

# Gender-based occupational segregation in the 1990's

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Working Paper

**Working Paper**

**Gender-based occupational segregation in the 1990s**

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## Foreword

In June 1998 the International Labour Conference adopted the ILO Declaration on Fundamental Principles and Rights at Work and its Follow-up. The Declaration obligates all member States of the International Labour Organization to respect, promote and realize freedom of association and effective recognition of the right to collective bargaining, the elimination of all forms of forced or compulsory labour, the effective abolition of child labour, and the elimination of discrimination in respect of employment and occupation<sup>1</sup>. The InFocus Programme on Promoting the Declaration is responsible for the reporting processes and technical cooperation activities associated with the Declaration Follow-up; and it carries out awareness-raising, advocacy and knowledge functions – of which this Working Paper is an example. Working Papers are intended to stimulate discussion of the issues covered by the Declaration. They express the views of the authors, which are not necessarily those of the ILO.

The importance of occupational sex segregation as a form of discrimination is recognised in ILO Convention on [Discrimination \(Employment and Occupation\), 1958 \(No. 111\)](#). It is one of the most insidious aspects of gender inequality in the labour market, since it is generally accompanied by lower pay and worse working conditions in female occupations. It is also one of the most enduring aspects of labour markets around the world.

First, the paper discusses the types, causes and impact of occupational segregation by sex. It then looks at current levels of both horizontal and vertical segregation around the world and at the changes that occurred in the 1990s (in terms of female participation in the labour force, index of dissimilarity, gender-dominated occupations, and new and emerging occupation of computer programmer, and largest female and male dominated occupations). The analysis of trends in occupational segregation is primarily based on a sample of fifteen countries from the ILO SEGREGAT database (see Annex). Finally, the paper turns to policies to reduce occupational segregation (covering both measures before entering the labour market and while at work), using as an illustrative example a Nordic project to combat occupational sex segregation.

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<sup>1</sup> For the text of the Declaration, please visit our website at: <http://www.ilo.org/public/english/standards/decl/declaration/text/index.htm>.

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## 1. Introduction

This paper<sup>3</sup> is concerned with occupational sex segregation – the separation of men and women into different occupations. As shown in earlier work (Anker, 1998), this is one of the most pernicious aspects of inequality in the labour market, since it is generally accompanied by lower pay and worse working conditions in female occupations. It is also one of the most enduring aspects of labour markets around the world. It exists at all levels of development, under all political systems, and in diverse religious, social and cultural settings. The seriousness of occupational sex segregation as a form of discrimination is recognised in ILO Convention No. 111, and the elimination of discrimination is a fundamental right at work under ILO's Declaration on Fundamental Principles and Rights at Work.

This paper begins by discussing the types, causes and impact of occupational segregation by sex in Section 2. It then looks at recent evidence. Section 3 reports on current levels around the world using the index of dissimilarity to measure horizontal segregation and the percent female among managers and administrators to measure vertical segregation. Section 4 focuses on how occupational segregation has changed in the 1990s (in terms of female participation in the labour force, index of dissimilarity, gender-dominated occupations, new and emerging occupation of computer programmer, and largest female and male dominated occupations). It is important to note that the empirical evidence presented in Sections 3 and 4 is preliminary, as it is based mainly on an ILO database that is in the process of being updated and cleaned. For this reason, the number of countries with data included in this paper (15) is necessarily limited. This being said, these preliminary results provide valuable insights, since fifteen countries is not small for most cross-national analyses of this type. Section 5 discusses policies for decreasing segregation and includes an illustrative example of a Nordic project intended to reduce segregation. Section 6 provides conclusions and a description of five general types of measures to help increase equality of opportunity in employment.

## 2. Occupational gender-based segregation: Types, causes and impact

The general root causes of occupational sex segregation are social, economic, cultural and historical. They determine both the extent and patterns of occupational segregation around the world. These factors concern:

- Social norms and stereotypical perceptions regarding men and women, family life, family responsibilities, and work life
- Education and vocational training
- Taxation and social security
- Structure of the labour market
- Discrimination at entry and in work

<sup>3</sup> This paper is based partly on two forthcoming publications by Richard Anker and Helinä Melkas.

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These factors constitute direct or indirect obstacles for women (and sometimes men). Socio-cultural norms constrain women in numerous ways. For instance, the traditional role of women as good wives and mothers still precludes many married women from remaining in the labour market. Parents' attitudes in favour of sex-differentiated socialization are another example of stereotypical perceptions regarding the sexes. "Men should go out to work and women should take care of the home" type of thinking often leads to fewer educational opportunities for daughters and stereotypical choices of the field of study.

Entry into the labour market and possibilities of promotion and career development is often hindered by a lack of education or vocational training, or because the type of education and qualifications acquired by women are not highly valued. And even in countries where women are more educated than men, other hindering factors seem to take on increased importance and occupational sex segregation continues.

Social security policies may especially benefit women and therefore constitute work incentives for them.<sup>4</sup> The type and comprehensiveness of the welfare state – family friendly policies, availability of services for working women and so forth – help determine women's opportunities in different spheres of life, including the labour market. In a recent article, Chang (2000) developed a typology linking state gender policy and institutions to patterns of occupational sex segregation. She distinguished four regimes:

- Formal-Egalitarian (e.g., United States) – with a formal commitment to gender equality in the labour market evidenced by legislation, but limited state-sponsored services such as child care
- Substantive-Egalitarian (e.g., Sweden) – with both a formal commitment to gender equality and a strong commitment to providing substantive support services
- Traditional Family-Centred (e.g., Japan) – with few or no formal-legal commitments or substantive services for working women
- Economy-Centred (e.g., Hungary) – with many services for working women but no or little formal commitment to gender equality

Chang's analysis included 14 industrialized countries. In her discussion, she noted that the traditional family-centred regime is the least likely to remain viable in the long run because of the growing pervasiveness of gender egalitarian ideals.<sup>5</sup>

Structure of the labour market also affects occupational sex segregation. For example, the public sector is a very important employer for women around the

<sup>4</sup> For instance, the Nordic child day-care system has been planned not only with an objective of child education, but also to enable and encourage women's participation in the labour force (cf. Melkas and Anker, 1998). School lunches also play an important role regarding mothers' opportunities to engage in gainful employment. When women's rights are based on their citizenship or employment – as in the Nordic countries - they are treated as individuals and not as spouses. Thus, also social security and services of married women do not depend on their husbands' employment status.

<sup>5</sup> It is worth noting that Japan is currently undergoing change in its policy environment, as evidenced by recent laws and directives on gender equity in the labour market. However, it is not yet clear if these changes are strong enough to lead to real change in the Japanese labour market (see Melkas and Anker, 2003).

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world. This is especially important for Nordic women. Much of the care work that is done in homes elsewhere in the world has become paid work in the Nordic labour markets. The public sector provides jobs for women, but at the same time increases the level of occupational sex segregation (Melkas and Anker, 1998). Other aspects of labour market structure having an impact on the overall level of occupational sex segregation observed in a country include the size of the service sector, transformation of the industrial sector and the agricultural sector, the “information technology revolution”, and size of the informal economy.<sup>6</sup>

Discrimination at entry to work and in work causes occupational sex segregation directly and indirectly. It means that some women are excluded from the labour market and/or that there is occupational segregation by sex for women who are in the labour market. Direct forms of discrimination tend to favour men in recruitment, provision of training, promotion, type of contract and pay level.<sup>7</sup> Barriers in promotion and career development facing women are frequently referred to as the “glass ceiling”. An important factor in this is “self-discrimination” at entry and in work where women “choose” particular occupations and work. But it must always be kept in mind that women often decide not to apply for a particular post because they anticipate discrimination or are socialised into believing that traditional divisions of labour are correct. Although such decisions may be taken by women, this should not be used as an excuse for continued high levels of segregation.

All the causal factors are intertwined. For instance, social norms have an impact on education, training and social security, and stereotypical perceptions have an impact on discrimination at entry into the labour market. Preferences are learned, and gender stereotypes are actively produced – it is a routine. Many factors could be grouped under the title ‘gender sensitivity of the policy environment’. At the level of an individual employee, the patterns of occupational sex segregation always depend on a combination of factors. Kolehmainen (1999) noted that the structure of occupational segregation is formed on the basis of gender labels of individual occupations.

<sup>6</sup> Bruijn and Volman (2000) note that some occupations are integrating while others are differentiating. Problem-solving and social-communicative skills are becoming more and more important, as new methods of production and organization require new types of employee competencies. Also the work hierarchy may be altered if intermediary levels are suppressed. Such trends were anticipated already in 1995 in Sweden. It was noted that the introduction of flat organizations means less managerial positions, especially in middle management. As it is rather common that women “work their way up through the organization”, such a possibility of breaking down vertical segregation will become more difficult in the future (Swedish National Institute of Occupational Health, 1995). On the other hand, it could be argued that positive opportunities for women may ensue if there are more expert positions without managerial responsibilities (and if women are, as stereotypes suggest, less inclined than men to supervise others).

