

# **Women's access to occupations with authority, influence and decision-making power**

**Working Paper No. 44**

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Statistical Development and Analysis Group  
International Labour Office  
Geneva**

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to stimulate discussion and obtain comments

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# Women's access to occupations with authority, influence and decision-making power

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## Preface

This study of women's access to occupations with authority and decision-making power, with a focus on legislators, senior officials and managers, comes at very apt time. 2005 marks the fifth year after the adoption of the Millennium Declaration by the Member States of the United Nations. Among pledges in that declaration is the resolve "to promote gender equality and the empowerment of women as effective ways to combat poverty, hunger and disease and to stimulate development that is truly sustainable" (Millennium Declaration, 2000, United Nations General Assembly, A/RES/55/2, para. 20). Among the eight Millennium Development Goals derived from the Declaration, Goal 3 is to promote gender equality and the empowerment of women.

One of the indicators attached to the MDG on gender equality is the share of women in single or lower houses of parliament (United Nations, *Millennium Development Goals Report 2005*, p. 16). Thus by looking at legislators among others, Richard Anker's study makes an important empirical and analytical contribution to ILO Member States' capacity to measure progress towards MDG 3.

This work also feeds into the possible revision of the International Standard Classification of Occupations (ISCO-88) that was recommended in 2003 by the 17<sup>th</sup> Session of the International Conference of Labour Statisticians for future action on their part. Another Working Paper has looked at this issue from a broader perspective (D. Budlender, *Whither the International Standard Classification of Occupations (ISCO-88)?* Policy Integration Working Paper No. 9).

Further reflection on these issues is welcome and has certainly been stimulated by the current Working Paper from the Statistical Development and Analysis Group.

**Anne Trebilcock**  
**Director ad interim**  
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June 2005





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## Foreword

Discrimination against women reduces their opportunities for positions with decision-making authority and power. This is often referred to as the glass ceiling.

This paper is the first publication to carefully scrutinize and analyse the extent to which legislators, senior government officials and managers in private establishments (LSOM) are women. The paper analyses feminisation levels and differentials for a large number and wide range of countries from around the world. It also examines how feminisation of these occupations is related to the level of economic development and other indicators of gender equity in society.

The author, a visiting scholar at Wesleyan University in Connecticut (United States), concludes that women do not have anywhere near equal opportunity in access to high-status decision-making occupations. Women are a distinct minority of LSOM workers in the world, comprising only about 27 percent of these workers. This lack of equal opportunity is universal; women are a distinct minority of legislators, senior officials and managers in all regions of the world.

Another important conclusion is that feminisation of LSOM occupations is not positively related to a country's development level as measured by GDP per capita. This unexpected result indicates that economic development (and accompanying increases in education and changes in traditional values) is not sufficient by itself to significantly alter gender stereotypes about the appropriateness of women being managers and holding decision-making positions in the labour market.

As a Working Paper, this represents the views of the author and is intended to stimulate debate. It is published as a contribution to work in the ILO on developing the statistical analysis dimension of decent work.

**Peter Peek**  
**Manager**  
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June, 2005



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## 1. Introduction

*One of the most important aspects of gender inequity is women's insufficient access to positions of decision-making power and authority in the labour market, often referred to as the glass ceiling.<sup>1</sup> The most common way to measure this at the international level is women's share of the major occupational group consisting of legislators, senior officials, and managers (LSOM). The present monograph is concerned with this indicator and documenting the extent to which women around the world have access to or are disadvantaged regarding decision-making positions in the labour market.*

*There are good conceptual and practical reasons why this indicator is used for international analyses. From a conceptual point of view, these are high-status occupations that embody influence, power and authority. Also, women's access to these positions in the labour market will both influence as well as be influenced by women's overall status in society. From a practical point of view, these data are available annually for a wide range of countries in the ILO Yearbook of Labour Statistics.*

International organizations use this indicator extensively to measure gender equity in international comparisons. UNDP (its annual Human Development Reports since 1995), United Nations (1990, 1995 and 2000) and ILO (2003; 2003a) all include this as one of their limited number of gender equity indicators. For example, it is one of only four components included in UNDP's Gender Empowerment Measure (GEM)<sup>2</sup>. And, ILO recommends using this indicator to help measure fair treatment and equality of opportunity in the labour market (Anker, Chernyshev, Egger, Mehran and Ritter, 2003).

*Unfortunately, available international data on this indicator have not been carefully examined to learn about women in decision-making positions. Nor has this indicator been carefully examined in terms of its appropriateness in practice as a measure of women's status in the labour market and women's opportunity for higher level positions of authority, influence and decision-making power. This is important, because it is difficult to collect and code occupational data at the national level that accurately reflect the situation in a country and are at the same time comparable across countries. Not only is it difficult to accurately establish an individual's occupation (i.e., what they do or their profession) in a census or labour force sample survey, especially whether or not work involves authority, influence and decision-making power, but in addition there are a myriad of occupational classifications in use in the world.*

The present monograph takes up the challenge of looking at the extent to which women around the world are legislators, senior officials and managers as well as the degree to which this is a good indicator of women's status and power in the labour market across countries.

<sup>1</sup> See Wirth (2002) for a discussion of the glass ceiling in an international perspective. Although the indicator investigated in this monograph is appropriate for investigating the glass ceiling, newspapers and the media often focus on a more narrow aspect of the glass ceiling: the extent to which women are executives of major corporations such as Fortune 500 companies.

<sup>2</sup> The four components of GEM are: (i) percent of seats in parliament held by women; (ii) female percent of legislators, senior officials and managers (focus of this monograph); (iii) female percent of professional and technical workers; (iv) ratio of estimated female to male earned income. Also note that the second component in GEM (percent of seats in parliament held by women) is part of the indicator of interest in this monograph

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Three data sets are used in this monograph. The ILO Yearbook of Labour Statistics database is used to measure the degree to which these occupations are feminized for a wide range of countries. ILO's global SEGREGAT database and a specially constructed EUROSTAT database for Europe provide more detailed information on the different occupational categories that comprise the legislators, senior officials and managers major occupational group. All three of these databases contain official national statistics.

The remainder of this monograph is structured as follows. Section 2 describes widely used international standard occupational classifications, and the occupations included in the LSOM major occupational group. This is important, because occupational classifications help determine the feminization rate observed, and national classifications almost always use or are patterned on an international standard classification. Section 3 discusses whether women's participation in these powerful and influential occupations should be measured in an absolute or relative sense. It concludes that both provide valuable information and useful perspectives, and consequently both should be used (and are used in the analysis in this monograph). Section 4 analyses the current situation around the world in the year 2000 in terms of: percent female in the LSOM major occupational group, percent of working women who are in this major occupational group, and the size of this major occupational group. It also looks in more detail at countries with an especially high or low value for the region to help discern if these reported values are due to national classification and coding practices, or if they appear to reflect a real situation. Section 4 also analyses the current situation in Europe using a specially developed EUROSTAT database containing detailed data for LSOM sub-major and minor occupational groups. Section 5 looks at whether the reported level of women's participation in the LSOM major occupational group is affected by women's participation in the non-agricultural labour market or size of the major group. Section 6 looks at how feminization of the LSOM major occupational group is related to: development level (GDP per capita); and gender equity in society (female to male life expectancy at birth, female share of parliamentarians, and UNDP's Gender Development Index). This analysis enables us to observe the extent to which women in a country are legislators, senior officials and managers is related to development level and other aspects of gender equity in society. Section 7 provides some concluding remarks.

Appendices provide in-depth analysis of important sources of non-comparability across countries and over time within countries. Appendix A looks at differences between the two most commonly used international standard occupational classifications, ISCO-68 and ISCO-88. Appendix B looks at the stability of reported annual national estimates. Appendix C provides a detailed set of national values for European countries based on a special EUROSTAT database. Appendix D analyses interrelationships between feminization of the three LSOM sub-major groups and the six LSOM minor occupational groups using the special EUROSTAT database for 29 European countries where detailed occupational data are available. This enables us to observe the extent to which feminization of sub-major and minor occupational groups are positively related as expected, since all should be measuring the same underlying phenomenon.

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## 2. Occupations included as legislators, senior officials and managers according to international standard occupational classifications

According to the most recent international standard classification of occupations (ISCO-88), LSOM occupations have *status, influence, power and decision-making authority*. They “determine, formulate and direct or advise on government policies as well as those of special interest organizations, formulate laws and regulations and act on their behalf, oversee the interpretation and implementation of government policies and legislation, or plan, direct, and coordinate the policies and activities of enterprises or organizations, or their internal departments or sections.”

The major occupational group of legislators, senior officials and managers is comprised of three sub-major occupational groups and eight minor occupational groups in ISCO-88. Examples of occupations included in the following sub-major and minor occupational groups are provided in Table 1. The sub-major and minor occupational groups are listed below:

- legislators and senior officials, generally government officials
  - legislators
  - senior government officials
  - traditional chiefs and heads of villages
  - senior officials of special interest groups
- corporate managers
  - directors and chief executives
  - production and operations department managers
  - other department managers
- general managers
  - general managers

Workers in the first sub-major occupational group, namely legislators, senior government officials and senior non-government officials, clearly hold important positions with decision-making authority and influence. According to ISCO-88:

Legislators and senior officials determine, formulate or advise on and direct government policies, make, ratify and repeal laws, public rules and regulations, represent governments and act on their behalf, oversee the interpretation and implementation of government policies and legislation, or carry out similar tasks on behalf of special interest organizations. (*ILO, 1990, p.24*)

*These occupations, however, tend to contain relatively few workers* (as will be shown in Section 4). This means that the degree to which women hold these high level positions cannot greatly influence the observed level of feminization of LSOM as a whole.

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Managers form the other two sub-major occupational groups in ISCO-88, namely corporate managers and general managers (although they are combined in one sub-major group in ISCO-68, see Appendix A). According to ISCO-88:

Corporate managers determine and formulate policies and plan, direct and coordinate activities of enterprises and organizations as a whole or of their internal departments or sections. (ILO, 1990, p.30)

General managers head various small business undertakings which they manage on their own behalf, or on behalf of the proprietors with the assistance of no more than one other manager and some non-managerial help. (ILO, 1990, p.41)

The two sub-major occupational groups of managers are similar in that both consist of positions with decision-making power. They differ in their degree of power and influence. *Corporate managers have in general greater power and influence than general managers*, since according to ISCO-88 corporate managers work in large enterprises and organizations (with three or more managers) and general managers work in small enterprises or organizations (with 2 or fewer managers).

Although similar in many ways<sup>3</sup>, there are important differences between ISCO-68 and ISCO-88 that need to be understood since some countries use ISCO-68 and others use ISCO-88. This affects cross-country comparability. Major differences are listed below. Readers interested in a more detailed discussion of differences between ISCO-68 and ISCO-88 are referred to Appendix A.

- ISCO-88 includes many more manager occupations in LSOM as compared to ISCO-68. For example, managers in wholesale and retail trade, sales and marketing, finance and administration, and agriculture are included in LSOM in ISCO-88 but not in ISCO-68.
- The additional manager occupations in LSOM in ISCO-88 are particularly relevant for small businesses.<sup>4</sup> This means that ISCO-88 includes many more owners and managers of smaller restaurants, hotels and laundries as well as small farms compared to ISCO-68. This reduces the meaningfulness of LSOM based on ISCO-88 as a measure of women's status, power and influence in the labour market, since small business owners and managers have nowhere near the same power and influence as legislators, senior government officials and directors and managers in large companies. This also reduces cross-country comparability because of differences between ISCO-88 and ISCO-68.
- There are substantial practical problems in classifying managers, especially using ISCO-88. It is often difficult to know in surveys and censuses if an owner (and sometimes a worker) of a small business or farm is a manager, since workers in

<sup>3</sup> Both use similar terminology to describe occupations, and there is great overlap in the occupations that are included in this major occupational group. This major group is called Legislators, senior officials and managers in ISCO-88, and Administrators and managerial workers in ISCO-68. See Appendix A.

<sup>4</sup> ISCO-88 distinguishes between supervisory occupations and managerial occupations. Supervisory occupations are not included in LSOM in either ISCO-68 or ISCO-88. According to ISCO-88, "Supervisory occupations are mainly concerned with the control of the professional or technical quality of the work done and are classified together with the jobs whose task they supervise. If the main tasks and duties of a job consist of planning, organizing, controlling and directing the daily work activities of a group of subordinate workers, the occupation should be considered as a managerial occupation" (ILO, 1990, p.10-11).

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small businesses and farms often combine managerial and non-managerial activities.<sup>5</sup> These practical difficulties sometimes lead to substantial differences in national coding practices, thereby reducing cross-national comparability. This is especially important for lower income countries with large farm sectors and large urban informal sectors. This variability in national practices in turn affects the observed percentage female for the major occupational group, since the feminization of small and large businesses varies within and between countries.

<sup>5</sup> ISCO-88's guidance for classifying workers as managers does not eliminate the practical difficulties involved, since coders and interviewers often do not possess the information needed to decide if a worker is doing mostly managerial work or professional work. "If the main tasks require the operational application of specific professional knowledge or a particular technical skill, then the job belongs in a different major group. If, however, professional knowledge or technical skill serve only as a basis for managerial tasks, then the job belongs in this (managerial) major group" (ILO, 1990, p.23).

**Table 1. Legislators, senior officials and managers: Description of their sub-major and minor occupational groups and typical occupations in ISCO-88 classification**

Sub-major group	Minor group	Examples of occupations
11 Legislators and senior officials	111 Legislators	Minister; President; Prime minister; Senator.
	112 Senior government officials	Govt administrator; Ambassador; Govt secretary.
	113 Traditional chiefs and heads of villages	Village chief or head.
	114 Senior officials of special interest organisations	Senior official of political party; Secretary general or senior official of trade union or special interest organization.
12 Corporate managers (managers in organizations or enterprises with 3 or more managers)	121 Directors and chief executives	Chief executive; director general or president of enterprise or organization.
	122 Production and operations department managers	Department manager in agriculture, manufacturing, construction, wholesale and retail trade, restaurants and hotels, transport and communications, business services, personal care, other.
	123 Other department managers	Department manager in finance, personnel, sales, advertising, supply, computing, research, other.
13 General managers (managers in organizations or enterprises with 2 or fewer managers)	131 General managers	General managers in agriculture, manufacturing, construction, wholesale and retail trade, restaurants and hotels, transport and communication, business services, personal care, education, health, recreation, travel agency.

Notes: <sup>1</sup> Occupations are included in LSOM major group when "professional knowledge or technical skill serves only as a basis for legislative, administrative or managerial tasks. When the main tasks require operational application of specific professional knowledge or a particular technical skill, then the job belongs in a different major group" (ILO, 1990, p. 23).



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### 3. Both relative and absolute measures are meaningful and important

Equal opportunity in employment for men and women is influenced by three aspects of opportunities, inequalities and discrimination in the labour market.

- First, women need to have the opportunity to be able to join the labour force and participate in labour market activities. This is typically measured by the adult female labour force participation rate, or the female share of the labour force, as almost all men in the world of prime working age are in the labour force.<sup>6</sup>
- Second, women need to have the opportunity to be able to work in all types of occupations. This is often measured by the extent to which women and men are integrated or segregated into different occupations, typically referred to as occupational sex segregation. Readers are referred to earlier publications by the author on this subject (e.g., Anker, 1997, and 1998), as well as a forthcoming paper that includes more recent data and discussions (Anker, Melkas and Korten, forthcoming).
- Third, women need to have the opportunity to be able to obtain good labour market positions such as those that pay well, have decent working conditions and have decision-making authority. This is often proxied for by male-female pay rates or by the extent to which legislators, senior officials and managers are women. The latter is the focus of this monograph.

As noted in Section 1, it is common to measure women's status and power in the labour market and society by women's percentage of LSOM. This indicator provides valuable information on women's status as it indicates how common women are as compared to men among the high status and decision-making positions of legislators, senior officials and managers.

This indicator, however, does not provide information on the extent to which women workers face barriers and discrimination in access to these types of positions. To measure this, it is necessary to take into consideration the extent to which women participate in the labour market in general. For example, say that 35 percent of legislators, senior officials and managers are women in three countries that are very different in terms of women's general participation in the labour market (where women comprise say 10 percent of the labour force as in some Middle Eastern countries, 35 percent of the labour force as in some Latin American and Southern European countries, and 45 percent of the labour force as in many developed countries). In this example, women already in the labour market would be more likely to hold positions of power in the Middle East as compared to working women in Latin American countries, and much more likely to hold these positions as compared to working women in developed countries. As will be shown in Section 4, this relative indicator for working women provides quite a different description of the situation than the one based on the absolute percent of women working as legislators, senior officials and managers.

<sup>6</sup> While many younger men are out of the labour force because they are in school and many older men are out of the labour force because they are retired, almost all men in the prime working ages are in the labour force since unemployed persons are considered to be in the labour force according to internationally accepted recommendations and definitions.

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A typical way to measure the relative participation of working women in a specific occupational group is to calculate a *representation ratio* by dividing percent female in an occupation by percent female for the labour force as a whole. Values over 1.0 indicate that women are over-represented in an occupation relative to their participation in the labour force as a whole, and values under 1.0 indicate that women are under-represented in an occupation. This *relative measure provides information on the extent to which working women face a lack of opportunity (and/or discrimination) for particular positions or occupations.*<sup>7</sup>

*It is clear that both the extent to which legislators, senior officials and managers are women and the extent to which working women are in LSOM provide valuable insights. For this reason, both are used in this monograph, thereby providing interesting and sometimes conflicting insights into women's opportunities and access to occupations with authority and decision-making power.*

## 4. Current levels

This section looks at the current situation in the world in terms of the size and feminization of the major occupational group of legislators, senior officials and managers.

The three data sets used provide different perspectives. National data reported in the ILO Yearbook of Statistics are used to provide a worldwide perspective. These data are reasonably comprehensive in terms of country coverage, with official national data reported annually for close to 70 countries from all regions. The main disadvantage of these data is that they only provide information for LSOM as a whole and do not include data for sub-major occupational groups or minor occupational groups. An additional disadvantage of these data is that they are based on different classifications of occupations, although almost countries attempt to emulate ISCO-88 and to a lesser extent ISCO-68. A specially designed EUROSTAT database for 29 European countries is used to look at the situation in Europe using a more detailed occupational classification. The main advantage of these EUROSTAT data is they are based on a detailed common classification system (ISCO-COM that is very similar to ISCO-88).<sup>8</sup> Their main disadvantage is that they only cover European countries, although Transition Economy countries as well as Developed Market Economy countries are included. The third data set is ILO'S SEGREGAT, a special purpose data set containing official national data on the number of male and female workers in different occupations. Its main advantages are its global coverage and its use of detailed two-digit or three-digit occupational classifications. Its main disadvantages are that data are often for years prior to 2000, many different national classification systems

<sup>7</sup> This is measured in this monograph relative to women's share of the non-agricultural labour force rather than the total labour force. There are several reasons for this. First and most importantly, agriculture is generally a family based activity and consequently generally is not subject to typical labour market forces such as job search, and employer and employee choices. Second, there is known to be considerable measurement error and underreporting of women's labour force participation in agriculture, especially as regards own account and unpaid family work (ILO, 1998: Anker, 1987). Third, inclusion of agricultural workers often trivializes estimates in countries with very large agricultural sectors, such as in many developing countries.

<sup>8</sup> Although an effort was made by European statistical offices to use ISCO-COM, there are, none-the-less some national differences, especially in the use of "not further specified" sub-major and minor occupational groups. For example, the corporate managers minor groups are sometimes combined into a corporate managers "not further specified" minor group. This is especially likely to occur in countries where the labour force sample size is small and for smaller occupational groups.

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are used, and data for sub-major groups and minor groups are provided only for some countries especially higher-income countries.

This section is divided into five parts. Sections 4a-4d focus on the current situation for the world for the major occupational group as a whole. Section 4a is concerned with the extent to which legislators, senior officials and managers are women. Section 4b is concerned with the extent to which working women are in this major occupational group. Section 4c is concerned with the size of this major group. And Section 4d identifies countries with especially high and low values for their region to help explain unusual national values (including possible differences in national occupational classifications, data collection/processing, and economic structure, and policy). Section 4e focuses on the current situation in Europe using more detailed sub-major and minor occupational data.

