**4,5**	**3,5**	**4,1**
PR and edition management	0,0	0,8	0,0	0,0	1,0	1,5	1,6	1,6
PR, specialized edition	9,6	1,6	7,5	4,1	5,2	12,9	23,0	19,2
edition	2,7	4,7	6,0	3,5	10,3	8,3	11,5	16,4
data processing management	8,2	15,0	7,5	5,7	0,0	3,8	0,0	1,2
information specialist	15,1	15,7	14,9	16,2	4,1	8,3	9,8	10,0
operation	39,7	45,7	41,8	64,8	8,2	19,7	4,9	27,6
register maintenance	24,7	16,5	22,4	5,7	71,1	45,5	49,2	24,0
Admistration:	**9,1**	**8,7**	**7,5**	**5,1**	**50,5**	**47,2**	**44,2**	**32,6**
law and tax affairs, internal auditing	3,3	3,4	4,4	7,5	0,1	0,4	0,4	1,0
administration management	7,5	3,1	5,7	4,7	0,3	0,6	0,8	0,8
administration supervision	12,5	7,8	4,4	5,5	0,4	0,9	1,6	1,1
pay office, responsible	1,3	0,7	2,5	0,8	0,8	0,6	1,7	0,7
pay office, assisting	6,3	3,1	3,1	5,5	6,5	7,1	5,4	6,3
bookkeeping	3,8	7,5	8,2	7,5	2,6	4,1	4,5	5,0
ledger and stock accounting	5,0	6,1	4,4	5,3	6,1	6,1	7,0	8,0
pricing	4,2	3,1	3,8	3,7	0,6	0,5	0,4	0,4
accounting	15,4	17,7	20,8	23,1	1,1	3,1	3,7	6,1
reporting	6,3	6,5	5,0	4,9	5,2	4,1	3,8	2,3
executive secretary	0,0	0,3	0,0	0,2	3,4	3,5	2,6	3,6
translation, interpreting, and correspondence	2,1	1,0	1,3	2,2	3,4	2,5	2,9	2,5
department secretary	0,4	0,7	1,9	3,9	10,0	12,8	17,0	29,0
typing	0,0	1,4	0,6	0,8	6,7	5,9	2,6	3,4
caretaker	4,2	3,7	0,0	0,4	0,4	0,5	0,7	0,7
switchboard	0,4	1,4	0,0	1,4	12,4	9,4	9,1	7,4
copying and mailing	3,8	2,0	4,4	5,1	6,3	6,9	5,8	5,3
messenger	20,8	26,5	27,0	13,4	16,9	19,6	17,5	10,0
office work, small firms	2,9	4,1	2,5	4,3	16,9	11,3	12,7	6,6
HR:	**0,6**	**0,7**	**0,9**	**0,6**	**5,2**	**4,1**	**3,0**	**3,4**
HR management	0,0	4,0	10,5	1,9	0,9	0,8	0,0	3,9
training and teaching	25,0	40,0	42,1	51,9	4,3	10,8	13,5	18,9
occupational guidance	0,0	8,0	10,5	13,0	2,6	3,3	0,0	1,9
employment affairs	6,3	4,0	5,3	0,0	0,0	0,8	3,8	9,7
recruiting	12,5	0,0	0,0	0,0	0,9	9,2	5,8	5,8
responsible wages clerk	0,0	0,0	5,3	3,7	6,8	5,0	3,8	2,9
wages clerk	18,8	12,0	5,3	5,6	41,9	27,5	32,7	31,6
health care management and design	18,8	12,0	5,3	11,1	0,0	0,0	0,0	2,4
occupational medicine	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,5
occupational health care	18,8	0,0	5,3	0,0	17,1	16,7	11,5	1,9
personal services	0,0	20,0	10,5	13,0	25,6	25,8	28,8	20,4

TABLE 10A (continued)

	FIRST STAGE OF TERTIARY							
	Male				Female			
Occupational category	**1981-1985**	**1986-1990**	**1991-1995**	**1996-2000**	**1981-1985**	**1986-1990**	**1991-1995**	**1996-2000**