<sup>7</sup> For instance, Japanese employers, particularly in large firms, trading firms, banks and insurance companies, offer two employment streams for new entrants: the managerial employee track and the clerical employee track. Clerical jobs are considered less complicated and more manual, and there is a limit to promotion. Men usually enter the managerial track. Women, on the other hand, generally enter the clerical track. Some women may enter the managerial track by examination or interview, but usually only after they have been on the clerical track for two to five years. The dual-track system preserves gender differences in remuneration, as wages are lower on the clerical track, and when women are on the managerial track and are given the same tasks as men, often they do not get the same pay (Richardson and Riethmuller, 1996).

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It is safe to say that practically all women have been affected by occupational sex segregation in one way or another. A woman may end up as a street vendor in the informal economy in a developing country because she was not given the chance to go to school. Another woman in an industrialized country may be highly educated and qualified but still face discrimination with regard to promotion and pay level. The level of occupational sex segregation is not correlated to the level of socio-economic development of a country, but the patterns of segregation are (Anker, 1998).

A useful conceptual framework for understanding occupational sex segregation, along with examples to describe and explain why men and women tend to be concentrated in occupations whose characteristics are closely related to typical gender stereotypes in society, is provided in Table 1. For example, the positive stereotype that women are more caring than men helps “qualify” women for occupations requiring care, such as nurse, social worker and teacher. Negative gender stereotypes, such as a supposed disinclination to supervise others, helps “disqualify” women for managerial and supervisory occupations.<sup>8</sup>

<sup>8</sup> For discussion of how occupational segregation is explained by economists based on factors such as male-female differences in human capital, continuity of work experience and family responsibilities, readers are referred to Anker, 1997.

Table 1. Stereotypes of women and their effect on occupational segregation

Common stereotyped characteristics of women	Effect on occupational segregation	Examples of typical occupations affected	Comments
<p><b>Positive</b> Caring nature</p> <p>Skill (and experience) at household-related work</p> <p>Greater manual dexterity (especially smaller, nimble fingers)</p>	<p>Helps qualify women for occupations where others are cared for, such as children, the ill, older people.</p> <p>Helps qualify women for occupations that are frequently done in the home (almost always by women), often as unpaid household work.</p> <p>Helps qualify women for occupations where finger dexterity is important.</p>	<p>Nurse, doctor, ayah, social worker, teacher, midwife</p> <p>Maid, housekeeper, cleaner, cook, waiter, launderer, hairdresser, spinner, sewer, weaver, knitter, tailor/dressmaker</p> <p>Sewer, knitter, spinner, weaver, tailor/dressmaker, typist</p>	<p>Often felt to be biological (i.e. sex difference), because women are mainly responsible for child care in all societies. This is, however, a learned, gender-based difference.</p> <p>Note that occupations that require care but also require greater authority, such as medical doctor, are often male-dominated.</p> <p>Skills easy to learn (therefore, women's greater experience before entering the labour market should not be very important).</p> <p>Belief is partly based on:</p> <ul style="list-style-type: none"> <li>biological (sex) difference; and</li> <li>experience (gender) differences in house before joining the labour market.</li> </ul> <p>Skill is easy to learn.</p> <p>Occupations often similar to those noted under household-related work activities.</p>
<p><b>Other</b> Greater willingness to take orders Greater docility and less likelihood of complaining about work or working conditions Less likelihood of joining trade unions Greater willingness to do monotonous/repetitive work</p> <p><b>Negative</b> Disinclination to supervise others</p> <p>Less physical (muscular) strength</p>	<p>General characteristics that help qualify women for occupations and sectors of the economy where working conditions are poor, labour laws are not applied (e.g. informal sector) and work is routinized.</p> <p>Helps disqualify women for all types of supervisory and managerial occupations.</p> <p>Helps disqualify women for occupations requiring heavy lifting and/or physical effort.</p>	<p>These general characteristics "qualify" women for many jobs that are low paid, unskilled, unprotected and repetitious in nature.</p> <p>Manager (general; production; trade; catering and lodging), supervisor (clerical; sales; production), government executive officer, and administrator and legislative official</p> <p>Construction worker, miner/quarrier, well driller</p>	<p>These stereotypes have been combined because they are similar in that all imply a subservient nature. These are archetypal learned (gender-type) characteristics.</p> <p>This is in many ways the opposite of willingness to take orders. This often affects vertical occupational segregation (with lower level jobs for women).</p> <p>There is considerable overlap in the physical strength of individual women and men, which means that many women are physically capable of doing this work.</p> <p>Becoming less and less important in today's economy.</p>

Source: Examples taken from table 2.1 in Anker, 1998.

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Occupational segregation by sex thus affects work life in a number of ways. Quality of employment suffers. Sex segregation restricts labour market options for individuals; affects the valuation and therefore remuneration from work; and increases pay differentials.<sup>9</sup> The types of jobs available to workers determine their economic security and that of their families.<sup>10</sup> Discrimination across generations may be reinforced. A recent study investigated the extent to which the mother and father's jobs and occupational sex-typing influence the status and sex-typing of their children's occupation at first entry into the labour market (Korupp, Sanders and Ganzeboom, 2002). It was found that the mother's occupational sex-typing is related to her daughter's occupational sex-typing, and in the same way, the father's occupational sex-typing is related to his son's occupational sex-typing. It was also found that the more female sex-typed the daughter's occupation is, the lower is her occupational status.

Also due to sex segregation, training and promotion opportunities are often unequally offered to women and men, reducing women's opportunities for lifelong learning. Continuous staff training and upgrading are indeed costly, and women are still in many cases viewed by employers as "bad investments" regardless of ability and not in terms of human capital to be nurtured to increase their individual and collective productivity. The traditional justification for this thinking is the possible breaks in labour market participation in women's life cycle due to parental responsibilities.<sup>11</sup>

Women's occupations are often characterized by part-time work and other atypical forms of employment, that differ from the secure employment model of full-time and long-term employment. For instance, in industrialised countries such as Japan and the United States, almost 70 percent of all part-timers were women in the late 1990s. The increase of "permanent temporary employment" – i.e. a succession of short-term, fixed-term or temporary contracts, with or without short breaks in-between – tends to be directed disproportionately at women workers regardless of their educational level. For example, in Finland in 2001, approximately 70 percent of Finnish women aged below 35 with an academic education working in the service of the state had fixed-term contracts, as compared to approximately 15 percent of those in the private sector. The corresponding figures for men were approximately 50 and 6 percent respectively (Helsingin Sanomat, 2002).

<sup>9</sup> Various international studies have shown that around one-third of the female-male pay differential is due to occupational segregation by sex (Anker, 1998), and that about 10-30 percent of the gender pay gap is "unexplained" by factors such as years of education and experience, size of firm, and union status (Nurmi, 1999). Differentials in women and men's income also extend to pensions.

<sup>10</sup> Gangl (2002) confirmed that among all school leavers, the lowest qualified are most heavily affected by cyclical changes in economic conditions, and continuing occupational upgrading contributes to increasing labour market difficulties among the lowest qualified leavers, in particular. The effect and intensity of these various trends with regard to women's status naturally depends on the country (whether women are well or badly educated). It has been observed that segregation is characterized by "continuity within change" (see, for instance, Hakim, 1979; Gonäs and Lehto, 1999) – as horizontal segregation declines, there is frequently an increasing trend towards vertical segregation (Kolehmainen, 1999). The impacts of the different trends thus counteract each other.

<sup>11</sup> However, due to women's higher educational levels and falling fertility rates there is a marked trend for women to spend more of their productive years in the labour force, with shorter periods away from work to give birth and care for children, particularly in industrialised countries.

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At the macro-level, occupational sex segregation has a negative impact on the efficiency and flexibility of the labour market as a whole. It restrains mobility between “male” and “female” occupations and contributes thus to unemployment as well as short- and long-term skill gaps. Excluding the majority of workers from the majority of occupations is wasteful of human resources, contributes to labour market rigidity, and reduces an economy’s ability to adjust to change (Anker, 1998).

Labour productivity is also affected by gender equity in the workplace. Some recent studies have found that work motivation is better in workplaces where there is a combination of both sexes, and gender equality prevails. Gender equality was also found to improve the external image, innovativeness, creativeness, justice and functionality of the enterprise, and thus productivity and efficiency of the work community. Indeed, gender equality is rightfully considered to be a feature of a modern enterprise and part of a healthy work community (Kauppinen and Veikkola, 1997; Kauppinen, 2000).