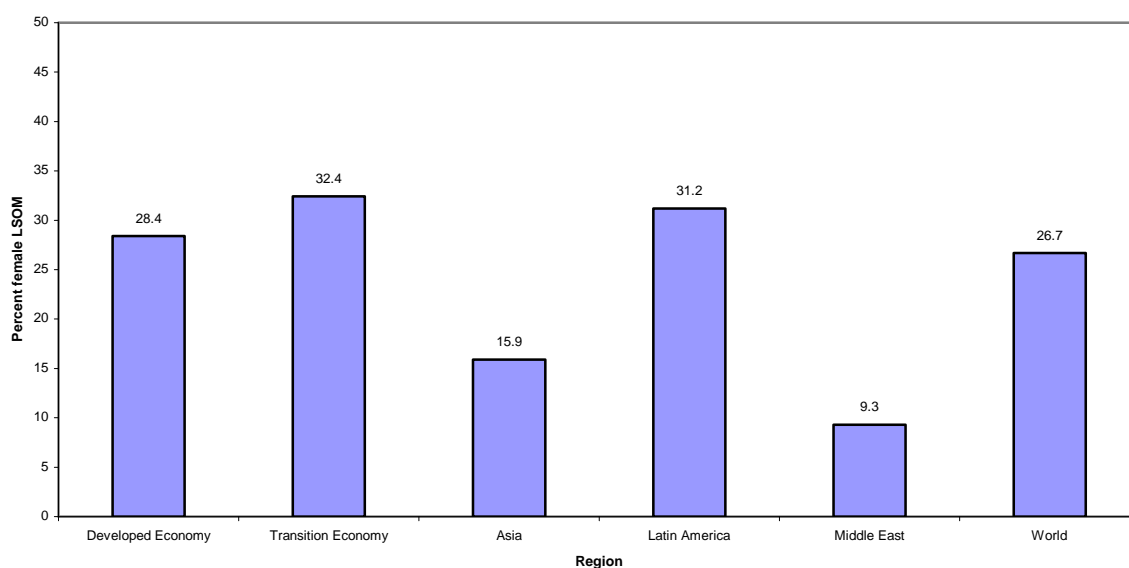
#### **4a. Percent female among legislators, senior officials and managers in 2000**

Analysis in this section is based on global data reported on the ILO website and in the ILO Yearbook of Labour Statistics for approximately 70 countries or territories generally for the year 2000 (Table 2; and Figures 1 and 2). These data reveal that:

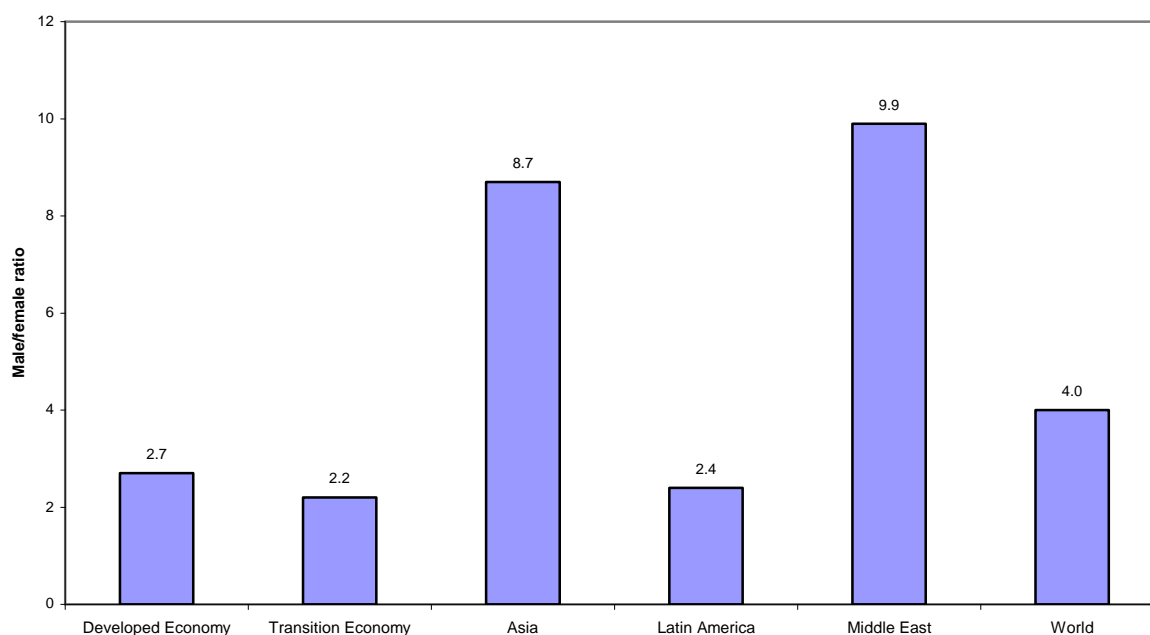
- *Women are a distinct minority of LSOM in the world as a whole.* Based on an unweighted average of national values, women are found to comprise only about 27 percent of these workers. There are *approximately 3 men for every woman in this major occupational group.*<sup>9</sup> It is clear that LSOM is largely a male domain. Readers are referred to Section 4d for discussion of high and low national values in each region.
- *Women are a distinct minority of workers in LSOM in all regions of the world.*
- *There are major differences across regions (Figure 1).* Percent female in the LSOM major group ranges from only about 10 percent on average in the Middle East to around 30 percent on average in Transition Economies, Latin America and Developed Economies. This implies that the ratio of male to female workers in this major group ranges across regions from about 2 to 1 in Transition Economy countries to about 10 to 1 in the Middle East (Figure 2).

<sup>9</sup> The world average differs substantially when based on the mean of national values as in Table 2 (4.0) as compared to when based on the median of national values (2.8). The reason for this large difference is that very high national values count quite heavily in calculation of the mean.

**Figure 1 Percent female among legislators, senior officials and managers (LSOM) by region, 2000**



**Figure 2. Male/female ratio among legislators, senior officials and managers (LSOM) by region, 2000**



- The relatively low percentage female in Asia (only around 16 percent on average with approximately 9 men for every woman) deserves additional comment, because *national values are quite heterogeneous within Asia*. The reason for this high level of heterogeneity in Asia is that there are distinct sub-groupings of Asian countries. In South Asia (Bangladesh, Pakistan, Sri Lanka and Maldives) and two East Asian countries (Japan and Republic of Korea), percent female is very low at around 10 percent on average and so there are around 9 men for every woman in this major group. This is similar to the Middle East. In contrast, percent female in South East Asian countries and territories (Malaysia, Philippines, Singapore, Thailand, Macau (China), and Hong Kong (China)) is roughly 23 percent on

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average and there tends to be around 3 men for every woman in this major group on average.

- Within Developed Economies, it is noteworthy that Anglo-Saxon countries have a relatively high percent female in LSOM. Not only does the United States have the highest value among countries in Table 2, but all Anglo-Saxon countries have relatively high values with at least 11 percent female in LSOM.
- Within Transition Economies, it is noteworthy that all three Baltic countries (Estonia, Latvia, and Lithuania) have especially high percent female in LSOM, as do other countries from the former USSR such as the Russian Federation, Ukraine and Moldova.
- The distinct clustering of country values within region of countries with similar cultures clearly implies that cultural and societal norms about appropriate roles for women plays a very important part in determining women's access to LSOM positions and therefore percent female in LSOM.

**Table 2: Percent female and representation ratio for major group occupations of legislators, senior officials and managers (LSOM), World 2000**

Region/Country	Female share non-ag LF (%) <sup>6</sup>	% Female in LSOM	Representation ratio (%f in LSOM/%f in non-ag LF) <sup>6</sup>	M/F ratio in LSOM	Share of LSOM in non-ag LF (%) <sup>6</sup>
<b>Developed economy</b>					
Australia	44.4	32.7	0.74	2.1	11.8
Austria	43.4	28.2	0.65	2.5	7.8
Canada	46.7	35.4	0.76	1.8	10.1
Cyprus	41.3	14.5	0.35	5.9	3.1
Denmark	47.5	23.0	0.48	3.3	7.4
Finland	48.5	25.9	0.53	2.9	8.8
Germany	44.2	26.9	0.61	2.7	5.9
Greece	37.0	25.4	0.69	2.9	12.2
Iceland	48.2	27.3	0.57	2.7	6.8
Ireland	42.4	31.2 <sup>9</sup>	0.74	2.2	13.8 <sup>9</sup>
Israel	46.3	25.9	0.56	2.9	7.4
Italy <sup>5</sup>	37.4	18.8	0.50	4.3	3.4
Netherlands	42.8	23.4 <sup>9</sup>	0.55	3.3	12.5
New Zealand	46.8	37.9	0.81	1.6	14.3
Norway	47.8	25.3	0.53	3.0	8.4
Portugal	44.7	32.1	0.72	2.1	7.5
Spain	37.4	31.2	0.83	2.2	8.2
Sweden	48.6	29.2	0.60	2.4	4.7
Switzerland	44.6	23.3	0.52	3.3	6.3
United Kingdom <sup>3</sup>	44.8	33.2	0.74	2.0	17.6
United States <sup>2</sup>	47.2	45.3	0.96	1.2	15.0
<b>Average (unweighted)</b>	<b>44.4</b>	<b>28.4</b>	<b>0.64</b>	<b>2.7</b>	<b>9.2</b>
Standard deviation	3.6	6.7	0.14	1.0	3.9
<b>Transition economy</b>					
Croatia	45.4	24.7	0.54	3.0	7.8
Czech Republic	44.0	24.7	0.56	3.0	6.4
Georgia	46.3	26.3 <sup>9</sup>	0.57	2.8	9.5
Hungary	46.1	33.9	0.74	1.9	7.3
Poland	45.1	32.5	0.72	2.1	7.5
Romania	47.7	26.0	0.55	2.8	4.3
Slovakia	45.9	30.8	0.67	2.2	6.4

Region/Country	Female share non-ag LF (%) <sup>6</sup>	% Female in LSOM	Representation ratio (%f in LSOM/%f in non-LSOM ag LF) <sup>6</sup>	M/F ratio in	Share of LSOM in non-ag LF (%) <sup>6</sup>
Slovenia	46.3	28.7	0.62	2.5	6.9 <sup>9</sup>
Estonia	49.5	37.0	0.75	1.7	13.2
Latvia	48.6	39.5 <sup>9</sup>	0.81	1.5	10.0 <sup>9</sup>
Lithuania	50.4	39.3 <sup>9</sup>	0.78	1.5	11.2 <sup>9</sup>
Moldova	48.2	36.5	0.76	1.7	6.3
Russian Federation <sup>1</sup>	47.8	37.3	0.78	1.7	4.7
Ukraine	48.1	36.1	0.75	1.8	7.4
<b>Average (unweighted)</b>	<b>47.1</b>	<b>32.4</b>	<b>0.69</b>	<b>2.2</b>	<b>7.8</b>
Standard deviation	1.8	5.5	0.10	0.6	2.4
<b>Asia</b>					
Bangladesh <sup>2</sup>	21.8	8.5	0.39	10.8	1.0
Hong Kong (China)	41.7	21.9	0.53	3.6	7.8
Japan <sup>2</sup>	40.7	9.2	0.23	9.9	3.4
Korea, Rep. Of	40.3	4.6	0.11	20.7	2.7
Macau (China)	47.1	18.5	0.39	4.4	6.1
Malaysia <sup>2</sup>	36.6	20.2	0.55	4.0	4.9
Maldives	31.1	15.4	0.50	5.5	6.5
Pakistan <sup>2</sup>	8.8	8.7	0.99	10.5	1.2
Philippines <sup>2,4</sup>	45.6	34.9	0.77	1.9	3.7
Singapore	42.4 <sup>9</sup>	21.6	0.51	3.6	12.8
Sri Lanka <sup>1</sup>	35.0	3.7	0.11	26.0	2.5
Thailand <sup>2</sup>	46.2	23.5 <sup>9</sup>	0.51	3.3	5.5
<b>Average (unweighted)</b>	<b>36.4</b>	<b>15.9</b>	<b>0.46</b>	<b>8.7</b>	<b>4.8</b>
Standard deviation	11.3	9.2	0.25	7.6	3.3
<b>Latin America</b>					
Barbados <sup>1,2</sup>	47.2	39.8	0.84	1.5	6.9
Bolivia <sup>8</sup>	44.5	29.7 <sup>9</sup>	0.67	2.4	3.1
Chile <sup>2</sup>	37.6	23.5 <sup>9</sup>	0.63	3.3	4.3
Colombia <sup>2,8</sup>	45.9	38.2	0.83	1.6	2.6
Costa Rica	33.1	30.5 <sup>9</sup>	0.92	2.3	5.3
Ecuador <sup>8</sup>	39.7	26.5 <sup>9</sup>	0.67	2.8	2.8
El Salvador	44.2	29.1 <sup>9</sup>	0.66	2.4	2.0

Region/Country	Female share non-ag LF (%) <sup>6</sup>	% Female in LSOM	Representation ratio (%f in LSOM/%f in non-LSOM ag LF) <sup>6</sup>	M/F ratio in non-ag LF (%) <sup>6</sup>	Share of LSOM in non-ag LF (%) <sup>6</sup>
Honduras <sup>2,1</sup>	50.1	40.7 <sup>9</sup>	0.81	1.5	3.6
Mexico	38.6	23.5	0.61	3.3	2.8
Netherlands Antilles <sup>8</sup>	47.8	29.8	0.62	2.4	9.6
Panama <sup>2,1</sup>	39.8	32.5	0.82	2.1	7.6
Peru <sup>8</sup>	44.2	28.1	0.64	2.6	0.5
Puerto Rico	43.4	37.4	0.86	1.7	12.9
Suriname <sup>2,1</sup>	35.3	17.7 <sup>9</sup>	0.50	4.6	2.5
Trinidad and Tobago	37.8	39.2	1.04	1.6	7.4
Uruguay <sup>8</sup>	44.0	36.3	0.83	1.8	6.4
Venezuela <sup>2</sup>	40.1	28.1	0.70	2.6	3.9
<b>Average (unweighted)</b>	<b>42.0</b>	<b>31.2</b>	<b>0.74</b>	<b>2.4</b>	<b>5.0</b>
Standard deviation	4.7	6.6	0.14	0.8	3.2
<b>Middle East</b>					
Bahrain <sup>2</sup>	13.6	8.7	0.64	10.5	4.0
Egypt	16.2	10.1	0.62	8.9	13.7
Turkey <sup>2,1</sup>	16.6	7.8	0.47	11.8	12.7
West Bank and Gaza	11.1	10.7 <sup>9</sup>	0.96	8.3	4.0
<b>Average (unweighted)</b>	<b>14.4</b>	<b>9.3</b>	<b>0.67</b>	<b>9.9</b>	<b>8.6</b>
Standard deviation	2.6	1.3	0.21	1.6	5.3
Botswana	47.3 <sup>9</sup>	31.0 <sup>9</sup>	0.66	2.2	3.8
<b>World</b>					
<b>Average (unweighted)</b>	<b>41.3</b>	<b>26.7</b>	<b>0.65</b>	<b>4.0<sup>7</sup></b>	<b>7.0</b>
Standard deviation	9.4	9.7	0.18	4.2	3.8

Notes: Based on an ISCO-88 classification unless otherwise indicated. To increase cross-national comparability, preference was first given to selection of national data based on ISCO-88 classification when such data were available. For year 2000 unless otherwise indicated to increase cross-country comparability. When latest available national data are for a year before 1997, country was not included. Country data included only when based on a population census or labour force/household survey so that population coverage is complete. Data excluded when based on an establishment survey, or on administrative records, or when an official estimate.

<sup>1</sup> For 2001: Turkey. For 1999: Russian Federation, Barbados, Honduras and Panama. For 1998: Sri Lanka and Suriname.

<sup>2</sup> Based on an ISCO-68 classification. Note that percent female in LSOM, representation ratio for LSOM, and share of non-agricultural labour force in LSOM all tend to be lower when based on an ISCO-68 classification as compared to when based on an ISCO-88 classification (see Appendix A).

<sup>3</sup> UK combines agricultural and elementary workers into one major group. This means that the size of the non-agricultural labour force is over-estimated and therefore the size of the representation ratio is somewhat overestimated for UK.



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<sup>4</sup> Philippines provides results for 2001 based on an ISCO-88 classification. These data were not selected, because they do not seem plausible as 12.3 percent of all non-agricultural workers are reported to be general managers of whom 65 percent are reported to be female. Therefore, data for 2000 based on an ISCO-68 classification were selected.

<sup>5</sup> Italy does not use the LSOM sub-major occupational group of general managers. This may explain in part Italy's low share of workers in major group (last column) as well as possibly its low percent female in major group (third column). See discussion on this in Section 4d.

<sup>7</sup> Median (2.8) is substantially lower than the mean, because very high national values count more heavily in calculation of the mean.

<sup>8</sup> For urban areas only.

<sup>9</sup> National values sometimes fluctuate substantially from one year to the next. For this reason, annual national values are less reliable than world or regional averages. To take this into account, an unrealistically large change in the latest national value (almost always 2000) that probably reflects incorrect reporting due to for example sampling error, was replaced by its running three-year average. For consistency, the three-year average for the other two variables in columns 2-4 were used as well. Superscript 9 indicates when a substantial difference was observed. See Appendix B for data and analysis on this.

Non-agricultural labour force is estimated by subtracting from the total labour force the number of workers in the following occupational groups: agriculture (major group 6), armed forces (AF), and occupations not elsewhere specified that are not clearly assigned to a particular sub-major or minor occupational group (X). As some agricultural workers may be classified as elementary workers in major group 9 in ISCO-88, these workers would be included in our estimate of the non-agricultural labour force.

Values are available for four additional European countries in Appendix C from a special EUROSTAT database. Percent female for LSOM is: 31.3 percent for Belgium, 35.3 percent for France; 27.2 percent for Luxembourg; and 29.9 percent for Bulgaria according to these data. These data are not used in this table in order to increase comparability as they are from another data source. Results and conclusions in this monograph would not be affected if these four countries had been included in the above table.

Source: ILO website.

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#### **4b. Percent of working women who are legislators, senior officials or managers in 2000**

It is also informative to look at representation ratios (see Table 2 and Figure 3) to observe the extent to which working women are found in LSOM occupations compared to all occupations. This indicator could be thought of as measuring the extent to which women in the labour force have opportunity for the high status and decision-making jobs of legislators, senior officials and managers. Results indicate that:

*Working women all around the world have limited access to legislative, senior official and manager occupations.*

- Women workers are much less likely to hold a LSOM occupation than other non-agricultural occupations. Women are approximately two-thirds as likely to hold these positions as they are other non-agricultural positions.

*Quite a different picture emerges as regards regional differences based on results for the representation ratio as compared to results based on percent female in the major group.*

- *Regional differences are much smaller* for the representation ratio than they are for percent female. Regional averages for the representation ratio only range from .46 to .74, whereas regional averages range from 9 to 32 percent for female share of the major group.
- *Rank order of regions changes.* Regional results differ markedly from those discussed in the previous subsection for percent female in terms of the rank order of regions. The worst region in terms of representation ratio is Asia (with a representation ratio of .46), and Latin America is now the best region with an average representation ratio of .74. Surprisingly, the Middle East (.67) is average.

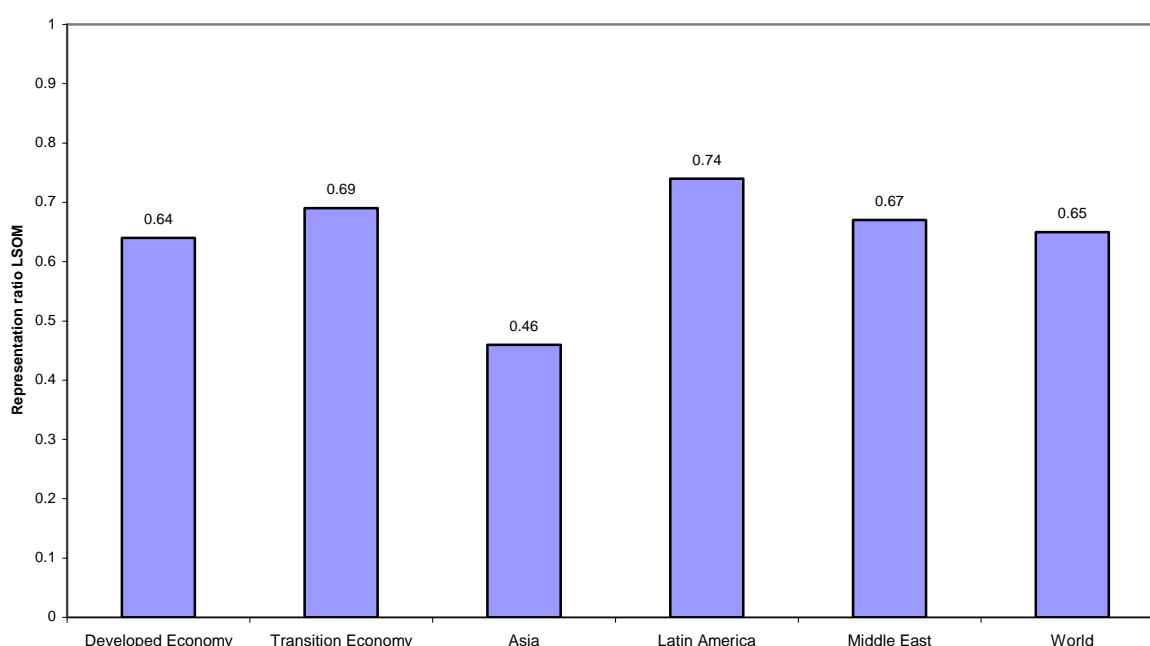
*There are interesting patterns appear within regions.*

- In the Developed Economy region, Anglo-Saxon countries are found to have a consistently high representation ratio (with an average value of .79), while Nordic

countries are found to have a consistent low representation ratio (with an average value of .54).

- In the Transition Economy region, countries that comprised the former USSR tend to have a high representation ratio, which is .75 or above in Estonia, Latvia, Lithuania, Russia, Ukraine and Moldova.
- In Latin America, the representation ratio is high in Caribbean and Central American countries at over .80 on average compared to South American countries where the average is .68.
- In Asia, the high-income East Asian countries of Japan and Republic of Korea stand out with very low representation ratios.