R & D:	**63,0**	**70,1**	**66,5**	**50,7**	**42,2**	**52,9**	**45,6**	**34,8**
management	0,2	0,4	0,4	0,1	0,0	0,7	0,0	0,6
product design, demanding	8,7	5,3	4,3	6,9	5,0	1,7	4,8	3,9
product design	28,4	34,4	43,0	39,1	17,4	21,3	30,6	27,5
element design	49,1	49,7	37,9	33,8	53,7	45,0	31,5	23,6
product design, assisting	5,6	4,2	5,1	7,0	5,8	7,9	5,6	7,9
quality control	2,3	0,9	1,3	1,5	3,1	5,8	4,0	5,6
quality control, assisting	0,5	0,4	3,7	6,4	1,5	2,7	6,5	11,8
research and design	1,3	1,4	0,9	1,2	1,9	1,7	1,6	0,6
research and settlement	2,9	2,8	2,1	3,4	5,8	9,6	8,1	10,7
research and settlement, assisting	1,1	0,5	1,3	0,7	5,8	3,4	7,3	7,9
Production:	**16,6**	**13,7**	**17,8**	**32,3**	**7,2**	**3,8**	**9,6**	**11,5**
production management	6,7	5,0	2,3	2,1	2,3	0,0	7,7	1,7
operation management	11,2	12,4	11,0	4,0	2,3	9,5	3,8	0,0
operation supervision	15,5	18,0	7,3	8,7	6,8	9,5	7,7	5,1
indirect supervision	7,3	8,0	5,0	4,2	0,0	4,8	0,0	1,7
direct supervision	11,6	7,6	22,0	38,9	31,8	38,1	34,6	32,2
supervision, assisting	3,3	1,7	6,4	6,4	4,5	0,0	3,8	18,6
design management	5,1	4,4	2,8	2,7	6,8	0,0	3,8	3,4
material and capacity design	9,6	8,5	5,5	2,5	9,1	28,6	3,8	8,5
industrial engineering design and maintenance, demanding	19,8	23,9	22,5	14,3	22,7	4,8	15,4	15,3
technical work design and maintenance	8,5	9,1	13,3	14,1	13,6	4,8	15,4	10,2
maintenance, assisting	1,4	1,5	1,8	2,1	0,0	0,0	3,8	3,4
Logistics:	**1,8**	**1,7**	**1,7**	**3,2**	**2,4**	**2,2**	**2,6**	**2,1**
storing management	11,9	20,6	0,0	2,1	0,0	0,0	0,0	9,1
storing supervision	25,4	16,2	14,3	6,3	6,7	0,0	0,0	9,1
storing	1,5	4,4	19,0	27,1	0,0	8,3	28,6	27,3
purchasing management	14,9	2,9	9,5	6,3	0,0	16,7	0,0	0,0
purchasing	41,8	52,9	42,9	45,8	53,3	66,7	14,3	18,2
purchasing, assisting	1,5	0,0	4,8	8,3	33,3	8,3	28,6	18,2
dispatching	3,0	2,9	0,0	4,2	0,0	0,0	28,6	18,2
dispatching, assisting	0,0	0,0	9,5	0,0	6,7	0,0	0,0	0,0
Sales & Marketing:	**13,1**	**10,3**	**8,5**	**7,6**	**9,9**	**11,1**	**14,7**	**22,5**
sales management	4,6	5,0	5,8	2,7	6,6	3,3	5,0	3,5
sales, specialized	29,1	22,5	21,2	16,8	13,1	18,0	2,5	13,0
sales, export	15,4	14,6	14,4	8,0	18,0	8,2	10,0	3,5
sales	32,5	36,1	35,6	39,8	27,9	18,0	27,5	13,0
sales, assisting	3,0	4,5	8,7	12,4	19,7	13,1	17,5	18,3
product demonstration and customer service	1,2	3,0	1,0	10,6	0,0	1,6	27,5	38,3
sales promotion management	0,4	1,7	0,0	0,0	0,0	3,3	0,0	0,9
sales promotion	2,0	4,0	5,8	2,7	8,2	11,5	2,5	4,3