Despite the numerous macro- and micro-level disadvantages, gender-based occupational segregation does help some women by protecting them from male competition and maintaining demand for some forms of female labour – for instance, professionals in care-related work such as nurses. The expansion of the service sector of the economy has also benefited women by providing increased job opportunities, and the “information technology revolution” has had a similar impact (ILO, 2001). These quantitative opportunities are not sufficient by themselves – they must be combined with increased qualitative opportunities for women workers if gender equity in the labour market is to be achieved.

One sometimes hears arguments in favour of “the natural division of work” – if women want to work in, for instance, caring occupations, why is it bad? While it is not bad at all per se, the gender division of work is connected to many problems, and the above discussion provides explanations why.

The point in investigating and reducing occupational segregation by sex is not to influence individual decisions on career choice but to promote improvement of the quality of work life in general and widen the sphere of free, truly individual choices. It is not desirable for anyone to be “a prisoner” of her/his own gender role – consciously or unconsciously. This principle is recognised in ILO on equality of opportunity in employment.

Although the above discussion concentrated on women, many of the causes and effects of occupational segregation by sex also concern occupational segregation by race, nationality, disability or other factors. The scope of this paper and availability of data do not allow, however, a discussion of these other forms of discrimination.

### **3. Level of occupational segregation by region and for world**

This section looks at the level of occupational sex segregation by region based on detailed occupational data for the non-agricultural labour force for around the year

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2000. It is based on ILO's SEGREGAT database (as updated in the Autumn of 2002). Section 4 looks at changes and trends in the decade of the 1990s.

Before beginning these empirical analyses, it is important to describe SEGREGAT, and the incompleteness of this database at the time this paper was prepared. In the mid 1990s, ILO established SEGREGAT in order to measure occupational sex segregation. This database's hallmark is that it only includes national data when they report employment for men and women using at least a two-digit occupational classification. This is extremely important, since the level of segregation observed has been found to be very sensitive to the level of disaggregation of the occupational classification that is used. Based on an earlier version of this database established in the mid 1990s, ILO published two books (Anker, 1998; and Melkas and Anker, 1998). The present paper builds on these publications. As in these publications, only data for the non-agricultural labour force are used, since the issues of occupational segregation and discrimination are not as relevant for family labour; in addition, agricultural employment is often underreported for women.

In 2002, ILO began to update this database to include a more recent year, generally around the year 2000. At the time this paper was being prepared, SEGREGAT was still being updated and the data received were still being processed and cleaned. Consequently, the results reported in this paper are necessarily incomplete and preliminary. At the same time, they provide valuable insights about the current situation and recent changes.

### **3.1 Female labour force participation**

To start with, it is important to set the context in terms of the extent to which women participate in the labour market, since segregation can be seen as consisting of two parts. The first part is when women are effectively excluded from the labour market (especially excluded from non-family employment and work), and the second is when women and men in the labour market are segregated into different occupations. The former can be represented statistically by the female share of non-agricultural (and mainly non-family) employment that is discussed in this subsection, and the latter by measures of occupational segregation that are discussed in the next subsection.

Women are clearly well integrated into non-agricultural labour markets around the world with the exception of the Middle East according to the selected information provided in Table 2. On average, women comprise approximately 44 percent of the non-agricultural labour force in the Developed countries, Transition Economy countries and Asian countries included in Table 2 (although it is worth noting that Asian countries generally have a somewhat lower female share of the labour force as compared to Developed and Transition Economy countries). In the Latin American region this percentage is somewhat lower at approximately 40 percent. In contrast, women comprise less than 20 percent of the non-agricultural labour force in the three Middle Eastern countries included in Table 2. As will be shown in Section 4, this level of integration is due in part to a clear trend in recent years toward increased female participation.

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### 3.2 Horizontal segregation

Data for the latest available year (between 1996 and 2001) show that the level and patterns of occupational sex segregation vary by region (Table 2). The index of dissimilarity (ID), which is by far the most widely used index to measure occupational segregation in the research literature (see, for example, Anker, 1998, for a review of inequality statistics), is used here to illustrate the level of segregation and recent changes in it.<sup>12</sup>

Based on the data presented in Table 2, ID levels at the turn of the century tended to be lowest in Asia and highest in the Middle East – with Developed countries, Latin American countries and Transition Economy countries in between in that order. This contrasts somewhat with results reported in Anker, 1998 for around 1990. While ID was lowest in Asia and highest in Middle East/North Africa around 1990, levels in Developed and Transition Economy countries were similar – at rather average levels for the world. Also around 1990, differences were greater between Middle East/North Africa and other countries on the high side, and between Asia and other countries on the low side; thereby implying a convergence in ID values across the world as predicted in Anker, 1998. ID values in Table 2 are high particularly for Iran, Jordan and Poland, and particularly low for Thailand and the United States.

<sup>12</sup> See Melkas and Anker (1998) for information on the calculation, description and definition of ID and the other statistics. The ID has values that range between 0 (no segregation, implying that there is an equal percentage of women in each occupation) and 1 (complete segregation, implying that all female workers are in occupations where there are no male workers). Thus, the higher an index value, the greater is segregation.

**Table 2. Level of occupational segregation (measured by index of dissimilarity, ID) by region, around the year 2000**

Country	Latest year	No. of non-agricultural occupations classified	ID	ID adjusted (for increased comparability) using mathematical formulas in Anker, 1998	% of women in the non-agricultural labour force
<b>Developed</b>					
Austria	2000	71	0.569	0.572	43.3
France	1999	119	0.554	0.525	45.5
Spain	2000	78	0.528	0.526	43.0
United States	2000	104	0.463	0.443	47.2
<i>Average (unweighted)</i>				0.517	44.8
<b>European Transition economies</b>					
Poland	2001	100	0.616	0.598	45.3
Czech Republic	2000	84	0.591	0.584	43.5
<i>Average (unweighted)</i>				0.591	44.4
<b>Asia</b>					
Hong Kong, China	2001	122	0.503	0.473	45.3
Korea, Republic of	2000	149	0.549	0.487	36.1
Thailand	2000	111	0.405	0.381	48.2
<i>Average (unweighted)</i>				0.447	43.2
<b>Middle East</b>					
Egypt	1996	129	0.528	0.510	17.1
Iran, Islamic Republic of	1996	26	0.639	0.675	13.1
Jordan	2001	108	0.627	0.616	14.2
<i>Average (unweighted)</i>				0.600	14.8
<b>Latin America</b>					
Costa Rica	2001	55	0.526	0.545	37.5
Ecuador	2000	75	0.498	0.498	37.0
Uruguay	1996	71	0.530	0.533	42.9
<i>Average (unweighted)</i>				0.525	39.1

Source: Calculations based on occupational data from ILO SEGREGAT database (as updated in Autumn 2002).

Notes: Adjusted ID is a calculated ID value intended to give improved comparability across countries. It is calculated by adding or subtracting an adjustment factor from the reported ID when the number of non-agricultural occupations classified is above or below 75 respectively. Calculation of the adjustment factor is based on the mathematical formulas estimated in Anker, 1998 that relate observed ID to the number of non-agricultural occupations classified. It uses  $.061 * \ln(75/\text{number of non-agricultural occupations classified})$  except in Middle East where .034 is used.

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The variation within regions is interesting. It is noteworthy that Thailand has a low level of segregation for Asia, the United States a low level of segregation for Developed countries, and Egypt a low level of segregation for the Middle East.