**Figure 3. Representation ratio among legislators, senior officials and managers (LSOM) by region, 2000**



The representation ratio tells a different story than percent female, because the representation ratio takes into account women's overall non-agricultural labour force participation and so looks only at the labour market disadvantages faced by working women. This contrasts with percent female in the major group that is determined to a large extent by the overall female labour force participation rate.

- Different results for representation ratio for LSOM and percent female in LSOM imply that women's frequent absence from positions of authority and decision-making power as measured by the female share of these occupations is due in large part to the extent to which women are absent from the non-agricultural labour market. See Section 3 for a conceptual discussion of this, and Section 5 for an empirical analysis where this is confirmed statistically.
- Interestingly, high and low representation ratios are possible at all levels of economic development and with different cultural heritages. High representation ratios, near to or exceeding 1.0 (indicating that women in the non-agricultural labour force are as likely to hold these positions of power and authority as other non-agricultural occupations), are found in: a high-income Developed Economy country in North America (United States), a low-income developing country in

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Asia (Pakistan), and middle-income developing countries or territories in Latin America (Costa Rica and Trinidad and Tobago) and Middle East (West Bank and Gaza). Similarly, especially low representation ratios near or below 0.50 (indicating that women in the non-agricultural labour force are up to about half as likely to have these positions of power as other non-agricultural positions), are found in: high-income developed countries in Europe (Cyprus, Denmark, Italy, Switzerland) and Asia (Japan and Republic of Korea), in low-income countries in South Asia (Bangladesh and Maldives), and in middle-income countries or territories in Asia (Macau (China)) and Middle East (Turkey).

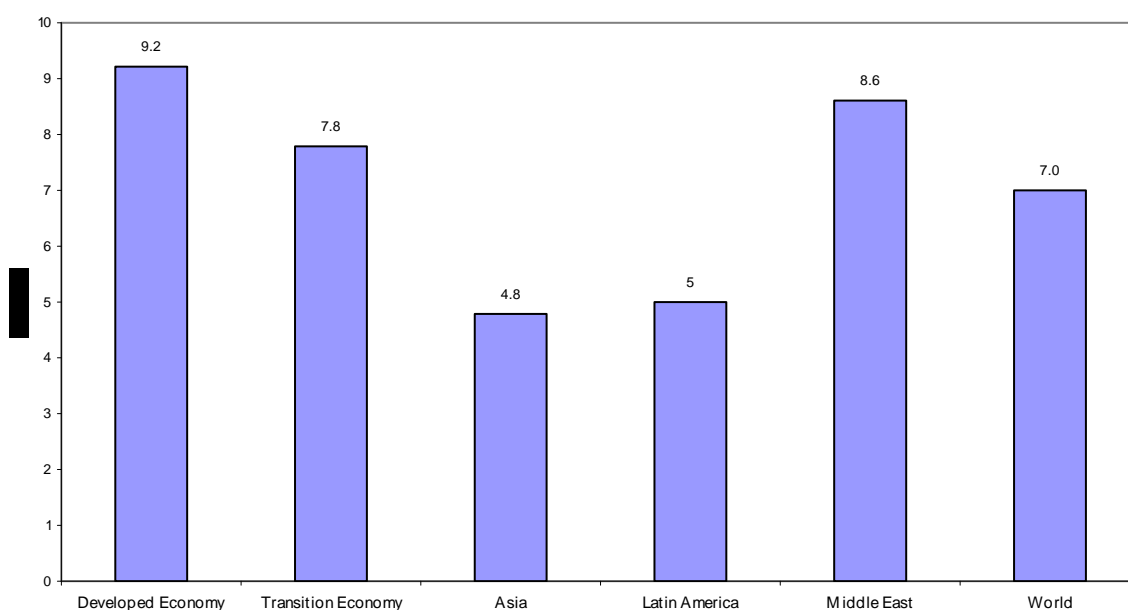
- High and low representation ratios are possible in countries where women have high labour force participation rates as well as in countries where women have low labour force participation rates. Thus, especially high representation ratios are found in countries with a high female labour force participation rate such as United States and Latvia as well as in countries and territories with a low participation rate such as Pakistan and West Bank and Gaza. Especially low representation ratios are found in countries with a high female labour force participation rate such as Denmark and Switzerland as well as in countries with a low female labour force participation rate such as Bangladesh and Turkey.

#### **4c. Percentage of non-agricultural labour force working as legislators, senior officials and managers in 2000**

As expected, a small percentage of workers in the world are in LSOM occupations. There are, however, interesting and large variations in the size of this major occupational group between and within regions. And, it will be shown later that the reported size of LSOM is related to the reported feminization of LSOM (both percent female and representation ratio).

- Approximately 7 percent of non-agricultural workers in the world are reported to be legislators, senior officials or managers (see Table 2). This implies that roughly 1 in every 14 non-agricultural workers is in this major group and so holds this type of position with decision-making authority.
- The worldwide average hides large differences across regions (Figure 4). Regional averages range from around 5 percent in Asia and Latin America to around 9 percent in Developed Economy countries.

**Figure 4. Percent of non-agricultural labour force in legislators, senior officials and managers occupations (LSOM) by region, 2000**



- *Variation in national values within regions is even greater (see Table 2). National values range from approximately 3-18 percent in Developed Economies, 4-13 percent in Transition Economies and Middle East, and 1-13 percent in Asia and Latin America. Such large differences could not be due to real differences in labour market structures.*
- *National practices in how occupations are classified and coded is a likely explanation for many of the large differences across countries observed in the size of the LSOM major group (especially for countries at similar levels of development). It will be shown below in Section 4d that some of these differences can be traced to how countries classify and code managers. The largest differences are due to how owners and managers of small businesses are classified and the extent to which they are considered to be in or out of LSOM. These differences have an important impact on the percent female observed for LSOM and therefore on cross-country comparability, since percent female for LSOM tends to be higher for owners and managers of small establishments compared to workers in other LSOM occupations.*
- *It is worth noting that the percentage of the non-agricultural labour force in LSOM occupations is consistently high in Anglo-Saxon countries. It is above 10 percent in all six Anglo-Saxon countries in Table 2, with an average value of 13.8 percent. This compares to an average of 7.4 percent in other Developed Economy countries. Since it is unlikely that such a large difference could be due to different labour market structures, it seems likely that some of this difference in the size of LSOM is due to differences in national practices and occupational classifications.<sup>10</sup>*

<sup>10</sup> Although speculative, practices of Anglo-Saxon countries and Netherlands (all with high percent of non-agricultural labour force in LSOM) may help explain why the four Caribbean countries in

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#### **4d. Countries with unusually high or unusually low values for their region in 2000**

It is informative to look at countries that have an unusually high or an unusually low value for their region. This is done separately for each region in order to at least partially control for cultural values. By looking at these countries in more detail, it is often possible to determine when unusual values are real or are attributable to measurement-related reasons (such as how data were collected or coded).

Table 3 lists countries from Table 2 with the two highest and two lowest percent female and representation ratio for LSOM for their region (except for the Middle East where only the highest and lowest are listed because there are only four countries in Table 2 from the Middle East).

Table 2 have a relatively high percent of their non-agricultural labour force in LSOM as all four of these Caribbean countries have close ties with UK, USA or the Netherlands.

**Table 3. Countries with highest and lowest percent female and representation ratio in major occupational group of legislators, senior officials or managers, 2000**

Region	Female % share of LSOM	Representation ratio (RR) in LSOM	Comments
<b>HIGH value for region</b>			
Developed Economy	USA (45.3) <sup>1</sup> N Zealand (37.9)	USA (.96) Spain (.83)	Other Anglo-Saxon countries also have high % female and rep. ratio. Spain's unusually high rep. ratio appears due to coding.
	Mean = 28.4	Mean = .64	
Transition Economy	Latvia (39.5) Lithuania (39.3)	Latvia (.81) Russia (.78) <sup>2</sup>	All three Baltic countries have high % female and rep. ratio. Other parts of ex-USSR also have high % female and rep. ratio.
	Mean =32.4	Mean = .69	
Asia	Philippines (34.8) <sup>1</sup> Thailand (23.9) <sup>2</sup>	Philippines (.76) <sup>1</sup> Pakistan (.99) <sup>1</sup>	Pakistan's high rep ratio due to very low female share of LF.
	Mean =15.9	Mean = .46	
Latin America	Honduras (40.7) Barbados (39.8) <sup>1</sup>	Trinidad & T (1.04) Costa Rica (.92)	Caribbean and Central American countries tend to have high rep ratio.
	Mean = 31.2	Mean = .74	
Middle East	W. Bank Gaza (10.7)	W.Bank&Gaza (0.96)	W. Bank and Gaza's high rep ratio due to very low female share of LF.
	Mean = 9.3	Mean =.67	
<b>LOW value for region</b>			
Developed Economy	Cyprus (14.5) Italy (18.8)	Cyprus (.35) Denmark (.48)	Italy doesn't use sub-major group 13 (general manager) or minor group 123 (other production manager). Still, probably low for region. All Nordic countries have below average rep ratio.
	Mean = 28.4	Mean =.64	
Transition Economy	Czech Rep (24.7) Croatia (24.7)	Romania (.55) Croatia (.54)	
	Mean = 32.4	Mean = .69	
Asia	Sri Lanka (3.7) Korea, Rep of (4.9)	Sri Lanka (11) Korea, Rep of (.11)	Japan has low % female (9.2) and rep ratio (.23). Other South Asian countries also have low percent female.
	Mean =15.9	Mean = .46	

Region	Female % share of LSOM	Representation ratio (RR) in LSOM	Comments
Latin America	Suriname (17.7)	Suriname (.50)	
	Chile (23.5) <sup>1</sup>	Mexico (.61) <sup>2</sup>	
	Mean = 31.2	Mean = .74	
Middle East	Turkey (7.8)	Turkey (.47) <sup>2</sup>	
	Mean = 9.3	Mean = .67	

Notes:

Two highest and two lowest national values from each region listed. One national value is listed in Middle East because only four countries are available to choose among in this region.

<sup>1</sup> indicates when a national value is based on an ISCO-68 classification. Otherwise results are based on an ISCO-88 classification. Values tend to be lower when based on ISCO-68 as compared to when based on ISCO-88 (see Appendix A).

<sup>2</sup> All national values differ from the regional mean by at least one standard deviation with the following exceptions: Russia for high representation ratio, Thailand for high percent female, Mexico for low representation ratio, and Turkey for low representation ratio.

Source: Table 2 and 2002 ILO website.

To investigate if unusually high or low values for percent female or representation ratio (and therefore inclusion in Table 3) probably reflect reality or may be due to measurement-related aspects, it is necessary to examine detailed occupational classification. One could look for measurement-related explanations such as: unusually large or small occupational groups in terms of the number of workers; unusually high or low percent female for particularly large occupational groups; unusual occupational classification; unstable values across years. One could also look for consistency in percent female across occupational groups, as this would indicate that the observed national value for the LSOM major occupational group as a whole reflects a real situation.

The need for detailed occupational data restricts the countries for which this analysis can be done. Conclusions from inspection of detailed occupational data for selected countries from Table 3 are discussed in the remainder of this section. United States and Russia are included because of their size and importance. Denmark and Nordic countries are included because of their unexpected low or average values despite their deserved reputation for gender equity. Republic of Korea and Japan are included because of their low percent female for the LSOM major group despite their high development level. Baltic countries are included because percent female is unusually high for Transition Economy countries. Italy, Cyprus and Spain are included, because they are southern European countries with unusually low or high values. Pakistan is included because of its size and its high representation ratio despite a low percent female for the LSOM major group. Suriname is included, because it is illustrative of countries with unstable reported annual values. Unfortunately, detailed occupational data are not available for all of the countries and territories in Table 3 such as the interesting cases with a low percent female like West Bank and Gaza. In the following discussion, countries are divided into two groups, depending on whether values in Table 2 and Table 3 appear to reflect a real situation or appear to be due to measurement-related aspects.

Unusual values in the following countries **appear to reflect a real situation**.

- The unusually high percent female and representation ratio for LSOM for the **United States** appears to be real. Percent female is relatively high across a wide range of LSOM occupations. According to detailed occupational data for 2000 from the ILO SEGREGAT database, percent female exceeds 50 percent in 15 of the 27 occupations included in the LSOM major group in the United States and is

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above 30 percent in 23 out of these 27 occupations. The four exceptions of managerial-related occupations where percent female falls below 30 percent are in what continue to be strong male domains of the labour market: protective services, funeral parlors, farm products, and construction.<sup>11</sup>

- The low percent female and low representation ratios for LSOM for **Republic of Korea** and **Japan** appear to be real. According to Korean 2000 census data included in the ILO SEGREGAT database, percent female is very low in Republic of Korea for all three LSOM sub-major occupational groups, being only 3.6 percent for legislative and senior officials, 4.7 percent for general managers, and 9.2 percent for corporate managers. Similarly, percent female is very low in Japan for all five occupational groups included in the LSOM major group in the 1990 Japanese census, being 1.7 percent for government officials, 12.6 percent for directors of companies, 5.1 percent for directors of other corporations, 2.3 percent for managers of companies and corporations, and 9.7 percent for managers and administrators not elsewhere classified. Republic of Korea and Japan are examples of higher income countries where women are more or less excluded from positions of decision-making, power and authority. This demonstrates that economic development and educational advances by women in these countries have not been sufficient to overcome cultural traditions and gender stereotypes that women should not hold positions of authority and decision-making.
- **Pakistan** has a very low percent female in LSOM along with a high representation ratio for LSOM. Both appear to be real. According to 1998 census data in ILO SEGREGAT database, percent female is very low in all three LSOM sub-major occupational groups at 3.6 percent for legislators and senior officials, 9.2 percent for corporate managers, and 2.3 percent for general managers. (Data for more detailed minor groups are not available.). Yet the representation ratio is unusually high at .99, because so few Pakistani women are in the non-agricultural labour force. One aspect of Pakistan's data that may be suspicious is the very small size of the LSOM major group at only 0.7 percent of the non-agricultural labour force in the SEGREGAT data (and 1.2 percent in ILO Yearbook data) with corporate managers and general managers comprising only .15 and .04 percent of the non-agricultural labour force respectively in the SEGREGAT data.
- **Denmark** has an unusually low LSOM representation ratio for Europe. Indeed, all five **Nordic** countries have a low LSOM representation ratio for Europe (.54 for Nordic countries on average compared to .64 on average for Europe) and a low percent female for LSOM for Europe (26.1 percent compared to 28.4 percent). These results are surprising in light of the deserved reputation of Nordic countries for excellent gender equity policies - - yet these values appear to be real. For example in Denmark according to EUROSTAT data for 2000 (see Appendix C), percent female is lower than the European average for two LSOM sub-major occupational groups (24.1 percent compared to 30.1 percent for legislators and senior government officials, and 19.2 percent compared to 27.8 percent for corporate managers) and only slightly above average for the general managers sub-major group (33.8 percent compared to 31.3 percent). More detailed data from ILO's SEGREGAT for the 1999 labour force survey show that percent female in Denmark is lower than the European average in the great majority of LSOM minor occupational groups classified (3 of 5, 10 of 12, and 8 of 10 occupational groups in

<sup>11</sup> The high percent female observed for LSOM in the United States may be a little exaggerated by its national occupational classification (although still unusually high). For example, what it calls management-related occupations in its classification are 56 percent female, while other LSOM occupations are (a still high) 41 percent female.



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the three sub-major groups respectively). The exceptions where percent female is above average tend to be typically female stereotype sectors (e.g., corporate production and department managers in restaurants and hotels; general managers in personal care, cleaning and related occupations; senior officials of humanitarian and special interest groups) as well as not elsewhere classified occupational groups. It is clear that a great deal needs to be done even in Nordic countries to improve opportunities for women workers to gain access to positions of power and decision-making.

- The unusually high percent female and representation ratio in LSOM for **Lithuania, Latvia and Estonia** appear to be real. According to EUROSTAT data for 2000 (see Appendix C), all three Baltic countries have an above average percent female for both LSOM sub-major groups of managers. This is 43, 34 and 38 percent respectively for Lithuania, Estonia and Latvia for corporate managers (compared to 28 percent on average for Europe), and 41, 48 and 36 percent respectively for general managers (compared to 29 percent for Europe).
- The low values for **Cyprus** appear to be real. According to SEGREGAT data from the 1992 Cypriot census, percent female is low for all three LSOM sub-major groups, at 5.8 percent for legislators and senior officials, 9.1 percent for corporate managers, and 9.6 percent for general managers. Furthermore, the representation ratio for the major group is only .26 according to these 1992 census data.
- The low values for **Turkey** appear to be real. According to ILO SEGREGAT data for 1990, percent female is low in both of the sub-major groups included in LSOM, at 6.5 percent for managers and 10.5 percent for legislators and senior government officials.

*Unusual values in the following countries appear to be due, at least in part, to how the LSOM major occupational group is measured.*

- **The Russian Federations's** unusually high representation ratio for the LSOM major occupational group may be a bit suspect. According to Russian labour force data for 2000 from ILO SEGREGAT, it has a rather average representation ratio of .65 for a Transition Economy country. Furthermore, percent female is rather average for a Transition Economy in the two ISCO-88 manager sub-major LSOM occupational groups, at 31.5 percent for corporate managers and 27.4 percent for general managers according to these data. On the other hand, a high representation ratio for the Russian Federation is consistent with high values in other parts of the former USSR such as in Estonia, Latvia, Lithuania, Moldova and Ukraine.
- The unusually high representation ratio for LSOM for **Spain** appears to be due to how workers are classified, and especially inclusion of an unusually large number of general managers in LSOM. According to EUROSTAT data in Appendix C, 73.0 percent of LSOM major group workers are general managers and 25.4 percent are corporate managers in Spain, whereas these percentages are 44.9 and 53.1 percent for Europe on average. As general managers in Spain have a relatively high percent female for Europe (37.0 percent for Spain compared to 31.3 percent for Europe) and corporate managers do not (15.4 percent for Spain and 27.1 percent for Europe), this helps explain why Spain has a high representation ratio for Europe.
- The unusually low values for **Italy** are due to some extent to how the LSOM major group is measured. Italy did not use two important LSOM occupational groups in its 1991 census according to ILO SEGREGAT data: other corporate department managers or general managers. Yet, these groups comprise well over half of all LSOM major group workers in Europe on average (see Section 4e), and they have a relatively high percent female for the major group. Nonetheless, percent female

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in the LSOM major group is probably on the low side in any case in Italy, since percent female for the LSOM occupational groups classified are generally less than the European average. According to 1991 Italian census data (compared to European average from EUROSTAT 2000 data in Appendix C), percent female is: 8.7 percent compared to 23.7 percent for legislators and senior government officials, 18.2 percent compared to 31.5 percent for senior officials of special interest groups, 20.3 percent compared to 16.2 percent for directors and chief executives, and 12.2 percent compared to 26.7 percent for production and operations department managers.

- It is difficult to know what percent female in LSOM is in **Suriname**, since its reported value in the ILO Yearbook of Labour Statistics is unstable over time. Whereas percent female was reported to be 13.3 percent in 1996 and 11.6 percent in 1997, it was reported to be 28.2 percent in 1998 (latest available year). It appears likely nonetheless that Suriname has a relatively low percent female for LSOM for a Latin American country, as even its reported value for 1998 is below average for Latin America.

#### **4e. Current situation in Europe based on more detailed occupational data for three sub-major and eight minor occupational groups**

This section is concerned with the current situation in Europe. What distinguishes it from Sections 4a-4d is that it uses a specially designed EUROSTAT data set to look in more detail at the LSOM major group in Europe. Results are provided for three sub-major and six minor occupational groups within the major group (see Table 4). These EUROSTAT data have several advantages. They refer to the same year (2000), use the same classification system (ISCO-COM), and cover 29 European countries.<sup>12</sup> Readers are referred to Appendix A for a description of how ISCO-COM differs slightly from ISCO-88.<sup>13</sup>

##### **4e1. Percent female in sub-major and minor occupational groups in Europe**

Table 4 provides results for the three sub-major groups and six minor groups in ISCO-COM for European countries. Averages are provided for Europe as a whole as well as separately for European Developed Economy countries and European Transition Economy countries. Column 2 indicates percent female, and column 3 indicates percentage of

<sup>12</sup> As Romania reports results only for the major group as a whole, information for sub-major groups and minor groups are only available for 28 European countries.