production and marketing co-operation	11,7	8,7	7,7	7,1	6,6	23,0	7,5	5,2
PR:	**0,8**	**0,5**	**2,0**	**4,7**	**3,4**	**3,8**	**2,6**	**5,5**
PR and edition management	3,3	0,0	0,0	0,0	4,8	4,8	0,0	0,0
PR, specialized edition	13,3	14,3	4,2	0,0	33,3	33,3	14,3	3,6
edition	6,7	4,8	0,0	0,0	14,3	14,3	0,0	0,0
data processing management	50,0	14,3	16,7	8,6	9,5	14,3	0,0	7,1
information specialist	13,3	23,8	33,3	11,4	23,8	9,5	57,1	25,0
operation	6,7	38,1	45,8	80,0	4,8	9,5	14,3	46,4
register maintenance	6,7	4,8	0,0	0,0	9,5	14,3	14,3	17,9
Admistration:	**4,2**	**3,1**	**2,9**	**0,8**	**33,6**	**24,5**	**20,6**	**16,4**
law and tax affairs, internal auditing	6,9	5,7	0,0	8,3	0,5	2,2	0,0	0,0
administration management	13,8	13,1	22,2	0,0	9,2	8,9	3,6	0,0
administration supervision	17,6	21,3	13,9	8,3	9,2	7,4	3,6	0,0
pay office, responsible	0,6	0,8	2,8	0,0	1,5	1,5	5,4	1,2
pay office, assisting	0,6	0,0	0,0	0,0	1,0	1,5	1,8	1,2
bookkeeping	4,4	4,9	2,8	8,3	3,9	10,4	5,4	1,2
ledger and stock accounting	0,6	1,6	0,0	0,0	1,0	1,5	8,9	2,4
pricing	12,6	10,7	8,3	25,0	1,9	6,7	3,6	1,2
accounting	35,8	36,1	36,1	25,0	9,2	23,7	10,7	2,4
reporting	1,9	2,5	13,9	0,0	1,5	1,5	5,4	7,1
executive secretary	0,0	0,0	0,0	0,0	15,5	6,7	10,7	9,5
translation, interpreting, and correspondence	5,0	0,8	0,0	0,0	33,0	12,6	10,7	2,4
department secretary	0,0	0,8	0,0	0,0	10,7	11,1	25,0	52,4
typing	0,0	0,0	0,0	0,0	1,0	1,5	1,8	2,4
caretaker	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
switchboard	0,0	0,0	0,0	0,0	0,0	0,7	0,0	8,3
copying and mailing	0,0	0,0	0,0	8,3	0,0	0,0	0,0	2,4
messenger	0,0	0,0	0,0	8,3	0,0	0,0	0,0	2,4
office work, small firms	0,0	1,6	0,0	8,3	1,0	2,2	3,6	3,6
HR:	**0,5**	**0,5**	**0,7**	**0,7**	**1,3**	**1,6**	**4,4**	**7,2**
HR management	20,0	10,0	0,0	0,0	12,5	11,1	8,3	0,0
training and teaching	50,0	75,0	87,5	72,7	25,0	66,7	25,0	5,4
occupational guidance	10,0	5,0	0,0	9,1	0,0	11,1	0,0	2,7
employment affairs	15,0	5,0	0,0	0,0	37,5	11,1	0,0	2,7
recruiting	0,0	0,0	0,0	0,0	0,0	0,0	0,0	2,7
responsible wages clerk	0,0	0,0	0,0	0,0	0,0	0,0	0,0	2,7
wages clerk	0,0	0,0	12,5	0,0	12,5	0,0	0,0	13,5
health care management and design	5,0	5,0	0,0	0,0	0,0	0,0	0,0	0,0
occupational medicine	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
occupational health care	0,0	0,0	0,0	18,2	0,0	0,0	41,7	56,8
personal services	0,0	0,0	0,0	0,0	12,5	0,0	25,0	13,5

TABLE 10A (continued)

	UNIVERSITY							
	Male				Female			