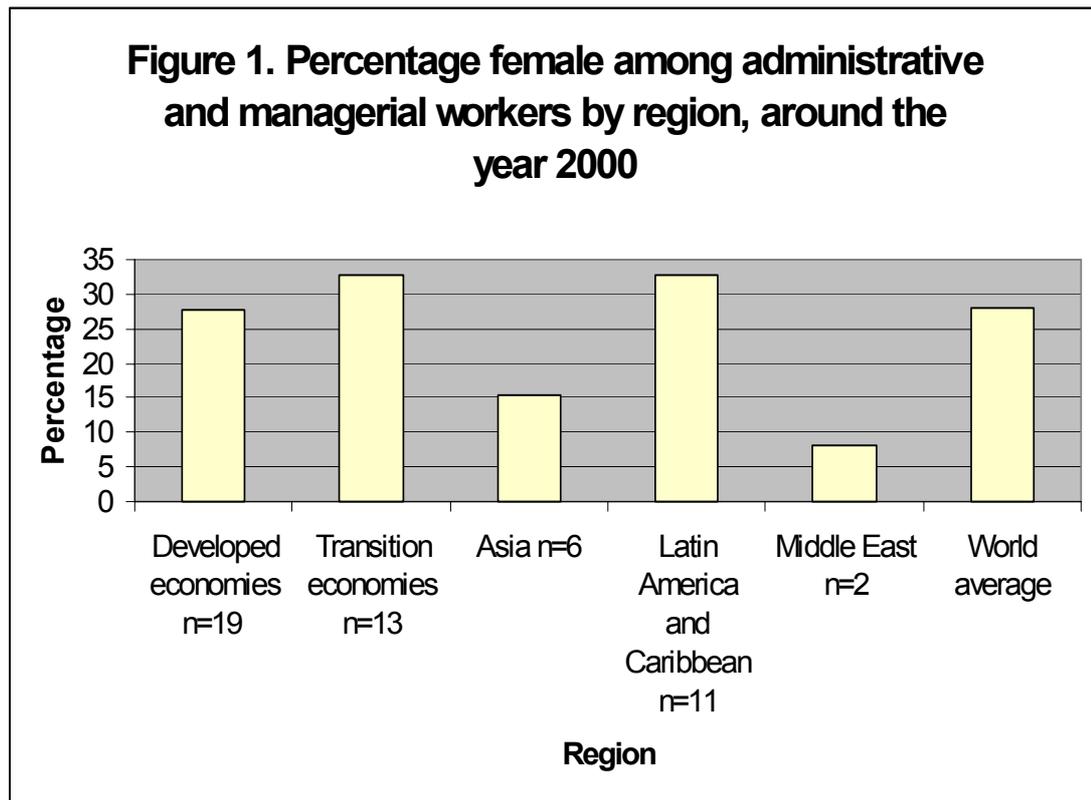
A closer look at individual countries shows that in France over 50 percent of the non-agricultural labour force in 1999 worked in a gender-dominated occupation (defined as an occupation where at least 80 percent of workers were either men or women). Based on data for 428 non-agricultural occupations, approximately 52 percent of the male labour force worked in a male-dominated occupation, and 44 percent of the female labour force worked in a female-dominated occupation. And, the number of male-dominated occupations was much greater (187) than the number of female-dominated occupations (33).<sup>13</sup> Patterns were similar for Austria based on a classification with 99 non-agricultural occupations.

Census data for Iran (for only 26 non-agricultural occupations) show that there were no female-dominated occupations, and approximately 92 percent of the male labour force worked in a male-dominated occupation. These results confirm the earlier findings for the Middle East and North Africa of large male-dominated and small female-dominated segments of the labour force.

### **3.3 Vertical segregation**

Discussion now turns to vertical segregation, whereby women are more likely than men to be in occupations with lower pay, worse prospects for advancement and poorer working conditions. This is a major reason why occupational sex segregation is so pernicious. One common way of measuring vertical segregation is to observe the extent to which high-level decision-making occupations are feminised.

<sup>13</sup> When comparing numbers of female-dominated and male-dominated occupations, it needs to be kept in mind that occupational classifications are generally much more detailed with regard to typical male occupations (e.g., production-related) than typical female occupations.



Source: Table 3

Table 3 and Figure 1 present such data by region for around the year 2000 for 51 countries from the ILO Yearbook of Labour Statistics. Women are noticeably underrepresented in these occupations in all regions of the world. Women are found to comprise well below 50 percent of legislators, senior officials and managers in all 51 countries with data in Table 3. Women comprise on average (based on an unweighted average of these 51 countries) only 28 percent of these workers. Regional averages vary greatly, however, ranging from less than 10 percent in the Middle East and North Africa, to around 15 percent in Asia, and around 30 percent in Developed countries, Transition Economy countries and Latin American countries.

There is also considerable variation across countries even within regions. For example in Developed countries such as Italy and Cyprus, women comprise less than 20 percent of administrators and managers. And in the Republic of Korea and Sri Lanka, women are less than 5 percent of these workers. At the other end of the distribution, this percentage exceeds 33.3 percent (and therefore there are fewer than 2 men for every woman) in 15 countries (4 Developed countries, 6 Transition Economy countries, and 5 Latin American countries).

**Table 3: Percentage female among administrative and managerial workers by region, for around the year 2000.**

Country	% female	Country (cont'd)	% female
<b>Developed economies</b>		<b>Asia</b>	
Austria (2000)	28.2	Hong Kong (2000)	24.9
Denmark (1998)	23.1	Korea, Rep. of (2000)	4.9
Finland (2000)	26.9	Macau (2000)	19.8
Germany (2000)	26.9	Maldives (2000)	15.4
Greece (2000)	25.4	Sri Lanka (1998)	3.7
Iceland (2000)	27.3	Singapore (2000)	22.8
Ireland (1999)	33.8	Average (unweighted)	15.3
Italy (2000)	18.8	<b>Latin America and Caribbean</b>	
Netherlands (2000)	26.7	Bahamas (1998)	31.1
Norway (2000)	25.3	Bolivia (2000)	35.7
Portugal (2000)	32.1	Costa Rica (2000)	32.9
Spain (2000)	31.9	Dominican Republic (1997)	30.7
Switzerland (2000)	22.2	El Salvador (1999)	33.4
Sweden (2000)	29.2	Mexico (2000)	23.5
United Kingdom (1999)	33.3	Netherlands Antilles (2000)	29.8
Australia (2000)	25.5	Peru (2000)	28.1
Canada (2000)	35.4	Puerto Rico (2000)	37.4
New Zealand (2000)	37.9	Trinidad and Tobago (1999)	41.9
Cyprus (2000)	14.4	Uruguay (2000)	36.3
Average (unweighted)	27.6	Average (unweighted)	32.8
<b>Transition economies</b>		<b>Middle East</b>	
Croatia (2000)	24.7	Egypt (1999)	10.2
Czech Republic (2000)	26.0	United Arab Emirates (2000)	7.8
Hungary (2000)	33.9	Average (unweighted)	8.0
Poland (2000)	32.5	<b>World Average (unweighted)</b>	
Romania (2000)	26.0	28.1	
Slovakia (2000)	30.8		
Slovenia (1999)	31.5		
Estonia (2000)	36.4		
Latvia (2000)	37.1		
Lithuania (2000)	41.9		
Moldova (2000)	33.2		
Russian Federation (1999)	37.3		
Ukraine (2000)	36.1		
Average (unweighted)	32.9		

Source: ILO Yearbook of Statistics, 2001.

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## **4. Trends in occupational sex segregation in the 1990s**

This section focuses on changes in occupational segregation during the 1990s. As in Section 3, we rely on recent data from ILO's SEGREGAT database that is currently being updated (and consequently, reported results are necessarily preliminary as discussed earlier).

### **4.1 Female labour force participation trends**

This section examines recent trends in the female share of the non-agricultural labour force. Table 4 indicates that there was a major increase in the female share of non-agricultural employment in almost all of the world in the 1990s. The female share increased in 14 of the 15 countries included in Table 4, with a decrease only observed in the Czech Republic. This upward trend is clear even when a strict definition of what constitutes a clear change is used (of at least a 0.5 percentage change over a ten year period), as 12 of the 15 countries in Table 4 are above this level of increase. In the 1990s, the female share of non-agricultural employment increased by approximately 2.5 percentage points on average in Developed countries and Latin America, and by 3.0 percentage points in Middle East and Asia. Only in Transition Economy countries was there a decrease.

### **4.2 Index of dissimilarity trends**

Results on changes over the 1990s discussed in this section help throw light on the current differences across regions in overall levels of occupational sex segregation discussed in Section 3, as well as of course on recent trends. Readers must continue to keep in mind, however, that results on recent trends are only preliminary and partial as the number and range of countries in this analysis are limited.

**Table 4. Trends in female share of non-agricultural labour force (PFEM) by region, ten-year change 1990-2000**

Country or territory	Year	PFEM (%)	Ten-year change in PFEM (%) 1990-2000	Direction of change <sup>b</sup>
<b>Developed economies</b>				
Austria	2000	43.3	2.7	+
France	1999	45.5	2.9 <sup>a</sup>	+
Spain	2000	37.7	3.9	+
United States	2000	47.2	0.8 <sup>a</sup>	+
Average (unweighted)		44.8	2.6	+
<b>Transition economies</b>				
Czech Republic	2000	43.5	-4.9 <sup>a</sup>	-
Poland	2001	45.3	0.6 <sup>a</sup>	+
Average (unweighted)		44.4	-2.2	-
<b>Asia</b>				
Hong Kong, China	2001	45.3	0.4	0
Korea, Republic of	2000	36.1	5.0	+
Thailand	2000	48.2	3.5	+
Average (unweighted)		42.3	3.0	+
<b>Latin America</b>				
Costa Rica	2001	37.5	0.4	0
Ecuador	2000	37.0	3.1	+
Uruguay	1996	42.9	3.9 <sup>a</sup>	+
Average (unweighted)		41.0	2.5	+
<b>Middle East</b>				
Egypt	1996	17.1	3.5	+
Jordan	2001	14.2	3.0 <sup>a</sup>	+
Iran	1996	13.1	2.6	+
Average (unweighted)		14.8	3.0	+

Source: ILO SEGREGAT database.