<sup>13</sup> For example, ISCO-COM includes six minor occupational groups (and not eight minor occupational groups as in ISCO-88). The village heads minor group in ISCO-88 is excluded, because it is not relevant in Europe. The legislators minor group and the senior government officials minor group that appear in ISCO-88 are combined, because they are small in size and so many national labour force surveys do not have sample sizes that are adequate to measure them with sufficient precision.

workers in the non-agricultural labour force who are in these sub-major and minor group occupations. Tables in Appendix C provide the national values for each country.<sup>14</sup>

**Table 4. Percent female and percent of non-agricultural labour force for LSOM sub-major and minor occupational groups, Europe 2000**

Sub-major occupation group/minor group	Percent female			Percent of non-agricultural LF		
	Total	Dev <sup>1</sup>	TE <sup>2</sup>	Total	Dev <sup>1</sup>	TE <sup>2</sup>
Legislators and senior government officials	30.0	28.7	32.8	0.29	0.27	0.31
- Legislators and senior government officials <sup>3</sup>	24.4	25.1	23.9	0.19	0.21	0.15
-Senior officials of special interest organizations	31.5	35.6	22.8	0.06	0.06	0.05
Corporate managers	27.8	24.4	34.8	4.11	4.08	4.16
-Chief executives and directors	16.8	13.4	23.9	0.90	0.93	0.85
-Production and operations department managers	27.4	24.6	32.2	1.83	1.64	2.23
-Other department managers	35.1	30.3	44.7	1.35	1.48	1.06
General managers	31.3	30.9	32.0	3.46	3.52	3.32
Total	29.3	27.6	32.7	7.88	7.88	7.83

Notes: Based on data for 29 countries for total. Based on 28 countries (missing Romania) for corporate managers; legislators and senior government officials; chief executives and directors; production and operations department managers. Based on 27 countries (missing Italy and Romania) for general managers; other department managers. Based on 22 countries for senior officials of special interest organizations (missing Cyprus, Estonia, France, Greece, Lithuania, Portugal, and Romania).

See tables in Appendix C for national values.

<sup>1</sup> Dev indicates Developed Economy country.

<sup>2</sup> TE indicates Transition Economy country.

<sup>3</sup> Values for legislators and senior government officials are based on the same 22 countries that have data for senior officials of special interest groups to increase comparability. Average for the 28 countries with data for legislators and senior government officials is 24.4; averages are 23.9 and 25.4 respectively for Developed Economy and Transition Economy countries.

Source: EUROSTAT, unpublished 2000 data.

A number of interesting observations can be drawn from Table 4 as regards the feminization in Europe of these LSOM sub-major and minor occupational groups.

- *Percent female is similar on average in the three sub-major groups, ranging only from about 28 percent for corporate managers, to about 30 percent for legislators and senior government officials, and to about 31 percent for general managers. A*

<sup>14</sup> It needs to be kept in mind that national values for small occupational groups (especially minor groups 111/112, 114, and 121; and sub-major group 11) are often imprecisely measured, because national labour force sample sizes are often too small to measure well the number of workers in small occupational groups.

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small range is also found in both European Developed Economy countries and Transition Economy countries.

- *Percent female is also similar on average in the three LSOM managers minor groups.* Thus, corporate production and operations department managers is 27 percent female, corporate other department managers is 35 percent female, and general managers is 31 percent female.
- Percent female is much lower among corporate directors and chief executives than it is for the other LSOM minor occupational groups, being only 17 percent on average. This is especially pertinent for European Developed Economy countries, as women comprise only 13 percent of corporate directors and chief executives in these countries on average. This represents a clear case of gender bias and discrimination within the positions of influence and decision-making power that comprise the LSOM major group.
- Percent female in LSOM is somewhat higher in European Transition Economy countries than in European Developed Economy countries (33 percent compared to 29 percent for the major group as a whole). This difference is due to a higher percentage female in Transition Economy countries for all three manager minor groups. Interestingly, this contrasts with a lower percentage female for the two minor groups of legislators and senior government officials in Transition Economy countries compared to Developed Economy countries.
- It is worth noting that variation across countries in percent female is quite high for small LSOM sub-major and minor occupational groups (see Appendix C). This makes sense, since national values are usually based on labour force sample surveys where sample sizes are often insufficient to precisely measure the number of women and men in small occupational groups. For example, notice that the standard deviation exceeds half of the mean for the legislators and senior government officials sub-major group and its minor groups, as well as for the corporate directors and chief executives minor group.<sup>15</sup> These results imply that analysts should be careful when using annual values for small occupational groups for specific countries.

#### **4e2. Size of sub-major and minor occupational groups in Europe**

A number of interesting observations can be drawn from European data on the size of the sub-major and minor groups that comprise the LSOM major group. To assist in this discussion, Table 5 and Figures 5 and 6 present the percentage distribution of LSOM major group workers by sub-major occupational group and minor occupational group.

<sup>15</sup> For example, several countries report zero percent female for these small occupational groups, which is undoubtedly due to sampling error (see tables in the Appendix C).

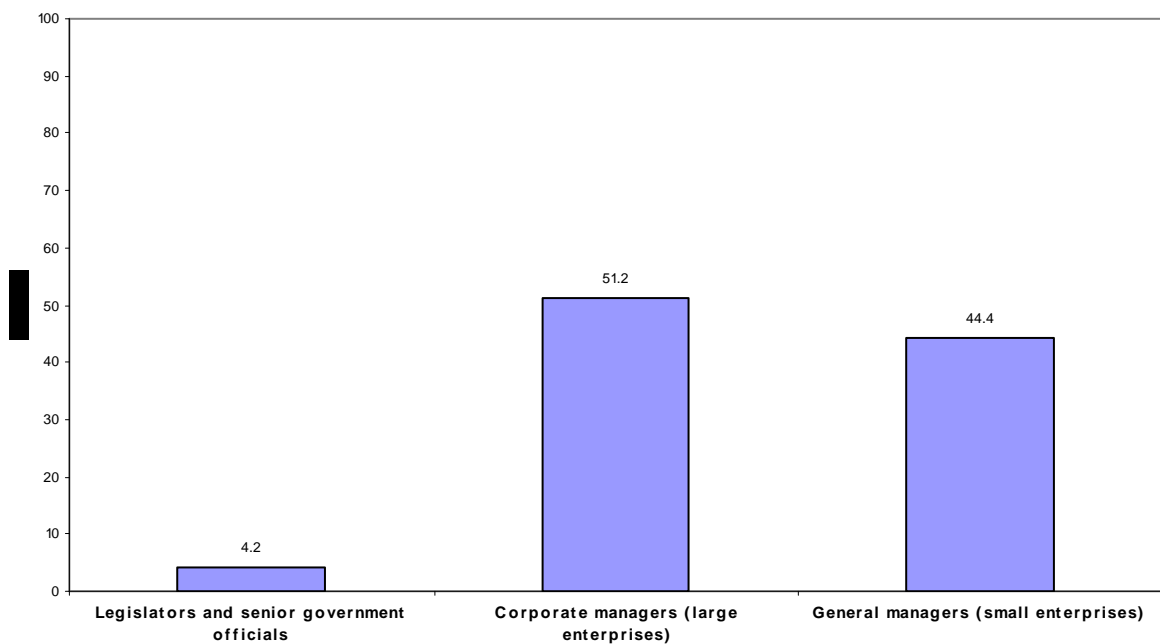
**Table 5. Percentage distribution of workers in LSOM by sub-major and minor occupational groups comprising LSOM, Europe 2000**

Country	% distrib sub-major group			% distrib minor group						% all manager groups
	11	12	13	111+ 112	114	121	122	123	131	122+ 123+ 131
Austria	1.5	56.0	42.5	1.3	0.3	29.0	16.5	10.6	42.5	69.5
Belgium	3.3	58.2	38.5	2.8	0.5	27.3	12.8	18.1	38.5	69.4
Bulgaria	5.3	44.1	50.6	5.0	0.3	3.0	32.3	8.8	50.6	91.7
Cyprus	1.6	61.4	37.0	1.6	0.0	4.5	42.5	14.3	37.0	93.8
Czech Rep	5.2	29.6	65.2	4.6	0.5	0.9	19.0	9.8	65.2	93.9
Denmark	2.2	65.4	32.4	0.9	1.3	21.7	18.3	25.4	32.4	76.1
Estonia	0.5	62.9	36.5	0.5	0.0	10.9	35.4	16.6	36.5	88.5
Finland	3.5	64.4	32.2	1.9	1.6	16.0	17.4	31.0	32.2	80.5
France	1.2	60.5	38.3	1.2	0.0	1.5	35.2	23.9	38.3	97.3
Germany	1.6	52.8	45.6	0.8	0.8	14.4	15.5	13.8	45.6	74.9
Greece	0.2	13.9	85.9	0.2	0.0	0.8	7.1	5.9	85.9	99.0
Hungary	4.1	67.7	28.2	3.1	1.0	10.2	41.5	16.0	28.2	85.7
Iceland	4.0	72.0	24.1	1.1	2.8	25.5	21.5	25.0	24.1	70.5
Ireland	1.8	32.6	65.6	1.4	0.4	1.0	4.2	27.4	65.6	97.1
Italy <sup>1</sup>	36.3	63.7	0.0	34.6	1.7	40.2	23.4	0.0	0.0	23.4
Latvia	9.2	50.5	39.8	7.0	2.1	10.6	31.7	8.2	39.8	79.7
Lithuania	0.2	79.7	19.4	0.2	0.0	20.8	30.2	28.3	19.4	77.9
Luxembourg	0.8	25.8	73.4	0.2	0.6	12.8	10.6	2.4	73.4	86.4
Netherlands	1.9	54.0	44.0	1.2	0.7	12.8	32.5	8.7	44.0	85.3
Norway	2.2	73.8	24.0	0.9	1.3	7.9	38.4	27.4	24.0	89.9
Poland	1.4	35.7	62.9	0.8	0.7	12.4	13.2	10.1	62.9	86.2
Portugal	1.0	18.5	80.5	1.0	0.0	5.6	8.5	4.3	80.5	93.3
Romania	na	na	na	na	na	na	na	na	na	na
Slovak Rep	3.5	38.7	57.9	2.8	0.7	1.5	27.0	8.8	57.9	93.6
Slovenia	6.9	49.2	40.6	6.7	0.2	21.4	17.4	10.4	40.6	68.4
Spain	1.5	25.5	73.1	1.4	0.1	8.2	6.1	11.1	73.1	90.3
Sweden	2.4	60.5	37.1	2.2	0.2	3.3	33.5	23.7	37.1	94.4
Switzerland	11.4	37.3	51.3	10.2	1.2	6.0	19.8	11.0	51.3	82.1
UK	3.8	79.9	16.3	2.8	1.0	2.1	38.3	39.5	16.3	94.0
<b>Average all countries</b>	<b>4.2</b>	<b>51.2</b>	<b>44.4</b>	<b>3.5</b>	<b>0.7</b>	<b>11.9</b>	<b>23.2</b>	<b>15.7</b>	<b>44.4</b>	<b>83.3</b>
	4.3	51.4	44.3	3.6	0.8	12.7	21.2	17.0	44.3	82.5
	4.0	50.9	44.6	3.4	0.6	10.2	27.5	13.0	44.6	85.1

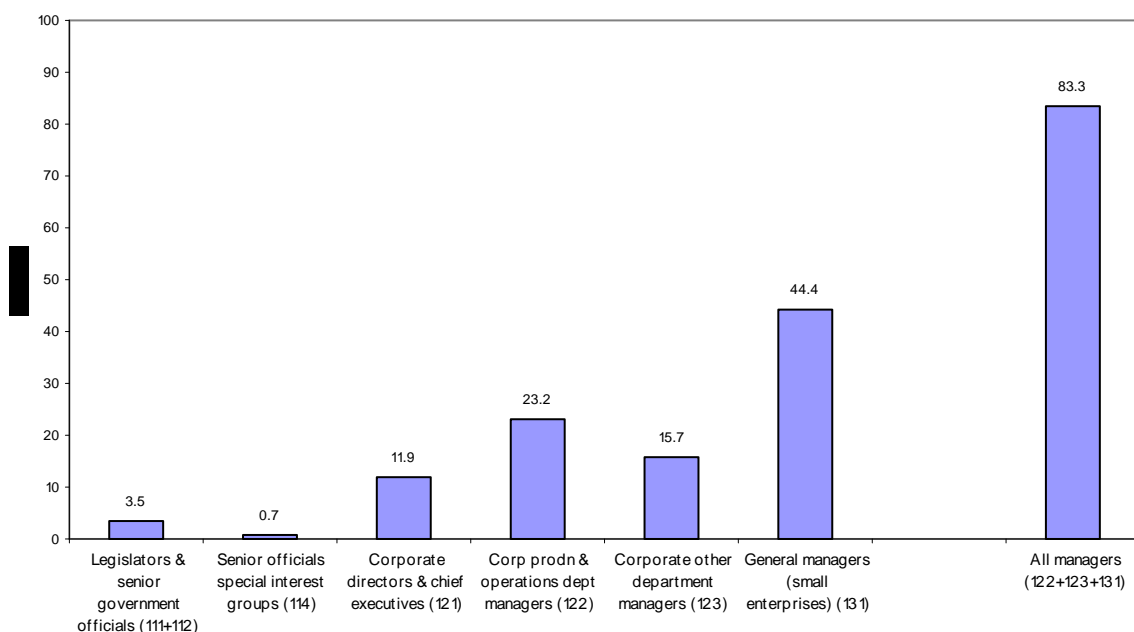
**Notes:** Sum of values for sub-major occupational groups (for minor occupational groups) do not always sum to 100, because some countries use a legislators, senior government officials and managers not further classified group. National value for a specific occupational group must be treated cautiously, in part because of sampling error, especially for small occupational groups. Italy does not use minor groups 123 and 131 and sub-major group 13. Average is unweighted average of national values. a indicates national data are not available.

**Source:** EUROSTAT special database. See Appendix C for national values.

**Figure 5. Percent distribution of workers by sub-major group for legislators, senior government officials and managers, Europe 2000**



**Figure 6. Percent distribution of workers by minor occupation groups comprising legislators, senior officials and managers, Europe 2000**



*The vast majority of workers in the LSOM major group in Europe are managers (either corporate department managers or general managers).*

- *Managers account on average for approximately 83 percent of workers in the major group in Europe. Percentage for all managers groups combined exceeds approximately 75 percent in 23 of the 28 European countries in Table 5 with data and exceeds 67 percent in all countries except Italy. One implication of these*

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results is that it would be appropriate in Europe to call the LSOM major group simply: managers.

- *Only 4 percent of LSOM major group workers in Europe are legislators or senior officials (sub-major group 11) on average. This percentage is very low in almost all European countries, and it exceeds 10 percent in only two European countries.*<sup>16</sup>
- *Only 12 percent of workers in the LSOM major group in Europe are corporate chief executives or directors (minor group 121) on average. There is, however, considerable variation in this percentage across countries. Whereas over 20 percent of major group workers are reported to be corporate directors or chief executives in seven countries, nine other countries report that less than 5 percent of major group workers are in this minor group. This high level of cross-national variation undoubtedly affects cross-national variation in the percent female that is observed for legislators, senior officials and managers as a whole, since percent female is especially low in this minor group.*

*Developed Economy countries and Transition Economy countries in Europe have remarkably similar sizes as regards the LSOM major group and its three sub-major groups. This result is surprising given the great differences in their levels of economic development.*

Within the LSOM sub-major group of legislators and senior officials, most workers in Europe are senior government officials - - although there is considerable variability across countries in reported percentages undoubtedly because of sampling error due to the relatively small size of these occupational groups (with the standard deviation for this minor group in Europe over 50 percent greater than its average).<sup>17</sup> These results imply that percent female for this sub-major group is mainly determined in Europe by percent female among senior government officials, and consequently this sub-major group could be effectively referred to in Europe as: senior government officials. Results also imply that anyone interested in measuring women's participation in political life should use other more direct and complete sources of information such as the percent of parliamentarians that are women. Such data are reported annually in UNDP's Human Development Report.

It is worth noting that the conclusion drawn in this section for Europe may not apply to other regions, especially to lower income countries. For example according to ILO SEGREGAT data for Gabon and Pakistan, legislators and senior officials comprise a much higher percentage of LSOM workers, being 65 percent of LSOM workers in Pakistan and 39 percent of LSOM workers in Gabon. In Mauritius in contrast, legislators and senior officials comprised 18 percent of LSOM workers in 1983 based on an ISCO-88 classification and 3 percent of LSOM workers in 1990 based on an ISCO-88 classification.

<sup>16</sup> Italy's unusually high percent for this sub-major occupational group is due, in part at least, to the fact that Italy does not use the general managers occupational group (sub-major group 13).

<sup>17</sup> There may be additional variation in developing countries related to how traditional chiefs and village heads are classified. For example in Gabon, workers in this minor group (that was only 2.3 percent female) comprised 32 percent of legislators and senior officials according to 1993 population census data in the ILO SEGREGAT database.

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## **5. Percent female and representation ratio in major occupational group of legislators, senior officials and managers (LSOM) and their relationship to women's share of non-agricultural labour force and size of major group**

This section investigates whether the overall level of female participation in the non-agricultural labour force is a key determinant of the observed level of percent female and representation ratio of the LSOM major occupational group. It also investigates whether the reported size of LSOM affects the observed level of percent female and representation ratio of LSOM.

Section 3 discussed why percent female in LSOM is likely to be directly affected by the female share of the non-agricultural labour force. Section 4 showed how different cross-national situations are found to be when based on percent female in LSOM as compared to when based on the representation ratio for LSOM. These results in Section 4 imply that a major determinant of percent female in LSOM in a country is likely to be the female share of the non-agricultural labour force in that country. The issue addressed in the present section is the extent to which observations in these earlier sections are supported statistically.

Sections 2 and 4e showed that there is considerable cross-national variability in which occupations are considered to be manager occupations, and therefore considerable variability in the relative size of LSOM due to differences in national classifications and coding practices. Appendix A shows that greater coverage of occupations in LSOM in ISCO-88 as compared to ISCO-68 increases observed percent female of the major group in ISCO-88 as compared to ISCO-68. The issue addressed in the present section is whether these observations and findings are statistically significant. This is important, because existence of a significant relationship between reported size of LSOM and observed percent female for the major group reduces cross-national comparability as it implies that differences in national measurement practices affect the observed levels of percent female in this major group.

Analysis in this section uses data for LSOM as a whole (Tables 6 and 7 along with Figures 7-10). This analysis is multivariate, taking into consideration, at least partially, cultural and economic differences across countries through the use of regional binary variables or by repeating the analysis for each region separately. The names of countries that are clearly outliers (i.e., have unusual values) are noted in figures.

### **5a. Percent female in LSOM and its relationship to women's participation in the non-agricultural labour force**

Figure 7 provides a scatterplot of national values for percent female in LSOM and percent female for the non-agricultural labour force as a whole. There is clear a positive relationship. Regression results shown in column 2 in Table 6 confirm that this relationship is positive and statistically significant for the world. This positive relationship is also found in each region separately.



**Table 6. Regression coefficients for percent female in LSOM with female share of non-agricultural labour force and size of LSOM as determinants, for world and by region for 2000 (t values in brackets)**

World/Region	Female % share of non-ag LF	LSOM % share of non-ag LF
<b>World<sup>1,2</sup></b>	<b>.478***</b> (3.85)	<b>.769***</b> (3.78)
Developed Economy only	.512* (1.74)	1.130*** (4.15)
Transition Economy only	2.252*** (3.32)	.083 (0.17)
Asia only	.422 (1.67)	.567 (0.63)
Latin America only	.747*** (2.75)	.832* (2.07)

Notes: All regressions include both explanatory variables.

<sup>1</sup> Regression for world also includes region binary variables as explanatory variables. Compared to the excluded Developed Economy region: Asia (-4.5) and Middle East (-4.3) have negative coefficients, while Latin America (7.2) and Transition Economy (3.8) have positive coefficients. Latin America, Transition Economy and Asia are significant at .10 level. R<sup>2</sup> is .69 and the adjusted R<sup>2</sup> is .66 for world.

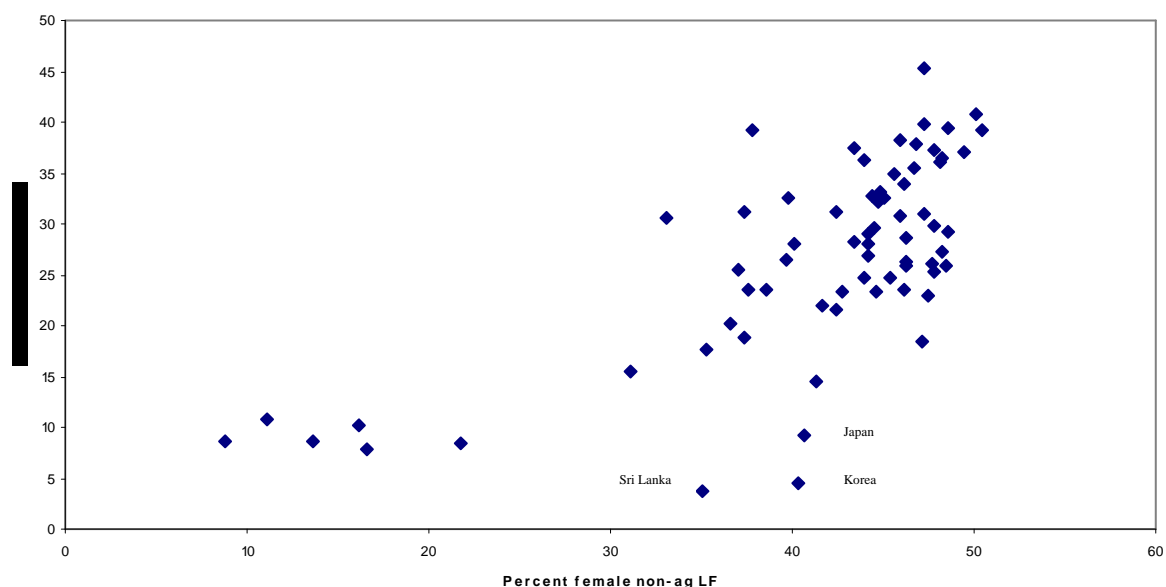
Separate regressions were not run for Middle East region or African region because of insufficient country observations (4 and 1 respectively). Number of observations was 21, 14, 12, and 17 for regions in this table respectively. When regression for world with square terms for the two explanatory variables was run, the linear and square terms were not significant at the .10 level.