Occupational category	**1981-1985**	**1986-1990**	**1991-1995**	**1996-2000**	**1981-1985**	**1986-1990**	**1991-1995**	**1996-2000**
R & D:	**68,3**	**67,6**	**69,4**	**59,9**	**58,8**	**55,5**	**50,7**	**37,1**
management	2,2	2,4	1,1	1,0	2,9	1,8	1,3	1,7
product design, demanding	13,9	10,2	6,7	9,1	4,2	4,4	4,3	5,8
product design	34,2	33,6	38,2	34,2	18,9	20,6	27,2	22,3
element design	22,8	25,0	27,9	31,7	27,7	22,9	19,9	23,7
product design, assisting	1,5	2,3	3,4	5,7	2,6	0,8	3,3	8,1
quality control	2,7	2,0	2,9	2,4	4,9	7,3	5,5	5,1
quality control, assisting	0,2	0,2	3,2	2,7	1,0	0,3	2,8	4,2
research and design	7,3	6,8	3,4	3,5	9,4	6,5	6,0	4,7
research and settlement	13,6	15,7	11,7	8,7	25,4	32,8	24,7	18,4
research and settlement, assisting	1,6	1,8	1,4	0,9	2,9	2,6	5,0	6,0
Production:	**11,6**	**9,2**	**11,0**	**17,0**	**5,6**	**3,6**	**5,5**	**6,8**
production management	9,3	9,5	6,3	4,5	13,8	8,0	2,3	2,6
operation management	22,2	21,7	15,0	10,3	27,6	28,0	18,6	6,6
operation supervision	16,8	24,3	13,3	11,7	13,8	12,0	7,0	3,9
indirect supervision	3,2	1,6	2,8	3,5	6,9	0,0	4,7	2,0
direct supervision	1,4	1,1	11,2	21,7	3,4	0,0	11,6	14,5
supervision, assisting	0,4	0,0	1,0	2,5	0,0	4,0	2,3	2,0
design management	9,0	8,5	7,3	5,4	3,4	8,0	4,7	3,9
material and capacity design	17,2	15,3	9,4	9,0	10,3	20,0	23,3	34,2
industrial engineering design and maintenance, demanding	17,2	13,2	23,8	20,4	13,8	8,0	16,3	17,1
technical work design and maintenance	3,2	4,8	9,4	10,4	3,4	4,0	4,7	11,8
maintenance, assisting	0,0	0,0	0,3	0,6	3,4	8,0	4,7	1,3
Logistics:	**0,9**	**0,8**	**1,5**	**2,5**	**1,1**	**1,3**	**3,3**	**3,6**
storing management	23,8	11,8	12,8	9,8	33,3	0,0	7,7	2,5
storing supervision	4,8	17,6	5,1	14,7	0,0	44,4	3,8	2,5
storing	0,0	0,0	5,1	7,8	0,0	11,1	0,0	7,5
purchasing management	28,6	23,5	10,3	8,8	0,0	11,1	7,7	2,5
purchasing	38,1	47,1	51,3	43,1	50,0	33,3	53,8	45,0
purchasing, assisting	0,0	0,0	12,8	8,8	16,7	0,0	15,4	22,5
dispatching	4,8	0,0	0,0	4,9	0,0	0,0	11,5	10,0
dispatching, assisting	0,0	0,0	2,6	2,0	0,0	0,0	0,0	7,5
Sales & Marketing:	**10,9**	**12,0**	**9,8**	**11,5**	**11,9**	**14,2**	**14,8**	**18,0**
sales management	6,5	7,3	5,5	6,6	1,6	3,1	1,7	3,5
sales, specialized	26,4	24,7	22,1	18,2	11,3	15,3	7,8	9,9
sales, export	18,8	20,2	19,8	11,6	16,1	16,3	19,8	8,2
sales	22,2	15,0	22,1	27,4	11,3	11,2	16,4	13,2
sales, assisting	2,3	3,2	7,9	8,1	12,9	15,3	17,2	18,9
product demonstration and customer service	1,5	0,0	1,2	4,9	1,6	3,1	4,3	15,6