<sup>a</sup> Change in percentage female is adjusted to represent a 10-year period. Data are available for 1990-2000 except for: Czech Republic 1991-2000, France 1990-1999, Japan 1990-1995, Jordan 1979-2001, Poland 1994-2001, Uruguay 1985-1996, USA 1991-2000.

<sup>b</sup> Change between -0.5 and +0.5 percentage point is considered too small to represent change. 0 is used to represent this situation.

**Table 5. Change in occupational sex segregation as measured by the Index of Dissimilarity (ID<sup>a</sup>) in the non-agricultural labour force, 1990-2000**

Country or territory	Year	No. of non-agricultural occupational codes	ID latest year <sup>b</sup>	Ten year change in ID 1990-2000 <sup>f</sup>	Direction- of change in ID <sup>f</sup>
<b>Developed economies</b>					
Austria	2000	71	0.569	-0.032	?
France	1999	119	0.554	-0.036 <sup>c</sup>	?
Spain	2000	78	0.528	-0.030 <sup>d</sup>	?
United States	2000	104	0.463	-0.034 <sup>c</sup>	?
<i>Average (unweighted)</i>				-0.033	?
<b>Transition economies</b>					
Czech Republic	2000	84	0.591	0.004 <sup>c,d</sup>	0
Poland	2001	100	0.616	0.026 <sup>c</sup>	?
<i>Average (unweighted)</i>				0.015	0
<b>Asia</b>					
Hong Kong, China	2001	48	0.465	0.005	0
Korea, Republic of	2000	149	0.549	0.040 <sup>g</sup>	?
Thailand	2000	111	0.405	-0.029 <sup>d</sup>	?
<i>Average (unweighted)</i>				0.005	0
<b>Latin America</b>					
Costa Rica	2001	55	0.526	-0.040 <sup>e,f</sup>	?
Ecuador	2000	75	0.498	-0.038	?
Uruguay	1996	71	0.530	-0.022 <sup>c</sup>	?
<i>Average (unweighted)</i>				-0.033	?
<b>Middle East</b>					
Egypt	1996	129	0.528	-0.069 <sup>d</sup>	?
Iran	1996	26*	0.639*	-0.006* <sup>e</sup>	0
Jordan	2001	108	0.627	-0.113 <sup>c,d</sup>	?
<i>Average (unweighted)</i>				-0.063	?

**Notes:**

<sup>a</sup> ID represents the index of dissimilarity, the most commonly used statistical measure of occupational segregation. It ranges from 0.0 (no segregation) to 1.0 (complete segregation).

<sup>b</sup> ID values increase with the number of occupational codes classified. The relationship resembles a log function with a slope generally around 0.06 (Anker, 1998).

<sup>c</sup> Change in ID adjusted when necessary to a 10-year period (e.g. if change measured over a 5-year period, the value would be doubled; if measured over a 20-year period, it would be halved). Data available for 1990-2000 except for: Czech Republic 1991-2000, France 1990-1999, Jordan 1979-2001, Poland 1994-2001, Uruguay 1985-1996, USA 1991-2000.

<sup>d</sup> Value in 2000 adjusted to make it comparable to value in 1990, to take into account differences in number of occupational codes in 1990 and 2000 (see note b)

<sup>e</sup> Value for 1990 adjusted to make it comparable to value in 2000, to take into account differences in number of occupational codes in 1990 and 2000 (see note b). -

<sup>f</sup> Change between -0.02 and +0.02 is considered too small to represent change.

<sup>g</sup> Republic of Korea's 1990 pattern of how ID increases along with the number of non-agricultural occupations classified as unusual. This makes it difficult to interpolate Korea's ID value for comparison with observed value in 2000. Different approaches, however, yield the same conclusion that ID rose in the 1990s in Republic of Korea.

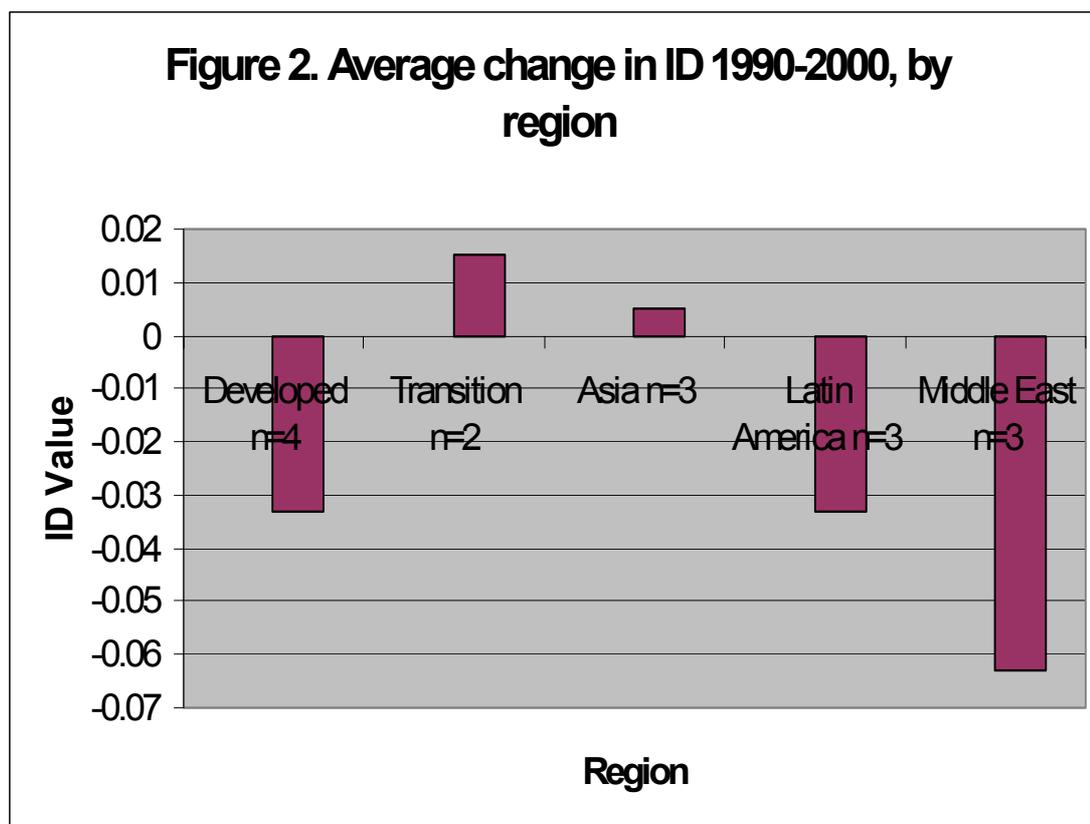
\* ID values and change in ID must be treated with caution because of the small number of occupational codes. According to Anker (1998), it is often necessary to have at least approximately 50-70 occupational codes to feel reasonably confident about observed change.

Source: ILO SEGREGAT database.

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As shown by data for 15 countries in Table 5 and figure 2, occupational sex segregation decreased in much of the world in the 1990s. This continued the general decrease observed during the 1980s outside of Asian countries such as Hong Kong, China and Japan (Anker, 1998). ID fell on average by about .03 between 1990 and 2000. This represents quite a large decrease over one decade. Indeed, ID clearly fell in 9 of the 10 countries in the Developed Economies, Latin America and the Middle East regions (even using a strict definition of clear change of at least a .02 change in ID over 10 years) included in Table 5; the only exception was Iran. In contrast, ID tended to remain unchanged or increase in the 1990s in Asian and Transition Economy countries (with the only obvious exception being a clear decrease in Thailand).

As a result of these trends, sex segregation levels now appear to be higher in Transition Economy countries than in Developed countries. It seems that the last years of communism in Europe as well as the transition to a market economy have not been favourable to women in terms of occupational sex segregation. The continuing lack of improvement in the Far East is also striking. Although recent data for Asia are fragmentary (and are not yet available for China and India), the available evidence does point to a continuation of the trend observed in the 1980s when ID was found to have risen in China and Hong Kong, China and remained unchanged in Japan. This means that the convergence of sex segregation levels between the lower levels in the Far East with those in Developed Economy countries probably continued to the end of the millennium. This, coupled with the higher level of vertical segregation in Asia, implies that the situation is now undoubtedly better for women in developed countries in Europe and North America than in the Far East.



Source: Table 5

### 4.3 Gender-dominated occupations

Another informative way of looking at occupational sex segregation is to identify occupations that are so gendered that most people think of them as “male” or “female” occupations. An earlier ILO publication (Anker, 1998) defined gender-dominated occupations as occupations where at least 80 percent of workers are either men or women (i.e., at least four women for every man, or at least four men for every woman).