<sup>2</sup> Coefficient for the world for female share of the non-agricultural labour force is .588 (with t-value of 4.47 and significance level at better than .01 level) when LSOM share of the non-agricultural labour force is not specified.

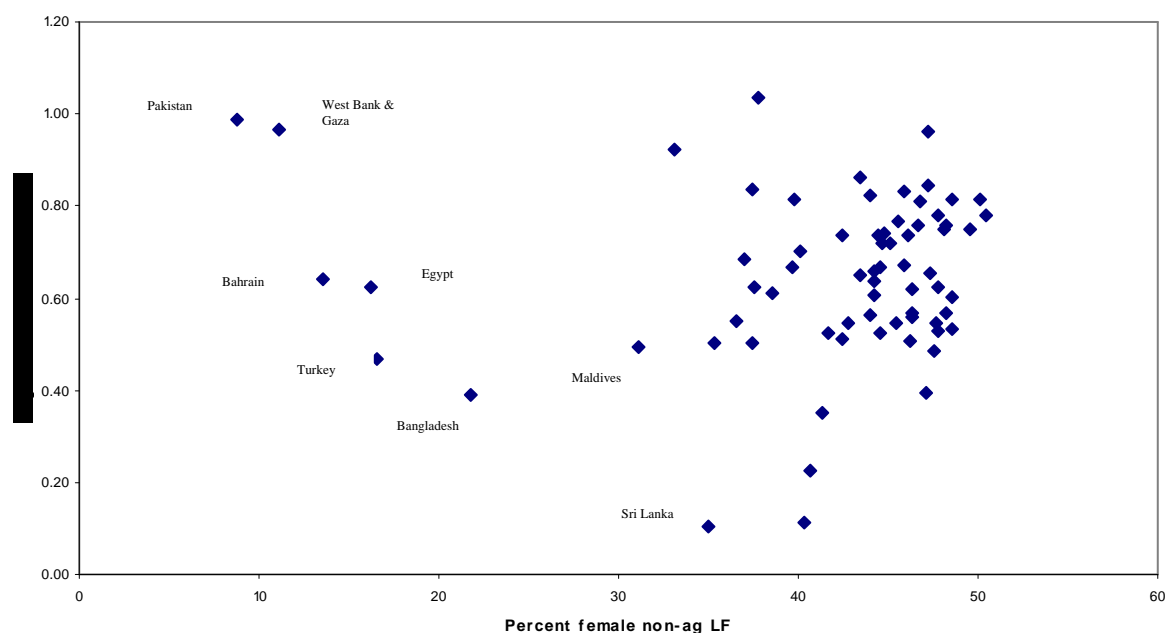
\*\*\* significant at .01 level. \*\* significant at .05 level. \* significant at .10 level.

Source: Table 2 for 69 countries.

**Figure 7. Relationship between percent female in LSOM and percent female in non-agricultural labour force**



**Figure 8. Relationship between LSOM representation ratio and percent female in non-agricultural labour force**



According to regression results in column 2 in Table 6:

- For the world, percent female in LSOM increases by .48 for each 1 percent increase in the female share of the non-agricultural labour force when size of LSOM and region binaries are specified as in Table 6.<sup>18</sup> The estimated coefficient is significant at the .01 level. This result implies that percent female in LSOM would increase by approximately 16 percent if the female share of the non-agricultural labour force rose from 15 percent (such as in the Middle East) to 48 percent (as in Nordic countries). This is clearly a strong positive relationship.
- *The significant positive relationship for the world is replicated in each region.*<sup>19</sup> Indeed, the estimated coefficient for female share of the non-agricultural labour force is larger than that for the world in three of the four regions. These results provide strong corroborating support for the result estimated for the world.
- Results for the region binary variables specified in the regression for the world (see notes to Table 6) confirm statistically observations made in Section 4 based on Table 2. Latin America and Transition Economy countries have a higher percent female for LSOM ceteris paribus compared to Developed Economy countries, by about 7 and 4 percentage points on average respectively.

<sup>18</sup> Percent female in the LSOM major occupational group increases by .72 for each 1 percentage point increase in the female share of the non-agricultural labour force when only the female share of the non-agricultural labour force is specified as an explanatory variable (unreported regression). The size of this relationship decreases to 0.59 when regional binaries are also specified and size of LSOM is not specified (unreported regression).

<sup>19</sup> Asia is just barely insignificant at the .10 level (at .12 level) with a reasonably large coefficient of .422.

Feminization of LSOM is lower in Middle East and Asia *ceteris paribus* compared to Developed Economy countries, by about 4 percentage points.<sup>20</sup>

- *Regression results confirm statistically that the female share of non-agricultural employment is a major determinant of percent female in LSOM.* This result makes sense. Increases in women's labour force participation means by definition that more women are in the labour force. Since they have to work someplace, the absolute level of percent female should increase in every major group, even though the relative size of this increase will differ by major occupational group.

## 5b. Representation ratio for LSOM and its relationship to women's participation in non-agricultural labour force

The above analysis in Section 5a is repeated in the present subsection for the representation ratio. Table 7 provides regression results in columns 2 and 3, while Figure 8 presents a scatterplot of national values.

**Table 7. Regression coefficients for representation ratio of LSOM with female share of non-agricultural labour force and size of LSOM as determinants, for world and by region for 2000 (t values in brackets)**

World/Region	Female % share of non-ag LF	Female % share of non-ag LF Squared	LSOM % share of non-ag LF
World <sup>1, 2</sup>	-.063*** (5.20)	.00084*** (4.75)	.019*** (3.77)
Developed Economy only	-.130 (0.78)	.00148 (0.77)	.027*** (4.19)
Transition Economy only	.034** (2.36)	X <sup>2</sup>	.001 (0.08)
Asia only	-.085*** (3.44)	.00127*** (3.14)	.023 (1.23)
Latin America only	-.078 (0.65)	.000933 (0.67)	.021* (2.03)
Middle East only	-.075* (3.45)	X <sup>2</sup>	X <sup>3</sup>

Notes: <sup>1</sup> Regression for world also includes region binary variables as explanatory variables. Compared to excluded Developed Economy region: Asia (-.12) and Middle East (-.37) are negative, while Latin America (.20) and Transition Economy (.04) are positive. Latin America and Middle East are significant at the .01 level. Asia is significant at .05 level. R<sup>2</sup> for world is .53, and adjusted R<sup>2</sup> is .47.

<sup>2</sup> Linear specification is used because national values for this region lie on either the downward sloping (Middle East) or upward sloping (Transition Economy) section of the estimated U-shaped relationship for the world. When square term is specified, both it and linear term are insignificant at .10 level.

<sup>3</sup> This variable was not specified because of few country observations (4) in Middle East.

Number of observations is 21, 14, 12, 17, and 4 for regions respectively.

\*\*\* significant at .01 level. \*\* significant at .05 level. \* significant at .10 level.

Source: Table 2.

<sup>20</sup> It is worth noting that estimated coefficient for the Middle East is probably insignificant because it has very few countries with data.

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Figure 8 indicates that the LSOM representation ratio is *non-monotonically* related to the female share of the non-agricultural labour force. This relationship appears to be negative until women comprise somewhere between 25-40 percent of the non-agricultural labour force, and then rises afterward. Regression results in Table 7 for the world confirm that this relationship is U-shaped and statistically significant at the .01 level, even after controlling statistically for region and size of LSOM. The estimated turning point in this relationship for the world is approximately 37 percent. This implies that an increase in the female share of the non-agricultural labour force from 15 percent (approximately level in Middle East) to 37 percent (approximately estimated turning point) would be associated with a decrease in the LSOM representation ratio of .36. In contrast, the LSOM representation ratio would rise by .09 according to these regression results if the female share of the non-agricultural labour force rose from 37 percent to 48 percent (approximate level in Nordic countries).

*The estimated U-shaped relationship for the world is generally confirmed when the data are reanalyzed separately for each region* (Table 7) - - when one considers the section of the relationship applicable to countries in the region. The Middle East region should clearly be on the downward sloping section of the relationship (as the female share of non-agricultural labour force is between 11 and 17 percent), and indeed a significant monotonic negative relationship is observed for the Middle East. The Transition Economy region should clearly be on the upward sloping section of the relationship (as the female share of the non-agricultural labour force is between 44 and 50 percent), and indeed a significant monotonic positive relationship is observed for Transition Economy countries. Asia should display a U-shaped relationship as national values for the female share of the non-agricultural labour force range from 9 to 47 percent. Asia does indeed display a significant U-shaped relationship. The Developed Economy region and Latin America region should be either on the positive section of the relationship only, or on the positive section as well as the end of the negative section depending on where the turning point is (as national values for female share of the non-agricultural labour force range from 37 to 49 percent and 33 to 50 percent respectively). Regression results for these two regions are not significant and there is no clear relationship in these regions (although both have a weak insignificant U-shaped relationship). In conclusion, results for each region separately (with their relatively small number of country observations) generally provide confirmation of the U-shaped relationship observed for the world. The turning point in this relationship from negative to positive is more difficult to establish and is clearly influenced by specific conditions in countries.

*One possible explanation for the observed U-shaped relationship* for the world is that when female participation in the non-agricultural (and therefore non-family) labour force is very low, the relatively few women who are able to join and obtain jobs in the non-agricultural labour force are often well-educated elite women with good family connections - - and so they do relatively well with regard to high status jobs such as senior government, managerial and professional positions. This means that the representation ratio for LSOM occupations is relatively high in this situation. As women's participation in the non-agricultural labour force increases from very low levels, a smaller and smaller percentage of women workers are well-educated elite women with good connections. As a result, women workers are less likely on average to become senior government officials or managers in private establishments. Therefore, the LSOM representation ratio decreases rather rapidly. Eventually, however, when women's place in the non-agricultural (non-family) labour market becomes common enough and women's status in society rises enough, women begin to see improved opportunities for decision-making occupations - - and so the representation ratio for LSOM occupations increases. According to the regression results reported in Table 7, this turnaround occurs when women comprise around 37 percent of the non-agricultural labour force. However, it is obvious from Figure 8, the separate regional regressions and the paucity of countries with a female share between 22 to 37 percent that identification of the turning point is difficult to establish precisely. It is safer to say that the turning point is probably between 25 and 40 percent. It

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is also safer to say that the negatively sloping portion of the relationship when women's share of the non-agricultural labour force goes from a very low percent to 25-35 percent is stronger and easier to establish than is the upward sloping portion of the relationship.

Given the importance of this finding of a U-shaped relationship, further investigation would be worthwhile. The most obvious approach would be to analyze for as many countries as possible changes over time within countries in the LSOM representation ratio and in the female share of non-agricultural employment. After all, the U-shaped relationship identified in this section is based on a cross-section analysis of national data at one point in time and the implicit assumption that this observed relationship is informative of what happens in countries over time as women increasingly enter the non-agricultural force. While this type of cross-national analysis and interpretation is common, it does not have the same weight as observing change over time within countries. It would be, therefore, worthwhile investigating how the representation ratio and female share of the non-agricultural labour force have changed over time in countries. It is important to note that such a future analysis will not be easy, because it will require very careful attention to changes in national occupational classifications, especially as many national statistical offices changed their occupational classification from an ISCO-68 to an ISCO-88 type classification in the 1990s.<sup>21</sup> Appendix A describes how these two international standard occupational classifications yield quite different results.

Finally, it is worth commenting on results for the regional binaries based on the regressions in Table 7 (see notes for table). *Latin American countries are found to have significantly higher LSOM representation ratios* ceteris paribus as compared to Developed Economy countries, by a very large .20 on average (because of high values in the Caribbean and Central America). *Middle Eastern countries are found to have significantly lower LSOM representation ratios* compared to Developed Economy countries by a very large -.37 on average. Asian countries are found to have significantly lower LSOM representation ratios compared to Developed Economy countries because of low values in South Asia as well as Japan and Korea. LSOM representation ratios in Transition Economy countries are not significantly different from those in Developed Economy countries.

<sup>21</sup> To illustrate what this relationship might look like over time and to observe if the U-shaped relationship in Table 7 is found longitudinally, we put together SEGREGAT data for Japan for the 1970 to 1995 period. Japan was chosen for this illustration for two reasons. First, Japan has not changed its occupational classification in this time period. Second, Japan experienced an increase in percent female for the non-agricultural labour force in recent decades from approximately 36 percent in 1970 to approximately 40 percent in 1995, which should put it on the positive segment of the U-shaped curve. Yet, Japan has such an unusually low representation ratio, especially for its development level, that it is hard to imagine an increase in its representation ratio for LSOM in recent years.. We find that Japan's representation ratio rose from approximately .13 in 1970 to .24 in 1995. This means that Japan's representation ratio did indeed rise over time (from a very low level albeit) along with an increase in percent female for the non-agricultural labour force from about 36 to 40 percent - - thereby confirming that over time Japan was as predicted on the positive slope of the U-shaped relationship between representation ratio and percent female in the non-agricultural labour force.

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### 5c. **Percent female in LSOM and representation ratio in LSOM and their relationship to size of LSOM**

Figures 9 and 10 show graphically the relationships between percent female in LSOM and representation ratio in LSOM with size of LSOM. Tables 6 and 7 provide regression results in the last column.

*There is a significant positive relationship between percent female in LSOM and size of LSOM.* According to the regression for the world in Table 6, each 1 percentage point increase in the major group's share of the non-agricultural labour force is associated with a .77 percent increase in percent female for the major group. This means that if LSOM's share of the non-agricultural labour force increased from the average for Latin America and Asia of about 5 percent to its average in Developed Economy countries (9.2), percent female in the major group would increase by 3.3 percentage points. This is a substantial change relative to the world average of about 27 percent female for the major group.

This tendency for size and feminization of the LSOM major occupational group to be positively related is also observed in all four regions, with this relationship significant in the Latin American and Developed Economy regions (Table 6). The significant relationship observed in these two regions probably reflects the fact that both regions have a subset of countries where the size and feminization of LSOM are high (Anglo-Saxon countries within the Developed Economy region and Caribbean countries within Latin America).

*The size of LSOM is also found to be positively and significantly related to the LSOM representation ratio.* According to regression results for the world in Table 7, a 1 percent increase in the major group's share of non-agricultural employment is associated with a .019 increase in the representation ratio for the major group. This positive relationship is confirmed by separate regressions for each region (Table 7).

Results in this subsection provide empirical evidence that the more workers are classified as belonging to the LSOM major occupational group *ceteris paribus*, the higher percentage female in LSOM tends to be. This is probably at least partially because the additional workers classified as belonging to LSOM tend to be managers in small private establishments who are more likely to be female as compared to managers in larger establishments and corporations. Unknown is the extent to which this relationship reflects a real phenomenon related to labour market structure such as when more developed labour markets have greater numbers of managers and senior government officials and how much is due to measurement related factors such as national classifications and coding practices.

Figure 9. Percent female in LSOM and percent of non-agricultural labour force in LSOM

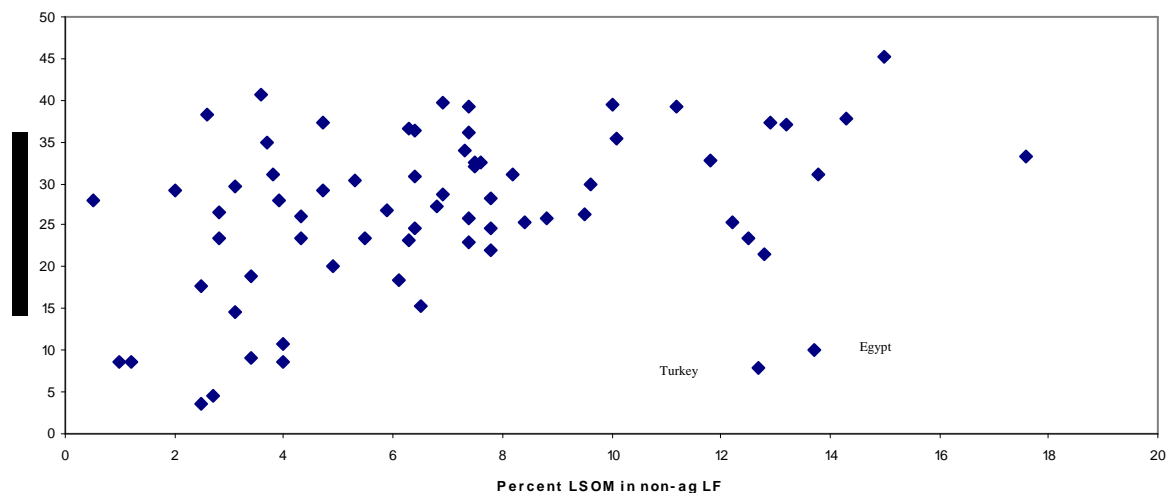
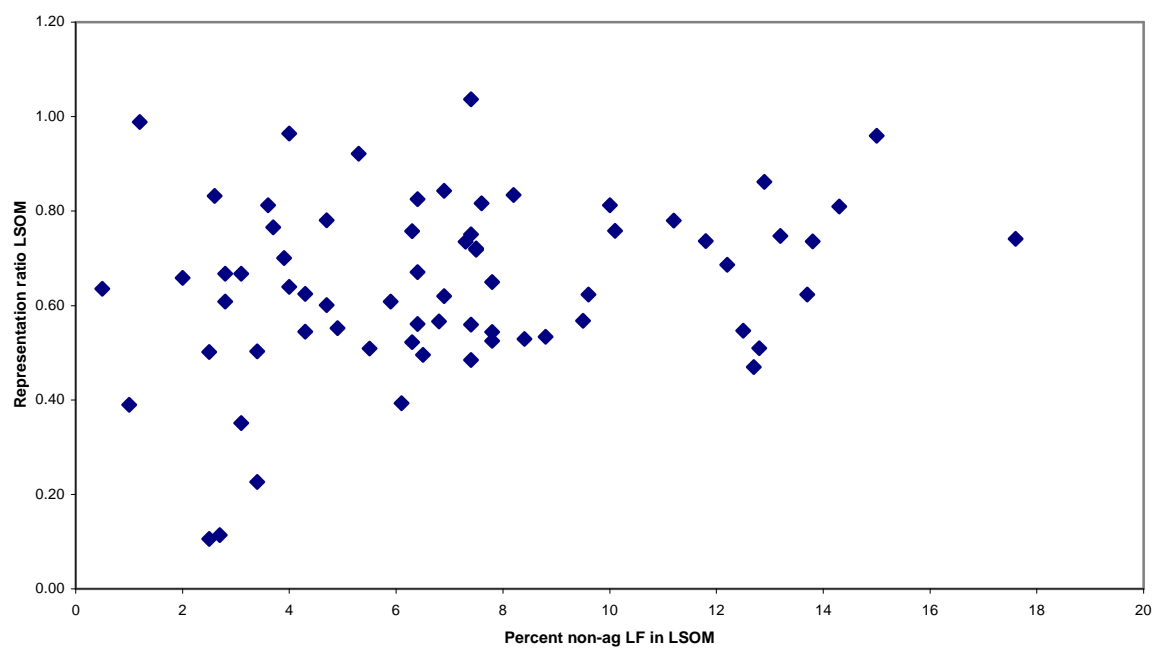


Figure 10. Relationship between LSOM representation ratio and percent of non-agricultural labour force in LSOM



## 6. Feminization of legislators, senior officials and managers and its relationship to development level and gender equity outside the labour market

This section investigates the extent to which feminization of legislators, senior officials and managers occupations in a country is related to the country's level of economic development and gender equity outside of the labour market. The a priori expectation is that women's ability to obtain and hold powerful and influential positions in the labour market will be related to gender equity in society - - as women's status in the labour market and society are both expected to reflect the same underlying phenomenon.

There is no strong a priori expectation about the relationship between feminization of the LSOM major occupational group and economic development level. While theoretically, there should be a positive relationship since economic development should change traditional gender stereotypes about appropriate roles for women, it has been shown in earlier publications (see for example, Anker 1998) that traditional gender stereotypes are replicated in labour markets around the world at all development levels.

### 6.1 Development level

Table 8 and scatterplots in Figures 11 and 12 show results for development level as measured by GDP per capita for 2000 expressed in PPP as provided in UNDP's 2002 Human Development Report.

**Table 8. Regression coefficients for development level (GDP per capita in PPP) with percent female in LSOM and representation ratio for LSOM, World 2000 (t values in brackets)**

Explanatory variables	% Female in LSOM			Rep ratio for LSOM		
	(1)	(2)	(3)	(1)	(2)	(3)
GDP per capita only	0.0473 (0.37)			-0.0026 (1.09)		
GDP per capita with region binaries		0.0685 (0.41)			-0.0034 (0.93)	
GDP per capita with regions, LSOM share of nonag LF, and female share of nonag LF <sup>1</sup>			-0.232* (1.73)			-0.0045 (1.27)
Adjusted R <sup>2</sup>	-0.01	0.44	0.68	0.00	0.18	0.33

*Notes:* Based on data for 65 countries from Table 2. Macau, Netherlands Antilles, Puerto Rico, and West Bank and Gaza are not included here as they do have a value for GDP per capita from source.