sales promotion management	1,1	4,0	4,0	1,5	1,6	2,0	3,4	2,2
sales promotion	7,3	8,1	5,5	6,6	14,5	10,2	16,4	12,7
production and marketing co-operation	13,8	17,4	11,9	15,0	29,0	23,5	12,9	15,9
PR:	**1,1**	**1,7**	**1,6**	**2,4**	**2,7**	**4,8**	**4,7**	**4,7**
PR and edition management	11,1	5,9	2,4	0,0	0,0	3,0	2,7	1,9
PR, specialized edition	7,4	23,5	4,9	7,1	21,4	33,3	37,8	36,5
edition	11,1	5,9	2,4	6,1	14,3	18,2	24,3	18,3
data processing management	29,6	38,2	22,0	12,2	0,0	3,0	0,0	2,9
information specialist	33,3	17,6	36,6	23,5	35,7	30,3	21,6	15,4
operation	7,4	8,8	24,4	42,9	21,4	6,1	8,1	18,3
register maintenance	0,0	0,0	7,3	8,2	7,1	6,1	5,4	6,7
Admistration:	**6,1**	**8,1**	**5,9**	**6,0**	**16,3**	**17,8**	**18,1**	**24,0**
law and tax affairs, internal auditing	29,5	23,5	18,3	26,5	18,8	16,3	14,1	9,5
administration management	27,4	19,9	11,8	7,8	16,5	10,6	7,7	2,6
administration supervision	11,6	10,8	13,1	9,0	14,1	13,0	7,7	3,5
pay office, responsible	0,0	4,8	3,9	2,0	1,2	1,6	3,5	1,1
pay office, assisting	0,0	0,6	0,7	1,2	4,7	0,0	1,4	2,8
bookkeeping	2,1	2,4	4,6	7,8	3,5	4,1	11,3	7,3
ledger and stock accounting	0,7	0,0	3,3	2,9	0,0	0,8	0,7	3,9
pricing	7,5	3,0	7,2	5,3	1,2	0,8	2,8	1,9
accounting	19,9	31,3	32,0	27,3	11,8	17,1	17,6	14,4
reporting	0,0	1,8	2,6	5,7	2,4	1,6	1,4	2,8
executive secretary	0,0	0,0	0,0	0,0	7,1	10,6	6,3	6,0
translation, interpreting, and correspondence	1,4	0,6	2,6	0,4	16,5	12,2	9,2	5,8
department secretary	0,0	1,2	0,0	2,4	2,4	11,4	13,4	30,6
typing	0,0	0,0	0,0	0,0	0,0	0,0	1,4	1,5
caretaker	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
switchboard	0,0	0,0	0,0	0,0	0,0	0,0	0,0	1,5
copying and mailing	0,0	0,0	0,0	0,0	0,0	0,0	0,7	0,9
messenger	0,0	0,0	0,0	0,4	0,0	0,0	0,0	0,2
office work, small firms	0,0	0,0	0,0	1,2	0,0	0,0	0,7	3,7
HR:	**1,1**	**0,6**	**0,7**	**0,7**	**3,6**	**2,9**	**2,8**	**5,9**
HR management	18,5	25,0	10,5	10,3	26,3	10,0	4,5	10,7
training and teaching	33,3	41,7	52,6	44,8	10,5	35,0	36,4	25,2
occupational guidance	0,0	0,0	0,0	3,4	0,0	0,0	0,0	0,8
employment affairs	3,7	8,3	5,3	6,9	21,1	10,0	18,2	21,4
recruiting	7,4	8,3	5,3	13,8	5,3	30,0	13,6	6,9
responsible wages clerk	0,0	0,0	5,3	0,0	5,3	0,0	9,1	1,5
wages clerk	0,0	0,0	0,0	0,0	0,0	0,0	0,0	8,4
health care management and design	7,4	16,7	10,5	13,8	0,0	0,0	4,5	6,9
occupational medicine	29,6	0,0	10,5	3,4	10,5	10,0	0,0	0,0
occupational health care	0,0	0,0	0,0	0,0	0,0	0,0	0,0	3,8

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