In 1990, approximately 50 percent of all workers were in a gender-dominated occupation with approximately 60 percent of men in a male-dominated occupation and approximately 30 percent of women in a female-dominated occupation. These are high levels indeed, and they illustrate well the extensiveness of occupational sex segregation in the world. In the 1980s, there was a clear downward trend in the extensiveness of male-dominated and female-dominated occupations, with a decrease of around 5 percentage points on average in this period. The main and most noteworthy exceptions were China where the percentage of men in male-dominated occupations and the percent of women in female-dominated occupations rose (from a very low level), and Japan where they were unchanged. Anker (1998) found that the choice of occupations “reserved” for women was small indeed. Only about 10 percent of all occupations in the study data set of about 7300 occupations were

female-dominated. There was great regional variation in the percentages, however, with the Middle East and North Africa having the lowest percentage (3 percent on average), followed by the Asia-Pacific region, the OECD and Transition Economy regions. The Other Developing region and the OECD sub-region of the Nordic countries had the highest percentages (48 percent on average).

The available fragmentary available data for the 1990s (not presented here) indicate that the downward trends in the size of gender-dominated occupations continued in the 1990s in much of the world, with again the possible exception of the Far East.

To illustrate how large changes can be, data for the United States for 1970-2000 are provided in Table 6 on the percentages of the non-agricultural labour force working in male-dominated and female-dominated occupations. There was a major decrease in the size of gender-dominated occupations. The percentage of men in male-dominated occupations fell from 70 to 37 percent, and the percentage of women in female-dominated occupations fell from 55 to 36 percent. Also noteworthy is that the number of male-dominated occupations fell from 247 to 154 in this time period out of about 470 non-agricultural occupations. These are enormous changes over 30 years. Whereas in 1970, approximately 70 percent of all workers were in a gender-dominated occupation, this percentage had fallen to well less than half of all workers (40 percent) in 2000. Although declines in the extensiveness of gender-dominated occupations experienced in the United States were unusually large, decreases were experienced in much of the rest of the world even if they were smaller in magnitude.

**Table 6. The United States: Percentage of the non-agricultural labour force (LF) in male-dominated and female-dominated occupations (3-digit coding with approximately 470 occupations), 1970-2000.**

Year		% female LF	% male LF	% total LF
1970	Male-dominated occupations	8.5	<b>70.3</b>	46.3
	Female-dominated occupations	<b>54.6</b>	3.5	23.4
	Any gender-dominated occupations			<b>69.7</b>
1980	Male-dominated occupations	5.7	<b>51.7</b>	31.6
	Female-dominated occupations	<b>46.9</b>	3.6	22.4
	Any gender-dominated occupations			<b>54.0</b>
1991	Male-dominated occupations	4.1	<b>43.7</b>	25.3
	Female-dominated occupations	<b>46.0</b>	4.4	23.7
	Any gender-dominated occupations			<b>49.1</b>
2000	Male-dominated occupations	3.2	<b>37.4</b>	21.2
	Female-dominated occupations	<b>35.7</b>	3.3	18.6
	Any gender-dominated occupations			<b>39.8</b>

Source: ILO SEGREGAT database.

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#### 4.4 Gender composition of new occupations: Case of computer programmers

It is informative to look at women's presence in relatively new professional occupations, as these occupations are not greatly affected by past patterns of segregation. Computer programmers and systems analysts are one example of new occupations that have emerged and grown in the information and communication technologies area (ICTs). The extent to which women are represented in such occupations provides evidence of whether or not gender inequalities, via segregation, are being replicated or reduced. Computer programmers and systems analysts, rapidly growing and well paid professional occupations in the IT industry, are one such set of occupations.

ILO research has shown that the development of ICTs should offer women new opportunities, because they allow for better accommodation of work and family schedules, and because of a worldwide shortage of the necessary skills for work in this sector. For example in India, women were found to occupy approximately 30 percent of professional jobs in the software industry (ILO, 2001).

Many women are, however, excluded from core ICT occupations due to educational differences. The ILO report describes a digital divide within countries that broadly reflects the gender divide. According to this report, patterns of occupational sex segregation are being reproduced in the information economy. The report concludes that the old gender biases will persist, unless the new positive opportunities are supported by women-friendly policies (ILO, 2001).

Evidence put together in Table 7 on levels and recent trends on the extent to which women are computer programmers or systems analysts is not very encouraging. The female share in these occupations is only approximately 20 to 30 percent in six countries as diverse as the United States, France, Germany, Republic of Korea and Hong Kong, China<sup>14</sup>. Women are only about half as likely to be in these occupations as in non-agricultural occupations overall. In contrast, women are found to comprise approximately half of programmers in Thailand and Belarus.

Nor are women increasing their share in these occupations. The percentage of women fell in the 1990s by 2.3 percent in France, 5.3 percent in the United States and 44.1 percent in Poland, while there was a small increase of 1.9 percent in Hong Kong, China. Results for France show that women tend to enter technical-commercial new occupations rather than purely technical new occupations. And in Poland, the percentage of women is twice as high for computing associate professionals as compared to computing professionals. The general conclusion one would draw from the available data is not good for women in this rapidly growing important occupation.

<sup>14</sup> Programmers comprise approximately 1 percent of all non-agricultural employment in the eight countries included in Table 7. This percentage ranges from 0.2 percent in Thailand to 1.9 percent in the United States.

**Table 7. Women in ‘new’ occupations of computer programmer and systems analyst, 1990-2000**

Country	Latest year	% of total non-agric labour force in ‘new’ occupations	% female in ‘new’ occupations	Representation ratio <sup>a</sup>	Change in % female in ‘new’ occupations 1990-2000 <sup>b</sup>
France	1999	1.6	19.6	0.43	-2.3
Germany	2000	1.6	18.0	0.42	-
USA	2000	1.9	28.5	0.60	-5.3
Poland	2001	1.0	25.0	0.55	-44.1
Belarus	1999	0.4	50.9	1.00	-
Hong Kong, China	2001	0.7	23.8	0.54	1.9
Korea, Republic of	2000	1.4	23.4	0.65	-
Thailand	2000	0.2	47.7	0.98	-
<i>Average (unweighted)</i>		<i>1.1</i>	<i>29.6</i>	<i>0.65</i>	<i>-12.5</i>

Notes:

<sup>a</sup> Representation ratio is the percentage of women in an occupation divided by the percentage of women for the entire non-agricultural labour force. It shows the extent to which an occupation is more (when value is above 1.0) or less (when value is below 1.0) feminised than usual for the country.

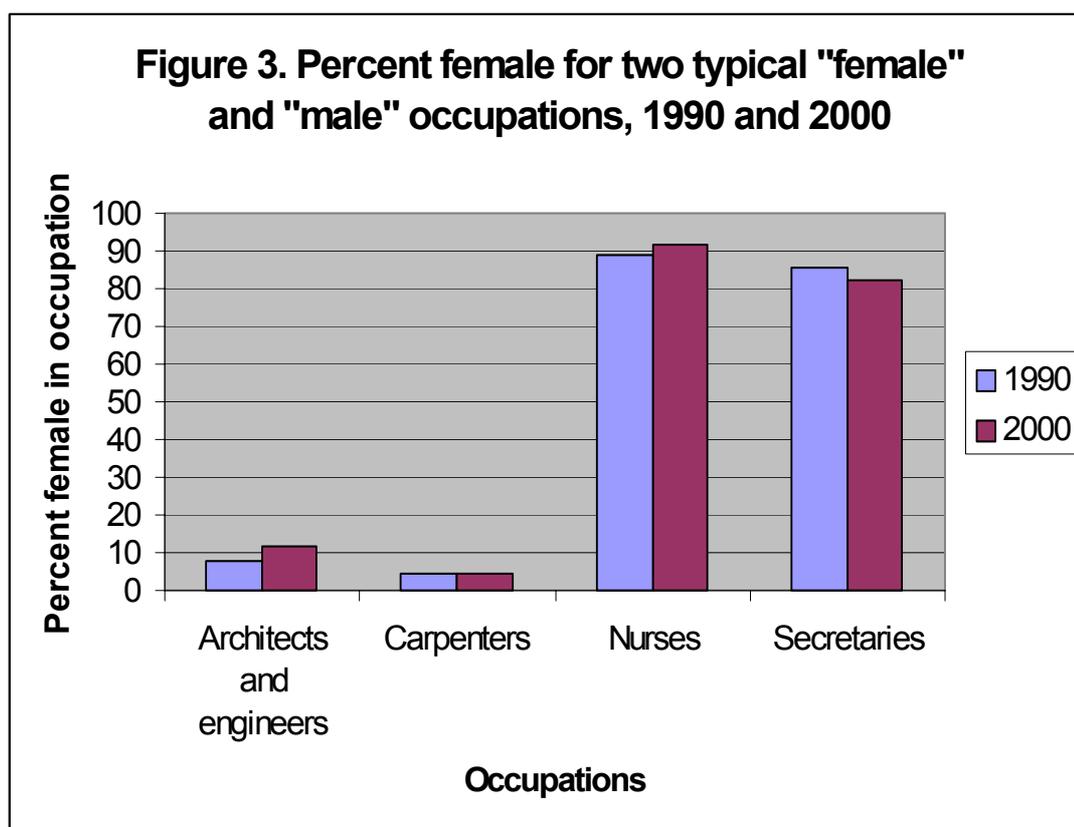
<sup>b</sup> % change adjusted to a ten year period (e.g. if change is measured over a 5-year period, the value would be doubled; if measured over a 20-year period, it would be halved). Change data available for France 1990-1999, USA 1991-2000, Poland 1994-2000, and Hong Kong 1991-2001.