Regional binaries are specified to control at least partially for cultural differences. Female share of LSOM and LSOM share of non-agricultural labour force are specified as controls for their known affect as established in Section 5.

GDP per capita is expressed in PPP and in thousands.

<sup>1</sup> Linear and square terms for female share of non-agricultural labour force are specified when representation ratio is the dependent variable.

\* indicates significant at .10 level. \*\* indicates significant at .05 level. \*\*\* indicates significant at .01 level.

*Sources:* UNDP, Human Development Report website for GDP per capita in PPP. Table 2 for other variables as drawn from ILO website.

*There is no apparent meaningful relationship between GDP per capita with either percent female in LSOM or representation ratio for LSOM. The scatterplots in Figures 11 and 12 show graphically the lack of a strong relationship.*

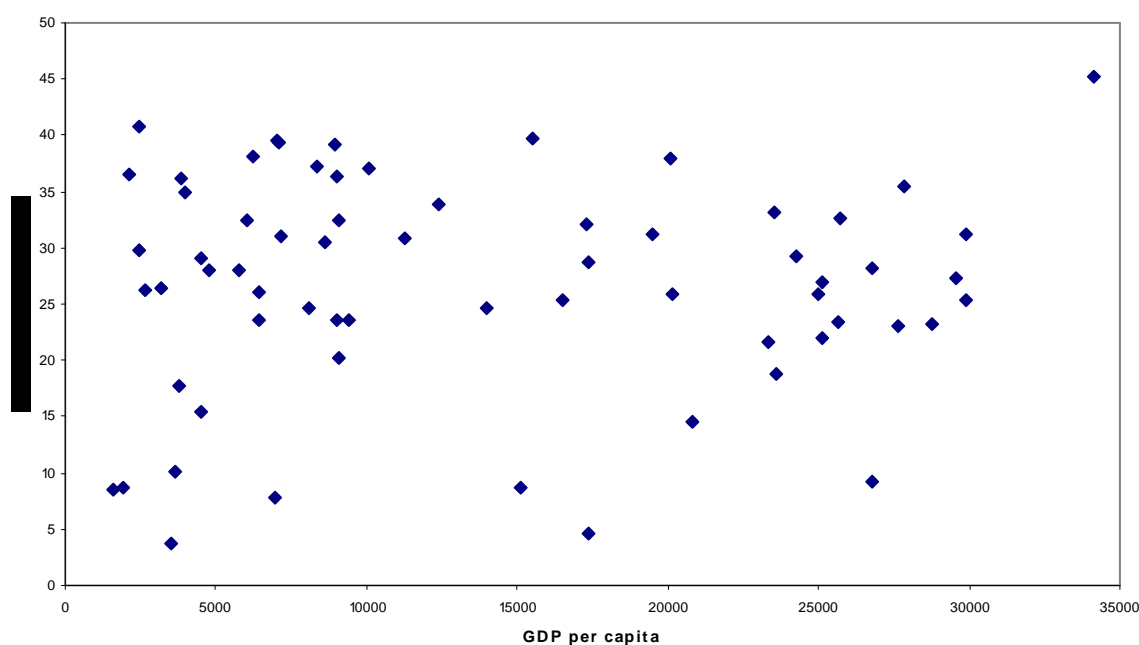


The regressions estimated in Table 8 confirm the lack of a positive relationship between income per capita and our measures of women in decision-making positions. The first two regression specifications in Table 8 confirm that relationships are weak and insignificant when GDP per capita is specified by itself or with binary variables for region. A similar result is found when UNDP's GDP per capita in PPP index is used (unreported regression).<sup>22</sup>

However, when the two labour market variables that were found to be significant determinants of women in decision-making positions are specified (specification 3), GDP per capita's coefficient is negative for both dependant variables and just significant at the .10 level for percent female in LSOM. A negative coefficient for GDP per capita is, of course, unexpected, as it indicates that increases in GDP per capita are associated with a worsening position for women as regards decision-making positions in the labour market - when women's level of participation in the non-agricultural labour force is controlled for statistically. This unexpected negative relationship can be traced in part to the situation in a few higher income countries (Japan, Bahrain, and Republic of Korea) where women are generally excluded from decision-making occupations. Indeed, when Japan and Republic of Korea are excluded and specification 3 is rerun, GDP per capita's coefficient becomes small (-.092) and definitely insignificant (0.65 t-value).

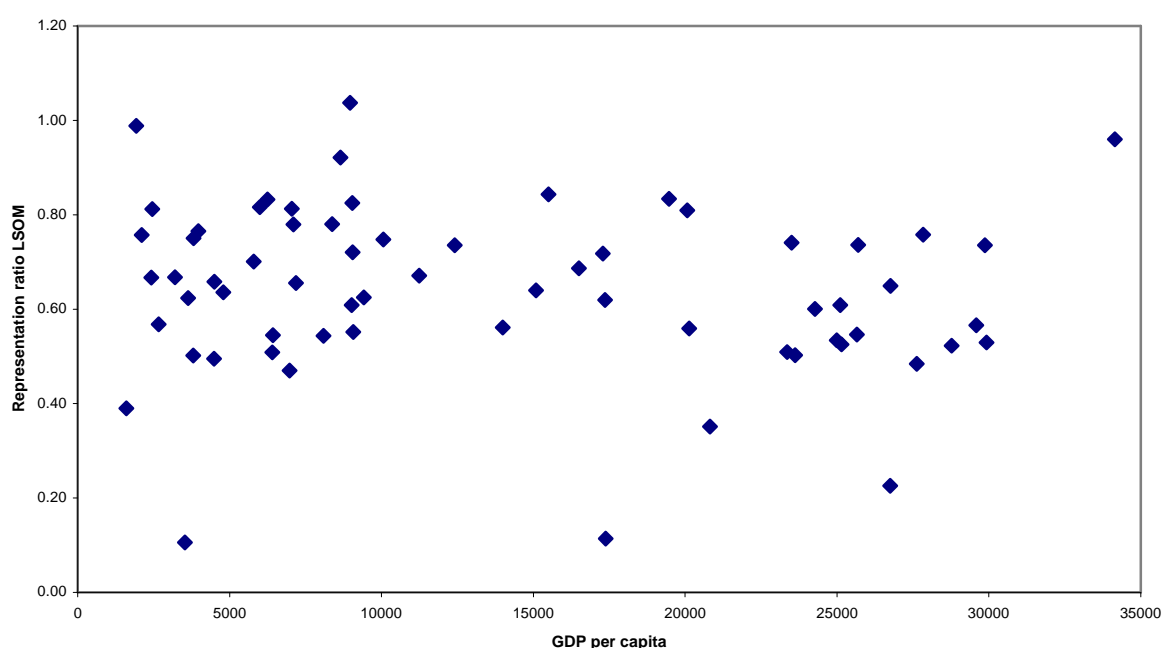
In short, regression results in Table 8 do not provide any evidence that higher per capita income is positively associated with an increase in either percent female in LSOM or representation ratio in LSOM. It is clear that modernization, changing values and increases in education that accompany *economic development and rising income per capita are not sufficient to alter traditional gender stereotypes and breakdown barriers women face in the labour market as regards opportunities for decision-making occupations.*

**Figure 11. Relationship between percent female in LSOM and GDP per capita**



<sup>22</sup> UNDP's GDP per capita index uses the log of GDP per capita in PPP. This reduces differences between countries. The UNDP index also scales these log values, which further reduces differences between countries as compared to GDP per capita itself.

**Figure 12. Relationship between representation ratio for LSOM and GDP per capita**



## 6.2 Gender equity in society

Discussion and analysis in this section rely on scatterplots (Figures 13-18) and regressions (Tables 9 and 10). Region binaries are used to control at least partially for cultural differences across countries. Also, the two labour market variables (i.e., female share of non-agricultural labour force and reported size of LSOM) found to be significantly related to our two measures of women in decision-making positions are used to control for their known effect as established in Section 5.

Three indicators of gender equity in society are investigated in this section: (i) UNDP's Gender Development Index (GDI) to provide an overall measure of gender equity in society; (ii) female to male life expectancy at birth ratio to measure the relative health status of women; and (iii) percent of parliamentarians who are women to measure women's status in the political arena. Data for these three indicators are drawn from the UNDP Human Development Report website. Discussion proceeds by explanatory variable. A priori expectations are that all three of these indicators of gender equity in society will be positively and significantly related to women's representation in occupations with decision-making power, since explanatory variables and dependant variables are all expected to represent different aspects of women's status.

**Table 9. Regression coefficients for indicators of gender equity in society and health as associated phenomenon with percent female in LSOM and representation ratio for LSOM, World (t values in brackets)**

Explanatory variables	% Female in LSOM			Rep ratio for LSOM		
	(1)	(2)	(3)	(1)	(2)	(3)
GDI only	18.79 (1.64)			-0.20 (0.93)		
GDI with regions		3.98 (0.33)			-0.522* (1.98)	
GDI with region & LM variables <sup>1</sup>			-28.45*** (2.88)			0.209 (0.78)
Adjusted R <sup>2</sup>	0.03	0.46	0.72	-0.00	0.24	0.53
F/M life expectancy only	121.96*** (3.97)			0.379 (0.60)		
F/M life expect with regions		59.57* (1.68)			-0.0829 (0.99)	
F/M life expect with regions & LM variables <sup>1</sup>			-10.41 (0.32)			0.223 (0.30)
Adjusted R <sup>2</sup>	0.19	0.49	0.66	-0.01	0.17	0.48

**Notes:** Based on data for 61 countries for GDI, and 65 countries for M/F life expectancy ratio. Macau (China), Netherlands Antilles, Puerto Rico (United States), and West Bank and Gaza are not included for either dependant variable as they do have a value for either explanatory variable in the source. Barbados, Estonia, Georgia and Suriname do have a value for GDI in source.

Equation 1 includes only the noted explanatory variable.

Equation 2 includes region binaries in addition to noted explanatory variable.

Equation 3 includes female share of non-agricultural labour force and LSOM share of non-agricultural labour force in addition to region binaries and noted explanatory variable. For representation ratio, quadratic specification is used for female share of non-agricultural labour force.

Note that quadratic specifications for the GDI and F/M life expectancy at birth explanatory are not used, because mostly they are not significant at the .10 level. Exceptions are for GDI in the first specification when linear and quadratic terms are 261.26 and -159.45; and for F/M life expectancy ratio when linear and quadratic terms are -47.82 and 21.64.

\*\*\* indicates significant at .01 level. \*\* indicates significant at the .05 level. \* indicates significant at the .10 level.

**Sources:** UNDP Human Development Report website for GDI and F/M life expectancy ratio. ILO website for labour market dependant and explanatory variables.

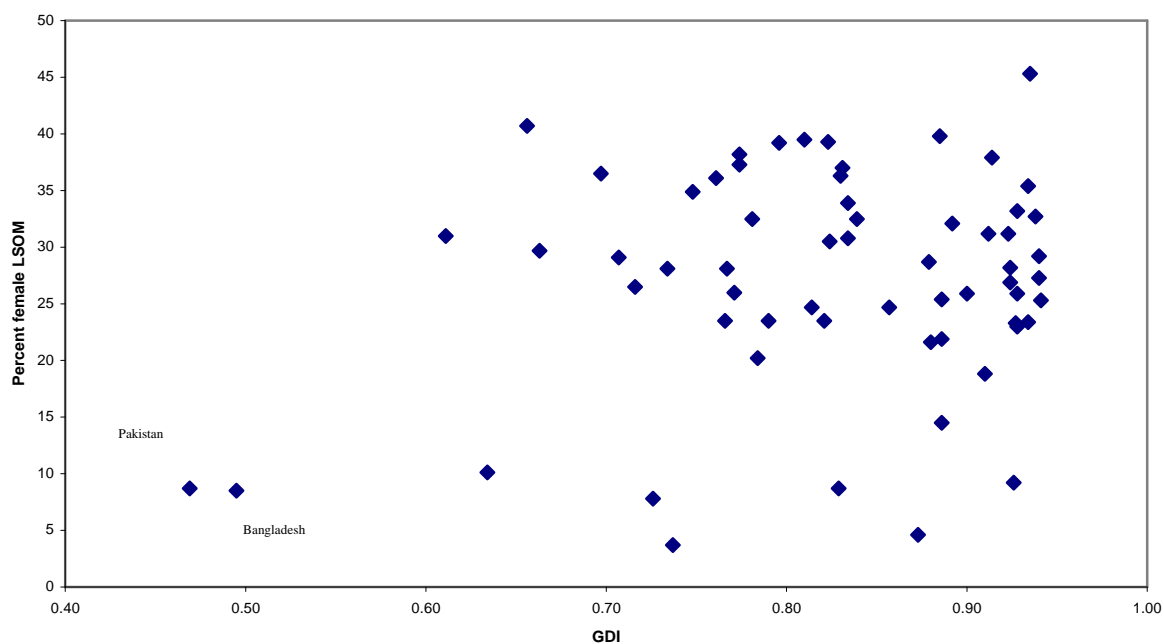
## 6.2a Gender Development Index (GDI)

UNDP's Gender Development Index (GDI) does not appear to be meaningfully related to women's presence in the LSOM major occupational group. Regression results for GDI are not significant in 4 of the 6 equations in Table 9. And the two times GDI is significant it has an unexpected negative coefficient. While it is true that GDI has a positive coefficient that is almost significant at the .10 level when only GDI is specified in specification 1 for percent female in LSOM, inspection of Figure 13 reveals why. This positive relationship is due in large part to two countries (Bangladesh and Pakistan) that have both a very low GDI and a very low percent female in LSOM. This observation is confirmed when specification 1 is rerun after excluding Bangladesh and Pakistan, as GDI's coefficient now becomes very small (0.28) and insignificant (with a t-value of 0.02).

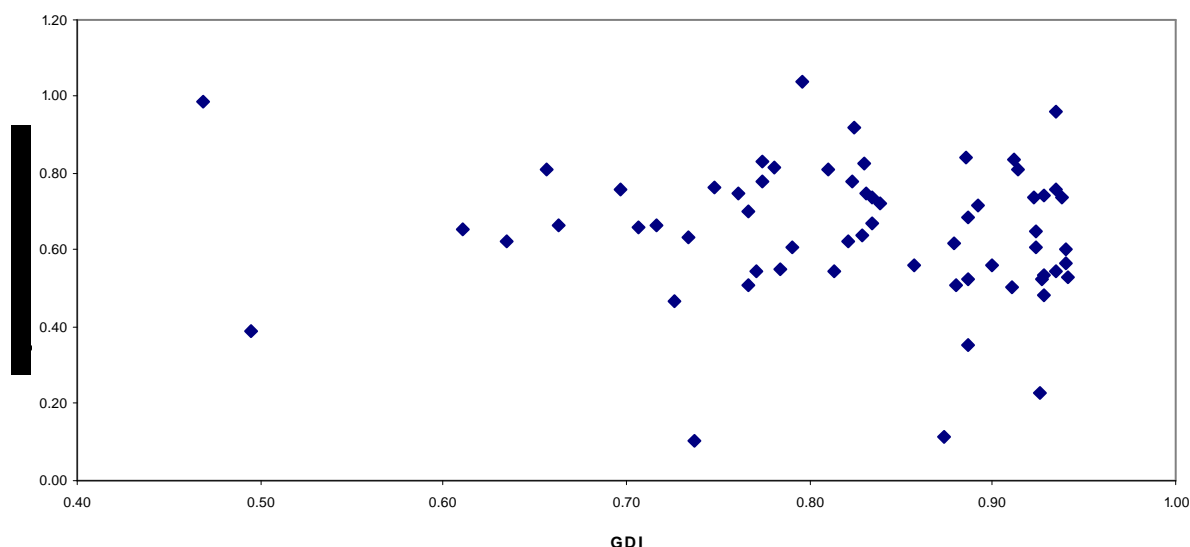
We are left with results that are similar to those for GDP per capita in the previous subsection. There is no evidence that GDI, just as GDP per capita, is positively related to percent female in LSOM or to representation ratio for LSOM. The similarity of results for

GDP per capita and GDI is not surprising, since GDI is calculated in such a way as to be basically the same as UNDP's Human Development Index (HDI) - - as the correlation coefficient between them is .998 - - while HDI and GDP per capita are highly related with a correlation coefficient of .891. These results imply that GDI is not a particularly good indicator of women's status as far as labour market opportunities for decision-making positions is concerned. Indeed, it seems that GDI is more a measure of women's situation in terms of their human development (health, education and household income) than it is a measure of gender differences in society and the relative situation of women compared to men.

**Figure 13. Relationship between percent female in LSOM and gender development index (GDI)**



**Figure 14. Relationship between representation ratio for LSOM and gender development index (GDI)**

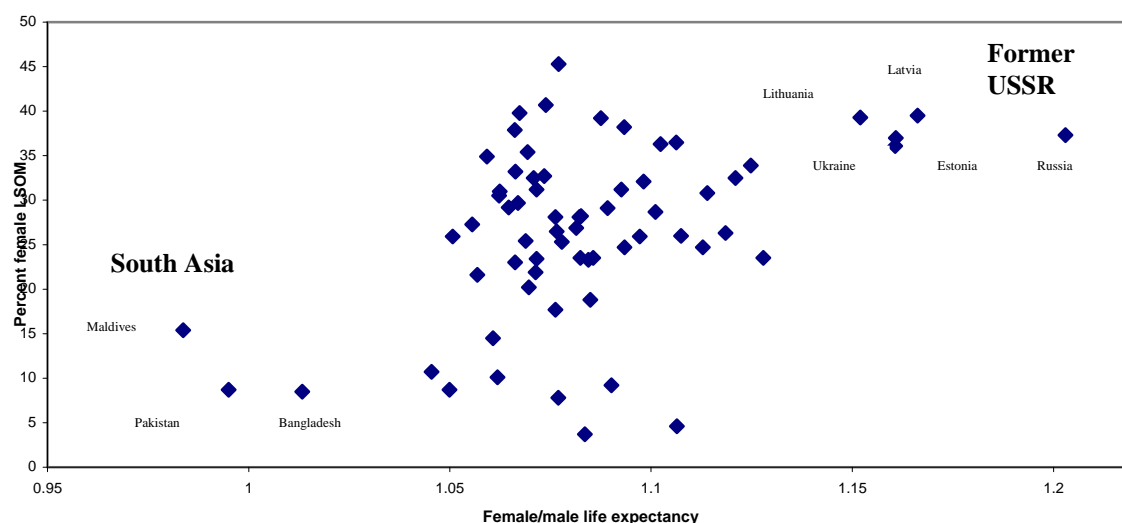


## 6.2b Female to male life expectancy at birth

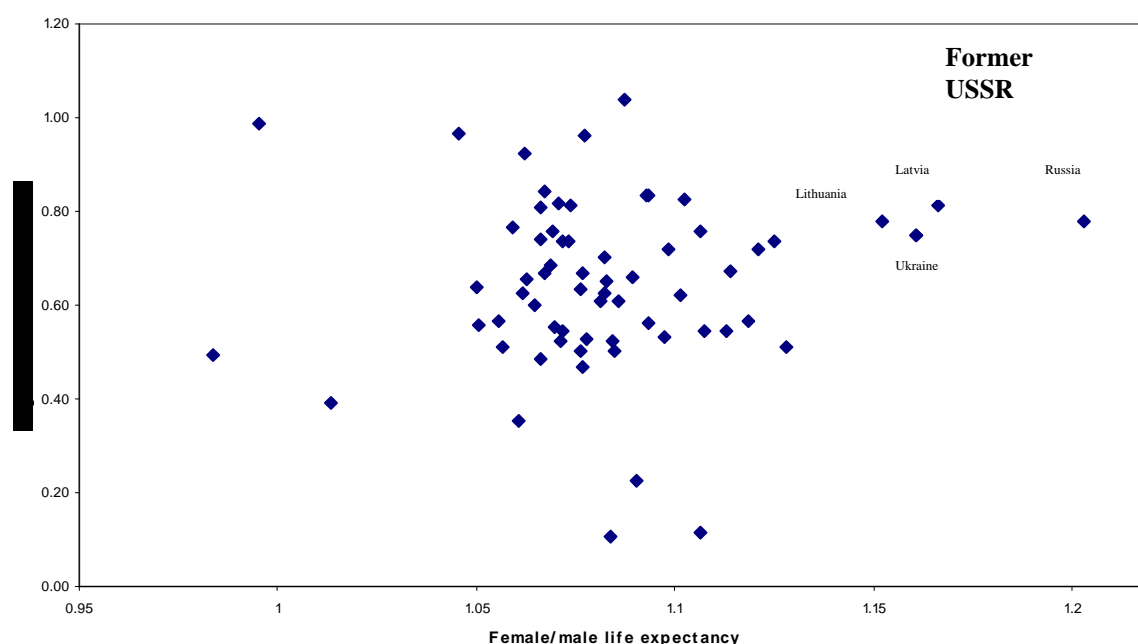
*There does not appear to be a meaningful relationship between the female to male life expectancy at birth ratio and our two measures of women's presence in LSOM. This conclusion needs explaining, as coefficients in equations 1 and 2 in Table 9 for percent female in LSOM are large and statistically significant.*

The observed positive relationship is due to the existence of two small clusters of countries (see Figure 15). In the upper right hand corner of Figure 15 is a cluster of five countries (with unusually high F/M life expectancy ratio and percent female in LSOM) and in the lower left hand corner is a cluster of three countries (with unusually low F/M life expectancy ratio and percent female in LSOM). All other countries are tightly bunched with a female to male life expectancy ratio between approximately 1.05 and 1.12. The five countries with an exceptionally high F/M life expectancy ratio at above 1.15 (Russia, Ukraine, Latvia, Lithuania, and Estonia) do not represent a situation where women receive better treatment and care as compared to men. Rather, they represent a desperate situation for men, where male mortality rose sharply after the fall of communism and so caused the F/M life expectancy at birth ratio to increase dramatically (indeed, 14 of the 16 countries with a M/F life expectancy ratio above 1.10 are Transition Economy countries). The three countries with an exceptionally low F/M life expectancy ratio, at below approximately 1.01, are South Asian countries (Maldives, Pakistan, and Maldives). They do, on the other hand, represent a situation where women are discriminated against in health care as well as in the labour market.