Source: ILO SEGREGAT database.

#### 4.5 Largest female-dominated and male-dominated occupations

It is especially striking how stereotypes in society about appropriate roles for women and men are replicated in the labour market. As we have seen in Section 2, sex stereotyping in society causes women to dominate occupations that require, for example, caring, household-related skills and/or absence of a supervisory role (e.g., nurse, ayah, maid, housekeeper and secretary) and men to dominate occupations requiring supervision, physical strength and/or mathematics (e.g., supervisors, construction workers, and engineers). Readers are referred to Table 1 for a framework and description of this sex-stereotyping phenomenon.

To illustrate this tendency, figure 3 represents the situation for six diverse countries (Egypt, Poland, Republic of Korea, Thailand, USA, and Hong Kong, China) for four typically sex-stereotyped occupations. As expected, nurses and secretaries are overwhelmingly women in all of these countries, while engineers/architects and carpenters are overwhelmingly men. Interestingly, in recent years more women are becoming architects and engineers but not carpenters, while more men are becoming secretaries (outside USA and Hong Kong, China) but not nurses. The extent to which the largest female-dominated and male-dominated occupations correspond to women’s and men’s stereotyped characteristics is consistent with Anker’s (1998) findings for 1970-1990; the patterns hardly appear to have changed in the 1990s for these occupations.



Source: ILO SEGREGAT database.

Notes: Based on unweighted averages of values for Egypt, Hong Kong, Republic of Korea, Poland, Thailand and the USA. Values for 1990 calculated as 2000 value minus average change for 1990-2000 for countries with comparable data for 1990 and 2000. Change for 1990-2000 missing for nurses (Egypt), secretaries (Republic of Korea), carpenters (Thailand, Republic of Korea and Egypt).

**Table 8. Five most female-dominated and male-dominated occupations in Poland, 2001**

Most female-dominated occupations	Percentage of women of all workers in occupation	Most male-dominated occupations	Percentage of men of all workers in occupation
Primary and pre-primary education teaching professionals	99%	Miners, shotfirers, stone cutters and carvers	98%
Nursing and midwifery associate professionals	99%	Building frame and related trades workers	98%
Social work associate professionals	96%	Building finishers and related trades workers	98%
Secretaries and keyboard-operating clerks	95%	Painters, building structure cleaners and related trades workers	98%
Administrative associate professionals	92%	Locomotive-engine drivers and related workers	96%

Source: ILO SEGREGAT database.

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Table 8 shows the most female- and male-dominated occupations for Poland in 2001. The types of occupations listed are illustrative for numerous other countries as well. Hardly any change had taken place since 1994 in Poland. The most sex-stereotyped occupations continue.

## **5. Policies to decrease occupational sex segregation**

Various measures have been developed by governments and enterprises to reduce gender-based occupational segregation. Table 9 gives an overview of some of these measures with examples and notes. Most countries include both pre- (before entry into the labour market) and post- (once in the labour market) labour market measures. Only educational policies clearly belong to pre-labour market measures. Table 9 also includes more general measures that have an impact on occupational segregation – whether this impact is intentional or unintentional. The different measures have been targeted towards the different causes of occupational sex segregation (see Section 2).

### *Illustrative case: A Nordic project to combat occupational sex segregation*

Since the 1970s, a generally accepted aim of Nordic equality politics has been to break up gender-based segregation and hierarchies. In addition to the many measures related to the Nordic welfare state that are relevant here, the Nordic countries have also resorted to different kinds of pilot projects and administrative or working life development programmes. While according to some evaluations, the visible results of these projects and development programmes have been rather meagre (Räsänen, 1996; see also Gonäs and Lehto, 1999), part of this may be due to the fact that observable changes occur slowly. In the remainder of this subsection, the illustrative case of an interesting joint Nordic project is presented.

The most comprehensive Nordic project to break up segregation has so far been the so-called “Bryt Avaa” (Break) project in 1985–89. Although considerable time has passed since the project was implemented, its results, strengths and weaknesses are especially well documented and illustrative for these types of projects. In addition, given the relatively high level of gender equality in the Nordic countries at the time of the project implementation, lessons learned from this project are likely to be useful for other countries today.

The initiative for the Bryt Avaa project came from the Nordic Council of Ministers, and the project aimed both at developing methods for breaking up segregation as well as at breaking up segregation in practice. Several subprojects were implemented in schools and workplaces in the different Nordic countries. In Finland, three small municipalities were chosen as pilot areas. The beginning was not very promising, in part because the local level decision-makers regarded the project mainly as extra nuisance even though government officials in charge of the project were committed to its aims (Räsänen, 1996).

Table 9. Typology of measures to reduce occupational sex segregation.

Type	Examples	Executed by	Notes
Direct projects to reduce segregation	Projects implemented in schools, universities, workplaces. General awareness-raising efforts and direct assistance (e.g. 'girls and technology' or 'women and industrial professions' projects, information campaigns, mentoring of female managers, equality planning at company level).	Government, employers' and workers' organizations, employers	May result in, at least, reduced levels of segregation in individual occupations. Often isolated projects that lead to partial results when not combined with other efforts. Often projects too short-term to produce lasting results.
Policies to reduce sexual harassment, pay differentials, etc.	Systematic statistical framework for monitoring gender pay differentials. Pay equity schemes involving job evaluation, information campaigns, drafting of new legislation, equality planning at company level	Government, employers' and workers' organizations, employers	May reduce segregation indirectly, as individual occupations become more attractive as a result of improvements. Need to be combined with other efforts and be sufficiently long-term. Greater gender balance in membership and officers of unions important for success.
Taxation and social security policies	Taxation and social security laws and regulations. Women treated as individuals, not only as spouses.	Government, employers	Better possibilities for women to fully participate in the labour market if they so wish. Tax and socio-political incentives need to be made visible from the gender equality perspective in the context of employment policy. Gender impact assessment of all law reforms and alike has only started in a few countries in the world.
Educational policies	Encouragement or obligation to take non-traditional courses (e.g., lessons in cooking and handicraft for boys)	Government, public and private education providers	Can encourage both sexes to choose non-traditional occupations. Can demonstrate the possibilities of boys/ men to expand their repertoire of roles with regard to caregiving responsibilities, for instance.
Family policies	Parental leave schemes, reduced working hours, distance working arrangements, flexible working arrangements	Government, individual employers at the workplace level, worker and employer organisations	Men's role in, for instance, sharing childcare is of central importance to women's labour market position; may encourage men to use parental leave. Women can take parental leave without becoming economically dependent or without losing labour market skills. Women's and men's possibilities to take advantage of opportunities created by legislation and regulations are not always secured (because of opposition and impertinent attitudes at workplaces). Employers' and workers' organizations have an important task in creating a positive attitude at workplaces towards the sharing of family responsibilities. Note also the implications of elderly care and its organization on women's labour market position.
Other measures	Gender impact assessment in the context of new legislation or other regulations and big decisions	Government	For instance, as part of normal procedures, state budget proposals should be assessed with regard to their gender impact, in addition to their environmental, economic and enterprise impacts. Gender impact assessment has been utilized in a few countries in the world so far, e.g. Finland, Norway, Sweden, Namibia, South Africa and New Zealand. Methods are under development.

Source: Melkas and Anker, 2003, and authors' impressions.

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The implementation of the Bryt Aava project in the pilot areas started with discussions and provision of information to teachers in comprehensive and high schools on the impact that education has on replicating and reinforcing gender roles and hierarchies. Many teachers unfortunately opposed the project. They did not think that occupational sex segregation was a societal problem, or something they could affect through their teaching. Many were of the opinion that the gender-based division of labour is natural and determined by biology, that it cannot be changed, that teachers do not have a moral right to try to change it, and that changes in the division of labour would cause problems for women themselves and family life. In many teachers' view, gender equality was already realized in educational opportunities, curricula and school practices, and gender differences depend on individual choices that must be respected by teachers. However, the attitudes of student tutors in the above-mentioned schools, as well as teachers in schools providing vocational and technical education tended to be positive towards the project, perhaps because they had faced the problem (Räsänen, 1996).