**Figure 15. Relationship between percent female in LSOM and female to male life expectancy at birth**



**Figure 16. Relationship between representation ratio for LSOM and female to male life expectancy at birth**



## 6.2c Women parliamentarians

*A strong relationship is observed between women's representation in parliament and feminization of the major occupational group of legislators, senior officials and managers. Before beginning discussion and analysis in this section, it is important to note that even though legislators are included within the LSOM major occupational group in both ISCO-68 and ISCO-88 and so could theoretically affect observed feminization rates for the major*

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group, this definitional effect has to be unimportant in practice. The reason is that parliamentarians make up an extremely small percent of workers in the major group.

According to scatterplots of national values in Figures 17 and 18, women's representation in parliament is non-monotonically related to women's representation in LSOM decision-making occupations. There appears to be an inverted U-shape relationship - - *positive until a certain level of women's share of parliament and negative after that.*

Regression results in Table 10 confirm statistically that this relationship does indeed have an inverted U-shape, and it is significant at the .01 level. *It is especially interesting that this relationship is found for both the representation ratio for LSOM and percent female in LSOM.* There does appear to be an underlying relationship here. According to regression results in Table 10, *this relationship is estimated to turn from positive to negative when women comprise around 25 percent of parliament.*

The negative portion of the relationship is surprising, as one would expect it to be monotonically positive. It is not only contrary to a priori expectations, but it also appears at first glance to be inconsistent with findings from the 1995 UNDP Human Development Report which concluded that "The link between the extent of women's participation in political institutions and their contribution to the advancement of women has been the subject of extensive research. Although no definite relationship has been established, a 30% membership in political institutions is considered the critical mass that enables women to exert meaningful influence on policies". In other words according to UNDP, having more women in parliament does not have an affect on laws and policies that help women until women comprise at least 30 percent of parliament - - yet regressions in Table 10 estimated that the relationship is negative when women's representation in parliament increases above around 25 percent.

**Table 10. Regression coefficients of percent female in parliament (indicator of gender equity in politics) for percent female in LSOM and representation ratio for LSOM, World (t values in brackets)**

Explanatory variables	% Female in LSOM			Rep ratio for LSOM		
	(1)	(2)	(3)	(1)	(2)	(3)
% f in parliament only:						
linear term	1.575*** (3.71)			0.028*** (3.50)		
square term	-0.0313*** (3.22)			-0.0000581*** (3.17)		
% f in parliament with controls:						
linear term <sup>1</sup>		0.757* (1.97)			0.025*** (3.07)	
square term <sup>1</sup>		-0.0154* (1.82)			-0.000506** (2.76)	
linear term <sup>2</sup>			0.574* (1.87)			0.017** (2.58)**
square term <sup>2</sup>			-0.0113 (1.66)			-.000362** (2.44)
(implied turning point)	25.2	24.6	25.4	24.1	24.7	23.5
Adjusted R <sup>2</sup>	0.18	0.47	0.67	0.15	0.28	0.56

**Notes:** Based on data for 64 countries. Hong Kong (China), Macau (China), Netherlands Antilles, Puerto Rico (United States), and West Bank and Gaza are not included as they do have a value for percent female in parliament in the source.

Equation 1 includes only the noted explanatory variables.

<sup>1</sup> Equation 2 includes region binaries in addition to noted explanatory variable.

<sup>2</sup> Equation 3 includes female share of non-agricultural labour force, and LSOM share of non-agricultural labour force in addition to region binaries and noted explanatory variable. Female percent share of non-agricultural labour force squared is also specified in equation 3 when representation ratio for LSOM is the dependant variable.

\*\*\* indicates significant at .01 level. \*\* indicates significant at the .05 level. \* indicates significant at the .10 level.

**Sources:** UNDP Human Development Report website for percent female in parliament. ILO website for labour market dependant variables.

One possible explanation for the surprising negative portion of the estimated relationship between women's share of parliament and women's representation in decision-making positions in the labour market could be quotas for women in parliament that increase the number of women parliamentarians above what it would otherwise be. This could have two implications for our analysis. First being imposed, quotas may not lead in the short run at least to ideational, legal or programme changes that help women to become managers in the private sector. Second, it may imply that the reason for the positive segment of our estimated relationship is an associated correlation with a related common phenomenon - - women's status in society - - rather than to a causal relationship whereby women's increased representation in parliament encourages and assists (by example and through laws) more women to be managers, corporate chief executives and senior government officials.

To investigate this possible explanation further, we re-estimated specification 3 in Table 10 after dropping countries that used quotas for women in parliament according to the 2002 UNDP Human Development Report. This caused the five Nordic countries, Netherlands,



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Germany and New Zealand to be dropped from this reanalysis.<sup>23</sup> The relationships in these re-estimated equations become linear, positive and significant at the .01 level. The regression coefficients in this linear specification are .284 for percent female in LSOM, and .009 for the LSOM representation ratio. According to these re-estimated equations, an increase in women's representation in parliament from the approximately 4 percent in the Middle East to UNDP's benchmark of 30 percent (or slightly below one in three in parliament) would be associated with a very large increase in women's representation in LSOM occupations - a 7.8 percentage point increase in percent female, and a .23 increase in the representation ratio.

The situations in the United States and Nordic countries deserve comment, since they are contrasting (see Figures 17 and 18). The United States has one of the highest percent female in the LSOM major group in the world, despite having only average representation of women in Congress. Nordic countries, on the other hand, have the highest representation of women in parliament in the world, despite having only average women's representation in management positions. This difference between the United States and Nordic countries shows how democracies often take different paths toward improving gender equity in the labour market - even if there is a general tendency in the world for greater representation of women in parliament to be associated with greater representation of women in manager and other decision-making occupations. In Nordic countries for example, legislative efforts have focussed on assisting all women to combine work and family responsibilities. As a result, it seems that legislative efforts in Nordic countries have not had a profound affect on improving women's chances of obtaining managerial and other LSOM positions. The United States, on the other hand, has concentrated on the legal route to reduce discrimination and increase equal opportunity (rather than in assisting working women in general to combine work and family responsibilities). This appears to have helped American women who aspire to managerial and other LSOM positions.

<sup>23</sup> Since UNDP in their table only noted countries with a quota when female percent in parliament exceeded 30 percent, it would clearly be worthwhile identifying all countries with a quota for women in parliament and re-estimating the equation after excluding all of these countries (or including them while specifying a binary variable to indicate countries with a quota), since some countries with less than 30 percent women in parliament also have a quota. For example, it seems likely that Pakistan's surprisingly high percentage of women in parliament, at approximately 20 percent, is due in part to a quota for women. And Costa Rica's approximately 35 percent female in parliament appears high when compared to the 19 percent female observed in the previous year.

Figure 17. Relationship between percent female in LSOM and percent female in parliament

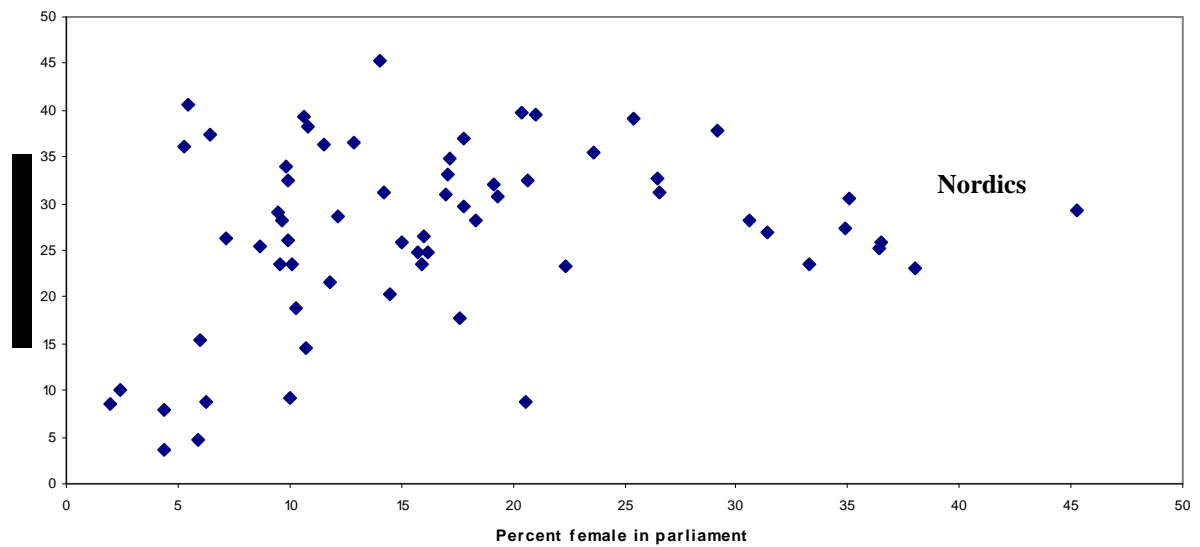
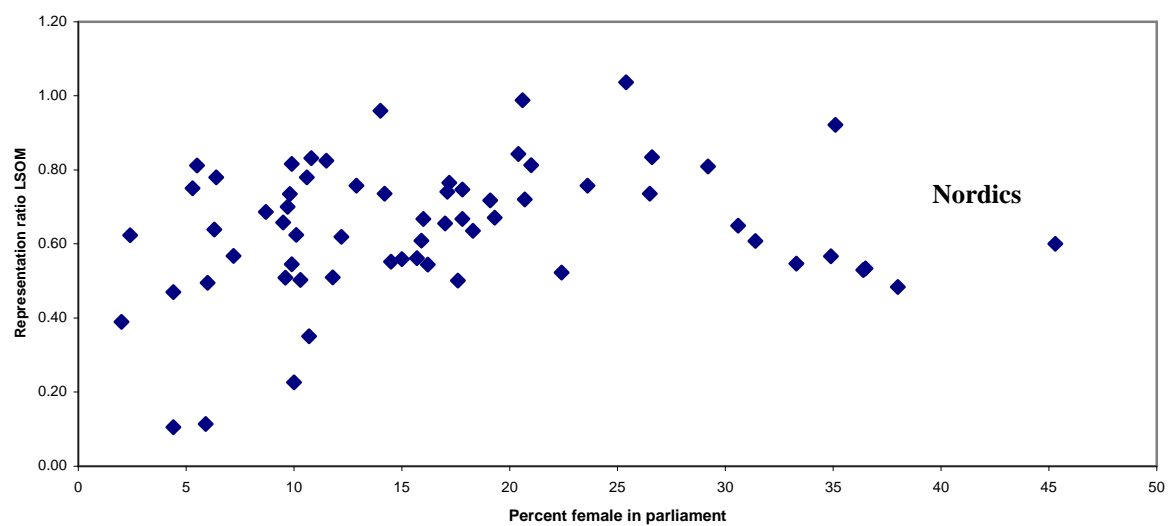


Figure 18. Relationship between representation ratio for LSOM and percent female in parliament



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## 7. Conclusions and recommendations

This monograph has been concerned with women's status and opportunities in the labour market as measured by the extent to which they hold positions with decision-making authority and power as legislators, senior government officials and managers in the private sector. Women's lack of opportunity for these decision-making positions reflects gender discrimination in the labour market - and is often referred to the glass ceiling.

It is possible to think of gender discrimination and equal opportunity in the labour market as consisting of three interrelated phenomenon: (i) extent to which women have opportunity to join the labour market (typically measured by women's labour force participation rate); (ii) opportunity to work in all types of occupations (typically measured by occupational sex segregation); and (iii) opportunity to obtain good quality positions in the labour market (typically measured by male-female pay differentials or access to occupations with decision-making power). This monograph is concerned with the last aspect and specifically the extent to which legislators, senior officials in government and managers in private establishments are women. This indicator is commonly used in international comparisons by researchers and international organizations, because according to the international standard classification of occupations these occupations "determine, formulate and direct or advise on government policies ... or plan, direct or coordinate policies and activities of enterprises or organizations or their internal departments or sections".

Until this monograph, however, this indicator had not been carefully scrutinized or analyzed. We investigated: (i) how this indicator is measured and possible measurement problems that could affect cross-country comparability; (ii) levels and differentials in this indicator for a large number and wide range of countries from around the world; and (iii) whether feminization of these occupations is related to development level and indicators of gender equity in society.

**We found that women do not have anywhere near equal opportunity in access to high status decision-making occupations.**

In terms of the degree to which legislators, senior officials and managers (LSOM) in the world are women, we found that:

- *Women are a distinct minority* of LSOM workers in the world, comprising only about 27 percent of these workers on average.
- Women are a *distinct minority* of legislators, senior officials and managers in all regions of the world. This means that the lack of equal opportunity is universal.
- There is *considerable variation across regions*. Whereas percent female of LSOM is only approximately 10 percent in the Middle East, South Asia, Republic of Korea and Japan (and so approximately 10 men for each woman in these occupations), it is approximately 30 percent in Developed Economies, Transition Economies and Latin America (and so there is around 3 men to every woman in this major group).
- In addition to unequal access to LSOM occupations in general, there is evidence of further inequality and vertical occupational sex segregation within LSOM occupations. For example in Europe, percent female within this major occupational group was found to be lowest for corporate executives and directors.

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In terms of the degree to which women workers are in LSOM occupations (representation ratio), we found that:

- Working women are much less likely to be in LSOM occupations than in other non-agricultural occupations, two-thirds as likely on average.
- Working women are also much less likely to be in LSOM occupations than in other non-agricultural occupations in all regions of the world. Once again a universal pattern is observed.
- The rank order of regions is quite different for the representation ratio than for the percent female of LSOM. Latin America is the best region, and Asia is the worst. The Middle East is surprisingly average as are the Developed Economy and Transition Economy regions.
- Interestingly, within the Developed Economy region, Nordic countries have average representation ratios and Anglo-Saxon countries have high representation ratios. Within Transition Economy countries, countries from the former USSR have high representation ratios. Within Latin America, Caribbean and Central American countries have high representation ratios. Within Asia, Japan and Republic of Korea have low representation ratios.

**We found that feminization of LSOM is not positively related to national income per capita.**

- Neither percent female in LSOM nor representation ratio for LSOM are significantly related to GDP per capita.
- This unexpected result indicates that economic development and accompanying increases in education and changes in traditional values are not sufficient by themselves to significantly alter gender stereotypes about the appropriateness of women holding decision-making positions such as managers.
- Percent female in LSOM is, however, clearly influenced by cultural norms about what are considered to be appropriate roles for women. This is shown by the distinct clustering of country values for percent female in LSOM for countries within regions with similar cultures.

**We found that women's representation in LSOM is related to some indicators of gender equity in society and not to other indicators of gender equity in society.**

- *Neither UNDP's Gender Development index (GDI) nor the female to male life expectancy at birth ratio were found to be meaningfully related to women's representation in LSOM.*
- *A strong positive relationship was found between women's representation in parliament up to when women comprise about 25 percent of parliament. Although conjectural, we speculated that the break in this positive relationship is due to quotas for women in parliament in some countries that in a sense increases percent female in parliament beyond what it would otherwise be. This implies that there is a general positive relationship between women's representation in parliament and women's representation in management - - because both are related to the common phenomenon of women's status and power in society rather than to women parliamentarians creating favourable labour market conditions for women.*
- *Interestingly, Nordic countries and the United States are strikingly different in terms of their levels of women's representation in parliament and management.*

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Nordic countries have rather average women's representation in management occupations despite the highest representation of women in parliament in the world (in part because of an official policy in these countries to have women in parliament). The situation in the United States is different. Even though American women have only average representation in parliament for the world, the United States has perhaps the highest percent female for workers in managerial occupations in the world. The legalistic route to gender equity taken by the United States appears to have been especially helpful for women who aspire to managerial type occupations. In contrast, Nordic government gender policy has assisted all women to be able to combine work and family responsibilities.

**We found that feminization in LSOM is significantly related to the size of the female share of non-agricultural employment.**

- Percent female in LSOM is positively and significantly related to the size of the female share of non-agricultural employment. This result **confirms statistically that percent female in LSOM naturally increases along with increases in the percent of all non-agricultural workers who are female.**
- **Relationship between the representation ratio** for LSOM and female share of the non-agricultural labour force is, on the other hand, **U-shaped and significant.** The representation ratio tends to be relatively high when women comprise a very small (below 10-15) percent of non-agricultural workers and when women comprise a relatively high (above about 40-45) percent of non-agricultural workers. In between, the relationship is negative (that is, the representation ratio falls along with increases in female share of non-agricultural employment) until the non-agricultural labour force is about 30-40 percent female, and the relationship is positive but weaker for increases in female share of non-agricultural employment from about 35-40 percent female. **This result could be explained by two forces.** First, in societies where female labour force participation in the non-agricultural sector is very low and frowned upon by society such as in parts of Middle East and South Asia, elite women with good educations and family connections are allowed to join the non-agricultural labour force, especially when they are able to find work that is not considered to be demeaning for women. Because of their backgrounds, these elite women have reasonably good opportunities for high status and socially acceptable jobs, including LSOM occupations, which means that the representation ratio for LSOM for such a country can be relatively high. Second, as more and more women enter the non-agricultural labour market, elite women come to comprise a smaller and smaller percentage of women workers and so the representation ratio for LSOM falls. Eventually, women workers become common enough in the non-agricultural labour force and women's status rises enough that opportunities for working women improve as regards LSOM jobs and so the LSOM representation ratio increases.

**We found that several measurement-related aspects affect observed percent female in LSOM and cross-country comparability.**

- **It is important to measure feminization in LSOM in both an absolute and a relative sense.** The usual absolute measure (percent female in LSOM) tells us about difficulties women face in obtaining LSOM occupations, which consists of two factors: opportunity to enter the non-agricultural labour market and opportunity to obtain an LSOM occupation once they are in the labour force. The relative measure (representation ratio) tells us about difficulties working women, who are already in the labour market, face in obtaining and holding LSOM occupations.

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- Since almost all workers in LSOM occupations in Europe are either corporate managers (managers in large organizations or enterprises) or general managers (managers in small organizations or enterprises), it *would be appropriate* for analytical purposes to refer to the *LSOM occupational major group in Europe as: managers*.
  - There is considerable variability across countries in the reported size of LSOM, with percent of non-agricultural employment in LSOM ranging from around 3 to 15 percent among countries within each region. As such large variability could not be due to real differences in labour markets, much of this variability must be due to differences in national practices in classifying and coding occupations. The importance of this for measuring feminization of LSOM is illustrated by regression results which show that the reported size of LSOM is significantly and positively related to reported levels of percent female and representation ratio for LSOM.
  - *The two international standard classifications currently in use, **ISCO-88 and ISCO-68, are not comparable as regards measurement of men and women in LSOM**. ISCO-88 is more inclusive in its coverage of occupations since it includes various types of managers placed elsewhere in ISCO-68. As these additional occupations tend to be more feminized as compared to other LSOM occupations, this increases the percent female observed for LSOM based on ISCO-88 as compared to ISCO-68. This analysis lead us to *recommend that the future revision of ISCO should follow the approach used in ISCO-68 where manager occupations in LSOM are more clearly occupations with important decision-making power.**
  - **Annual national estimates of the number of females and males in LSOM occupations are sometimes unstable**, with unrealistically large changes from one year to the next. One reason for instability of annual national estimates is sampling error, which is especially important in countries with small labour force survey sample sizes since LSOM occupations comprises a small percent of the labour force and it is necessary to measure reasonably precisely the numbers of female and male LSOM workers. Other possible reasons for instability in national estimates include change in the occupational classification and/or in how occupational information is coded in practice especially whether workers in small businesses, retail trade and farms are or are not considered to be managers. For this reason, we concluded that **an unusual national value for a particular year should not be used without further examination** to guard against use of unrealistic and inaccurate national values. We also concluded that it is preferable to estimate percent female in LSOM by taking the average of national values for the last three years (in order to smooth out annual fluctuations) when it cannot be ascertained why a substantially different national value has been reported.