The experience of the Bryt Aava project in Finland was that moral conflicts and disagreements must be accepted in the process of change. Other important lessons learned included the following (Räsänen, 1996):

- Aims based on values must be clearly brought up by the project personnel, otherwise the whole project can be undermined.
- Colliding views and confrontations are the basis of development and common understanding.
- Unanimity is not necessary; the different actors have to have the freedom and opportunity to cooperate on the basis of their own aims.
- All questions and views need to be taken seriously and answered.
- Group discussions are more essential than organizing seminars and reading background information.
- Segregation in education and working life can be changed by concrete processes. This work is very slow, however, as sex segregation has to be broken up by concrete measures everywhere it exists.

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The attitudes and behaviour of authorities in charge of equality projects are also of central importance, as it has been found that they can reinforce rather than reduce segregation (Jolkkonen et al., 1994).

The Bryt Aava project has been followed by numerous other projects in the 1990s and after 2000 that have been implemented by industrial employers, workers' organizations and government authorities. The projects have aimed, for instance, to increase girls' interest in technical professions, to develop vocational schools that take into consideration women's views, to support women's placement in industrial professions, and to familiarise schoolgirls with traditional boys' subjects, such as mathematics and natural sciences. Even more recent project experiences have confirmed that the dismantling of gender-based specialisation calls for a new way of thinking about typical women's and men's jobs both in the world of work as well as in schools. However, socialization into gender roles begins very early, before school age in families, day care centres and elsewhere, so this needs to be taken into account in attempts to combat occupational sex segregation. For further information on the "Nordic model" including welfare facilities and family policies, see Melkas and Anker (1998; 2003).

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## 6. Conclusions

This paper has been concerned with occupational sex segregation and the strong tendency all around the world for women and men to be concentrated in different occupations. This phenomenon is seen as representing gender discrimination in employment opportunities and as a direct measure of the fundamental right at work established in ILO Convention No. 111 on equality of opportunity in employment. To a substantial extent, this paper has been based on new and recent ILO data on occupational sex segregation. As this database is still in the process of being cleaned and updated to the year 2000, available national data are incomplete and so results presented in this paper are preliminary.

Based on these fragmentary data, it was found that general patterns and regional differences in occupational segregation from 1970-1990 reported in an earlier publication (Anker, 1998) remained largely intact. The implication is that social, cultural and historical factors continue to be major determinants of the extent and patterns of segregation around the world. On the other hand, preliminary available evidence provided in this paper indicates that there was a major reduction in occupational sex segregation in the 1990s in Developed countries, Latin American countries and Middle Eastern countries. In contrast, Transition Economy countries and parts of the Far East appear to have experienced no improvement in the 1990s. Regardless of whether or not there was improvement in the 1990s in particular countries, sex segregation levels remained high around the world.

It is clear that changing the gender structure of the labour market and eliminating obstacles to individual free and informed choices is a very slow process everywhere. The status of women in the labour market is in so many ways tied to history and culture in all countries. Therefore, the commitment to gender equality must be strong and consistent, including a clear view of aims – as well as why gender equality is (or is not) felt to be relevant by the public and what kinds of gender equity policies are possible to pursue. Without clear aims and public support from men as well as women, sustainable results are difficult to achieve. Gender issues also need to be handled at a sufficiently high level within the government in order to be taken seriously.

The goals in reducing occupational sex segregation need to be explicit. The idea is to secure free and informed choices of occupation, regardless of what stereotyped or actual characteristics one has. People should be able to enter the world of paid work and choose either a traditional or a non-traditional occupation (and education) without having to face discrimination and other negative consequences (e.g. lower pay and thus economic dependency, sexual harassment, glass ceiling). It is sometimes maintained by educational specialists that a large part of gender differences are innate, not society-fostered. As regards occupational sex segregation, the proper question would be: even if that would be the case, so what? There would still be an enormous overlap of abilities between individual women and men. In any case, the point is to enable people to have a choice. If mathematics is the strongest subject of a girl at school, the point is for the society to enable and encourage her to choose the profession she wishes – whether she ends up as a mathematician or a nurse – and be equally treated in it.

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Occupational sex segregation must always be seen in the context of general labour market conditions. Isolated attempts to combat it cannot produce meaningful and lasting results. If, for instance, more girls choose to study the natural sciences as a result of an educational project, but considerable workplace discrimination with regard to career possibilities continues and does not receive simultaneous attention, results are likely to be partial at best.

Measures for increasing equal opportunities for women may be divided into five groups (see also Melkas and Anker, 1998; Anker, 1998). All are necessary to help bring about gender equity.

Firstly, changes in mindset are needed. Awareness-raising and dissemination of information on gender equality issues to the general public, government officials, company representatives, trade-unionists, etc. are essential. Changes in attitudes concerning women and men and their roles in the family and as workers are definitely needed. The attitudes of companies also need to change. Too often, employers discriminate against women workers, seeing them as either peripheral workers or lower level workers to be excluded from the higher managerial tracks. Also, awareness-raising on the early socialization to gender roles and on fathers increased participation in child-care and household responsibilities is important.

Secondly, *real* support for family responsibilities (which women overwhelmingly bear) is key to women's improved position in society and the labour market. This includes development of policies truly enabling reconciliation of work and family life in the context of changing labour markets, and more equally shared household and family responsibilities between women and men. Even when the general opinion climate is in favour of gender equality and both women and men are in favour of equal sharing of household and family responsibilities, this rarely translates into real equality and mutual respect within families. Solemn promises and expressions of concern by decision-makers are not sufficient, they need to be put into practice. In addition, employers' support for fathers' increased responsibility in the family is essential, and in this regard, much remains to be done. Everyone loses in the long run if children and parents' well-being and family life are not valued in the society.

Thirdly, women need to acquire similar levels of human capital as men if they are to compete effectively with men in the labour market. This means that gender equality in schools and universities as well as in training needs to be improved. Sex discrimination existing in schools in many countries must be combated, and women's participation in all subjects in school (especially technical and scientific fields) and in universities needs to be improved. In all countries, girls should be prepared for professional careers and encouraged to have challenging goals for their future. Correspondingly, boys should be prepared for equal responsibilities in the home. The atmosphere in schools needs to be egalitarian, emphasizing individual strengths instead of trying to find differences in girls' and boys' abilities, and gender perspectives need to be integrated into the training and education of new teachers. This also means that women need to be more appropriately rewarded for the experience they acquire outside the labour market.

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Fourthly, analysis and assessment are of crucial importance. Continuous mapping of the equality situation in the society (for instance, female-male pay differentials, occupational segregation, career development, education, and implementation of legislation and regulations on gender equality) is essential to provide a sound basis for policy design. Analysis and increased visibility of the consequences of government policies on women and men alike are essential. Gender impact assessment of new legislation is a good example of such analysis. Research on family life, the state, power and democracy, reasons for the persistence of sex inequalities as well as on the impact of increasing job insecurity and atypical work are needed as well. Research agendas and policy design should have a close relationship.

Fifthly, other strategies for improving women's labour market situation need to be explored such as encouragement of women in higher level positions – for instance through mentoring, support for women's entrepreneurship (training, financial support, etc.), and support for women's and men's entry into non-traditional occupations as well as employers'. Carefully tailored and "catchy" training on gender equality issues in workplaces, and workers' organisations for instance in connection with equality planning at the enterprise level, can also be useful.

Many of the measures mentioned above have been pursued in various countries around the world. Yet, women's and men's capacity and potential are not used to the fullest anywhere, nor are real equal opportunities provided anywhere. In particular, there needs to be stronger political commitment to improving the ability of individuals to successfully balance work and family life, including fathers' participation in the home. The increased use of parental and care leaves and related schemes by fathers is very important. Government and decision-makers need to take a guiding and responsible role in gender equality matters and not blindly follow public opinion. While the risks may seem large for individual families and employees and the gains for employers may appear too obscure and distant in the future, the gains for society as a whole are large and attainable.

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## **Annex: The SEGREGAT database**

Database on employment (or labour force) by detailed occupational group and sex, obtained from population censuses or labour force surveys for years near 1970, 1980, 1990 and 2000. In 2002 SEGREGAT covered 76 countries, of which

11 in Africa  
15 in the Americas  
5 Arab  
11 in the rest of Asia  
13 in Eastern Europe  
17 in the rest of Europe  
4 in Oceania

By Autumn 2002 only 24 countries had provided data for 2000 or later and the data had been cleaned for 15 countries.

The original data is available in machine-readable form upon request. For details relative to ILO database please contact:

Bureau of Statistics  
International Labour Office  
4 route des Morillons  
1211 Geneva 22  
Switzerland

Tel: +41-22-799.8631  
Fax: +41-22-799.6957  
e-mail: [stat@ilo.org](mailto:stat@ilo.org)

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