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## Appendix A. ISCO-68 and ISCO-88: Cross-country comparability of reported numbers of women and men in major occupational group of legislators, senior officials and managers

The use of different occupational classifications and coding practices by countries (see earlier discussion in this monograph) is an important source of differences across countries in the reported numbers of men and women working in the major occupational group of legislators, senior officials and managers. *This Appendix investigates how the use of the two most commonly used international standard classification of occupations (ISCO-68 and ISCO-88) affects cross-country comparability.*

In order to increase international comparability, national statistical organizations come together every four years for the International Conference of Labour Statisticians (ICLS) to discuss and adopt international statistics standards. In 1988, ICLS adopted an international standard classification of occupations called ISCO-88. The earlier standard classification called ISCO-68 was adopted in 1968. The EUROSTAT version, called ISCO-COM, is similar to ISCO-88.<sup>24</sup> Many countries use their own classification, although these national classifications almost always have a similar structure to either ISCO-68 or ISCO-88.

*ISCO-88 and ISCO-68 are conceptually similar for the major group of legislators, senior officials and managers.* Table 11 provides descriptions of this major occupational group and its sub-major occupational groups in ISCO-68 and ISCO-88. For example, both use a very similar description of the major group: legislators, senior officials and managers in ISCO-88 compared to administrators and managerial workers in ISCO-68. They also use similar descriptions of sub-major groups and minor groups.

<sup>24</sup> The main differences between ISCO-COM and ISCO-88 are that ISCO-COM: (i) excludes ISCO-88 sub-major group 113, traditional chiefs and heads of villages as this is not important in Europe; (ii) distinguishes between corporate managers and general managers on the basis of the number of employees in the enterprise or organization and not on the basis of the number of managers as in ISCO-88; (iii) introduces and uses “not further specified” occupational categories at the sub-major group level (e.g., corporate manager not further specified) in recognition of the difficulty in specifying more precisely occupations in this major group and its sub-major groups; (iv) renames the major group as legislators, senior government officials and managers in recognition of the fact that most senior officials included here are government officials; and (v) makes a clearer distinction between agricultural managers and workers as compared to ISCO-88.

**Table 11. Comparison of descriptions of major group, sub-major groups and minor groups in ISCO-68 and ISCO-88 for legislators, senior officials and managers**

ISCO-88	ISCO-68	ISCO-88	ISCO-68
<i>Major group</i> Legislators, senior officials and managers	Legislative and managerial workers		
<i>Sub-major group</i> Legislators and senior officials	Legislative officials and government administrators	<i>Minor group</i> Legislators.  Senior government officials. Village heads. Senior officials of special interest orgs.	Legislative officials. Government administrators.
<i>Sub-major group</i> Corporate managers	Managers	<i>Minor group</i> Directors and chief executives. Prodn & operations managers. Other department managers.	Prodn managers (except farm). Prodn managers not elsewhere classified. General managers.
<i>Sub-major group</i> General managers	Not used	<i>Minor group</i> General managers.	

Source: ILO, 1990.

There are, however, some clear conceptual differences between ISCO-68 and ISCO-88 with regard to the legislators, senior officials and managers major group. It is important to recognize and document these differences for several reasons. First, they affect cross-country comparability, since some countries use ISCO-88 or an ISCO-88 structure while other countries use ISCO-68 or an ISCO-68 structure. Second, they affect measurement of change over time within countries when countries change from using ISCO-68 to using ISCO-88 (a common occurrence in the 1990s). Third, the international statistical community is committed to revising ISCO-88 in the future.

*The most important conceptual difference between ISCO-68 and ISCO-88 is that ISCO-88 has greater coverage of workers for the major occupational group of legislators, senior officials and managers.* Table 12 indicates the correspondence between these two international standard classifications in terms of specific occupations. Notice that:

- All occupations included in this major group in ISCO-68 are also included in this major group in ISCO-88.
- A number of manager occupations are included in this major occupational group in ISCO-88 but not in ISCO-68. These manager occupational groups are found in ISCO-68 in the major occupational groups where the type of work is relevant (Table 12). For example in ISCO-68, major group 4 (sales) includes production and department managers as well as general managers in wholesale and retail trade and in sales and marketing; major group 5 (services) includes managers in restaurants and hotels and in finance and administration; major group 6 (agriculture) includes managers in agriculture, hunting, forestry and fishing.



**Table 12. Occupations included in major occupational group of legislators, senior officials and managers (LSOM) in ISCO-88 that are not included in corresponding major group in ISCO-68**

*(Note: Every occupation in major group 2 in ISO-68 is included in major group 1 in ISCO-88.)*

ISCO-68 code <u>not in</u> LSOM	ISCO-88 code <u>in</u> LSOM	Description
1.71.9	1229	Director musical (note: all other musicians included in code 1.71 in ISCO-68 go mostly to composers, musicians and singers, code 2453 in ISCO-88).
1.74	1229	Department manager, production and operations/stage manager.
1.93.4	1229	Headmaster; headmistress (note: all other workers with code 1.93.4 in ISCO-68 go to social work professional and associate professional, codes 2446 and 3460 in ISCO-88).
3.51.1	1226	Master, railway station; station master.
3.52.1	1226	Postmaster.
4.00	1224	Production and operations department managers in wholesale trade.
	1233	Sales and marketing managers.
	1314	General managers in wholesale and retail trade.
4.10.2	1314	General managers in wholesale and retail trade.
4.10.3	1314	General managers in wholesale and retail trade.
4.21	1233	Sales and marketing department manager, sales promotion.
5.00	1225	Production and operations managers, restaurants and hotels.
	1231	Department managers, finance and admin.
	1315	General managers, restaurants and hotels.
5.1	1315	General managers, restaurants and hotels.
6.00	1221	Production and department managers, agriculture, hunting, forestry and fishing.
	1331	General managers, agriculture, etc.

The reason ISCO-88 was changed to greater coverage for legislators, senior officials and managers as compared to ISCO-68 was the desire of the international statistical community to improve the internal consistency of the standard occupational classification. This is why every type of manager is assigned to the LSOM major group in ISCO-88 (regardless of the industrial sector or the size of the establishment in which work occurred). *Unfortunately, the improved internal consistency of ISCO-88 for the LSOM major group came at a cost.*

- This reduced the meaningfulness of this major group in terms of decision-making power, influence and status in ISCO-88, because it included many more small businesspersons and farmers in ISCO-88 that were not included in this major group in ISCO-68. Yet, such workers do not have nearly the same power, status and influence as managers in large enterprises, legislators and senior government officials.

- This reduced cross-national comparability for ISCO-88, because of the substantial practical difficulties involved (and therefore increased differences in national practices) in deciding whether small businesspersons and farmers should be considered as managers or as workers in a particular profession. The guideline provided in ISCO-88 about whether a worker should be considered as a manager or belonging to another major group is not easy to apply in practice for small business owners. “When the main tasks require operational application of specific professional knowledge or a particular technical skill, then the job belongs to a different major group. .... When professional knowledge or technical skills serve only as a basis for legislative, administrative or managerial tasks, then the job belongs to this major group (ILO, 1990).” It is difficult in practice to know which is more important for many small businesspersons, their managerial work or their professional/technical work. In addition, the information required to decide whether someone in a small business is or is not a manager is often unavailable to coders and interviewers from national statistical offices. For the above reasons, *it is my opinion that when ISCO is revised in the future it should revert back to the practice in ISCO-68 where most small businesspersons and farmers are assigned to other major occupational groups.* It is my feeling that the LSOM major group should unequivocally represent occupations with high status, influence and decision-making authority on a consistent basis around the world.
  
- This greatly reduced the ability to measure the agricultural labour force in ISCO-88 using the widely available one-digit data for major groups. The reason is that agricultural workers are included in three different major groups in ISCO-88: managers (major group 1), agriculture (major group 6), and elementary occupations (major group 9). This also increased the practical difficulty faced by national statistical offices (especially in developing countries) of deciding in which major occupational group many agricultural workers belong; in particular, whether agricultural workers should be considered as unskilled elementary workers and so belong to major group 9 or as skilled agricultural workers and so belong to major group 6. Not surprisingly, there is considerable variation in what national statistical offices do in this regard. For these reasons, *it is my opinion that the future revision of the international standard classification of occupations should revert back to the practice in ISCO-68 of placing all agricultural workers in one major group. If statistical offices feel that the distinction between unskilled and skilled agricultural workers is important to have and possible to code in practice, they could include such a distinction in the occupational codes within the agricultural major group.*

To get an idea of how reported national values for percent female and size of the major group differ when based on ISCO-68 as compared to when based on ISCO-88, Table 13 reports data from the 2002 ILO Yearbook of Statistics for 19 countries or territories (10 developed economy countries, and 9 other countries) that changed from using ISCO-68 to using ISCO-88 within a five year period. For all but three countries the years were consecutive (e.g., used ISCO-68 in 1994 and ISCO-88 in 1995). The implicit assumption in Table 13 and the following discussion and analysis in this Appendix is that the observed difference in reported values in a country is attributable to the change in classification, since the underlying phenomenon changes slowly year by year.<sup>25</sup>

<sup>25</sup> It should be noted that observed change over one year for a particular country could be due in part to sample variation, since national labour force survey samples are too small to precisely measure the number of male and female workers in relatively small occupational groups. On the other hand, sampling variation should be random and so have a zero value on average. See Appendix B for discussion of the stability of annual national values.

**Table 13. Comparing officially reported percent female and size of legislators, senior officials and managers occupational major group based on ISCO-68 (major group 2) and ISCO-88 (major group 1) classifications in consecutive years.**

Region/Country	% LF in LSOM		% Female in LSOM	
	ISCO-68	ISCO-88	ISCO-68	ISCO-88
Developed Economy Countries				
Australia	13.4	7.6	43.3	24
Austria	5.7	6.8	21.8	23.9
Denmark	4.6	6.6	20	23.4
Finland	5.3	9.4	28.7	27
Greece	1.9	10.1	12.1	22.7
Israel	5	4.9	19.2	19.5
Netherlands	4.5	12.3	16.8	20.3
Norway	7	7.5	31.5	22.2
Puerto Rico (United States)	11.5	11.6	31.5	34.9
Spain	2	8.2	12	32
Mean (unweighted)	6.1	8.5	23.7	25
ISCO-88 higher/ Number of countries	8/10		7/10	
Other Countries/ territories				
Costa Rica	3.9	4.6	26.6	28.5
Egypt	1.1	7.2	16.4	11.8
Hong Kong (China)	4.7	9.1	18.3	17.5
Korea, Rep of	1.7	2.7	3.7	6.1
Macau (China)	5.3	5.7	13.7	18.6
Maldives	6.2	5.4	10.7	15.4
Philippines	2.3	10.3	34.9	58.1
Turkey	2.4	8.3	8.9	7.8
Uruguay	2	5.2	28.3	36.3
Mean (unweighted)	3.3	6.5	17.9	22.2
ISCO-88 higher/ Number of countries	8/9		6/9	
Totals summary				
Mean (unweighted)	4.8	7.6	21	23.7
ISCO-88 higher/ Number of countries	16/19		13/19	

*Notes:* Countries included in this table are those that reported results in the 2002 ILO Yearbook of Labour Statistics using an ISCO-68 classification and then an ISCO-88 classification within five years of each other (e.g., used ISCO-68 in 1994 and ISCO-88 in 1995). All values are for consecutive years except for Australia (1993 and 1997), Egypt (1995 and 1997), and Maldives (1995 and 2000). Countries were not included in this table if an official estimate is reported and so not based on a survey or census; or if population coverage was for employees only.

*Source:* ILO Yearbook of Labour Statistics, 2002.

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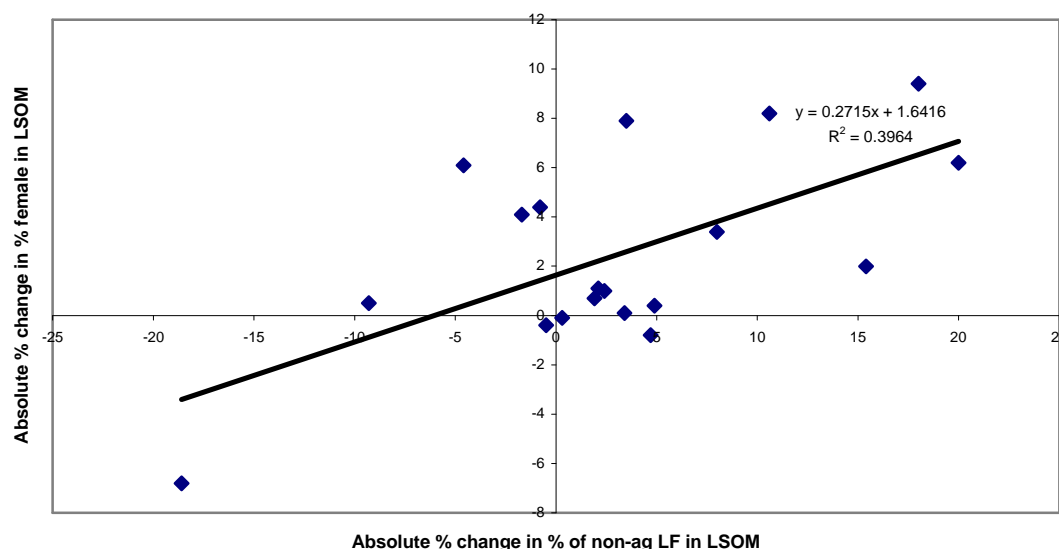
These data show that, *as expected*, *LSOM* is larger when based on an ISCO-88 classification than when based on an ISCO-68 classification. The share of the labour force reported to be in the major group is higher based on ISCO-88 for 16 of the 19 countries included in Table 13 by an average of 2.8 percentage points (7.6 percent compared to 4.8 percent). This represents a 58 percent increase on average in the proportion of workers reported to be in this major group based on ISCO-88 as compared to ISCO-68 (i.e.,  $7.6/4.8 - 1.0$ ).

There is an accompanying - - but not as dramatic - - increase in the reported feminisation of this major occupational group based on ISCO-88 (Table 13). Percent female is higher in 13 of the 19 countries included in Table 13 by 2.7 percentage points on average (23.7 percent compared to 21.0 percent). This represents a 13 percent increase on average in the percent female (i.e.,  $23.7/21.0 - 1.0$ ). Percent female is less sensitive than occupational share to the change from an ISCO-68 to an ISCO-88 classification, because percent female is determined by two factors: relative size of each sub-major group and percent female of each major subgroup. This means that percent female of the major group would not be sensitive to even large changes in the size of the major group and its sub-major occupational groups in countries where percent female is similar across sub-major groups.

Less expected is the number of times there are very large changes in percent female accompanying the change in occupational classification. Percent female changes by over 4 percentage points (more than a 20 percent change relative to the world average for ISCO-68) in 9 of the 19 countries in Table 13, and by over 10 percentage points (a change that exceeds roughly 50 percent of the world average) in 5 of these 19 countries. Similarly, there are frequent dramatic changes in the relative size of this major group accompanying the change from ISCO-68 to ISCO-88. The share of LSOM in the labour force changes by over 3 percentage points (a change that exceeds 50 percent of the world average for ISCO-68) in 10 of the 19 countries and territories in Table 13, and there is at least a 5 percentage point change (representing more than a 100 percent change relative to the world average for ISCO-68) in 7 of these 19 countries.

Interestingly, *changes in the size and feminization of this major group are positively related* when the classification changes from ISCO-68 to ISCO-88 (Figure 19). *Percent female is .27 percentage point higher for each percentage point increase in LSOM's share of the labour force.* This result is consistent with a priori expectations discussed above, since the greater inclusiveness of ISCO-88 as compared to ISCO-68 is likely to be due to the inclusion of additional small business owners/managers who tend to more feminized as compared to corporate managers. This result in turn implies that percent female for LSOM is not as good a proxy measure of women's power and status in the labour market when based on an ISCO-88 classification as compared to when based on an ISCO-68 classification.

**Figure 19: Relationship between change in percent female in LSOM and change in percent of non-agricultural labour force in LSOM when occupational classification changes from ISCO-68 to ISCO-88.**



To cast further light on why ISCO-68 and ISCO-88 classifications differ with regard to LSOM, and in particular the greater inclusiveness of ISCO-88, data are provided in Table 14 for reasonably similar years for the developing country Mauritius (1983 based on ISCO-88 and 1990 based on ISCO-88). Mauritius is used for this illustration, because it has used ISCO-68 and ISCO-88 and reported results using detailed occupational classifications. The biggest difference is found in the manager sub-major groups, especially general managers.<sup>26, 27</sup> The number of general managers increased from 786 in 1983 to 10819 in 1990. This increase can be traced mainly to the large number of general managers in wholesale and retail trade reported in 1990 (7866). Thus, the main driver of the increase in the reported number of workers in LSOM in Mauritius that accompanied the change from ISCO-68 to ISCO-88 is the inclusion in 1990 of what are probably owners of small retail shops - workers who do not have the same power, influence or power as senior government officials, corporate executives and corporate managers. It appears that the Mauritius statistical office realized these problems, because data for 2000 report fewer managers (13966 in 2000 compared to 15937 in 1990) and corporate managers and general managers are combined into one occupational group.

<sup>26</sup> The number of workers in sub-major group 11 is similar in these two years (324 and 410), just as they should be, since ISCO-68 and ISCO-88 use more or less the same classification for this sub-major group.

<sup>27</sup> The number of corporate managers also showed a large increase, going from 727 in 1983 to 4578 in 1990. The particularly large entry in 1990 for production and operations department managers in manufacturing (935) probably reflects reality, because Mauritius experienced a phenomenal increase in employment in the manufacturing sector in textiles in the 1980s (Anker, Paratian and Torres, 2001).

**Table 14. Correspondence between number of female and male workers in Mauritius in LSOM major group in ISCO-88 (1990) and corresponding major group in ISCO-68 (1983)**

ISCO-88 (1990)		ISCO-68 (1983)			
Description (occupation code number)	% female	No. of Workers	No. of Workers	% female	Description (occupation code number)
Legislators and senior officials (11)	11.0%	410	324	15.1%	Legislators and senior officials (2.0)
Corporate managers (12)	16.5%	4578	727	8.3%	Production managers (2.1.2)
General managers (13)	17.0%	10819	786	6.4%	General managers (2.1.1)
(Note: largest minor group among corporate managers is:					Added identifiable production manager minor groups in 1990:
Production & operations dept managers in manufacturing)	16.4%	935	24	29.2%	Station master (3.5.1)
			7	0.0%	Postmaster (3.5.2)
			38	0.0%	Dept manager, stage (1.7.4)
			2679	1.2%	
(Note: largest minor group among general managers is: General managers in wholesale and retail trade)	18.8%	7866	937	10.6%	Added identifiable general manager or corporate manager (mostly general manager) minor groups in 1990:
			237	13.1%	Manager wholesale and retail trade (4.0)
					Working proprietor catering and lodging services (5.1)
					Farm Supervisors and managers (6.0)

Source: ILO, SEGREGAT, unpublished data (from official national data).

The main implications of analysis and discussion in this Appendix are:

- The observed size and feminization of the LSOM major occupational group is considerably larger on average when based on ISCO-88 as compared to when based on ISCO-68.
- One must be very cautious about measuring change over time in LSOM when a country changes its occupational classification, such as when it changes from ISCO-68 to ISCO-88. While this should be obvious, it is almost always ignored.
- ISCO-88 is not as good as ISCO-68 in measuring the number of workers in the powerful and influential occupations of legislators, senior officials and managers, because ISCO-88 includes many additional small businesspersons and farmers. For this reason, we recommend that the planned future revision of the international standard classification of occupations should revert back to the ISCO-68 approach of excluding most small businesspersons and farmers from the major group (while keeping them as identifiable sub-major occupational groups in other major occupational groups).

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## **Appendix B: Stability of reported annual national estimates of the number of women and men working in major occupational group of legislators, senior officials and managers**

*Researchers and international organizations almost always rely on the latest available annual official national estimate reported by ILO on its website and Yearbook of Labour Statistics. The issue addressed in this Appendix is the appropriateness of using the latest annual estimate. This practice is justified if annual national values are reasonably stable over time - - reflecting the slow change in the underlying phenomenon in the real world. If on the other hand, annual national values are not stable year by year, this practice of using the latest available annual estimate is called into question.*

It is possible in practice for annual national estimates to be unstable, because the major group of legislators, senior officials and managers is relatively small in size. This is especially pertinent for small countries and developing countries, because their labour force survey sample sizes generally are not large.

Table 15 draws on data from the 2002 *ILO Yearbook of Labour Statistics* on percent female for legislators, senior officials and managers for selected countries to illustrate various issues and problems with annual estimates. Although the eight countries were purposefully selected, not all display a problem and they are wide ranging in coverage as they include two countries from each of four different regions. Columns 8 and 9 indicate average percentage point change in the annual reported percent female for LSOM. Column 9 differs from column 8 in that it considers all annual changes as having positive value (for example, a positive 2 percentage point change and a negative 2 percentage point change would both count as a 2 percentage point change).

Annual estimates are not always stable over time. Percent female changed each year on average by 5 percentage points in the eight selected countries in Table 15. This is enormous relative to the overall national average of 26 percent female in these countries. In several instances, changes are not believable - - in other words, they cannot reflect real change over one year. This includes percentage point changes between two years of 7.3 in Ireland, 11.9 in Georgia, 20.4 in Costa Rica, and 23.2 in the Philippines. In contrast, many annual national values in Table 15 are reasonably stable over time. Portugal and Singapore provide examples of this in Table 15.

**Table 15. Percent female and average change in percent female for legislators, senior officials and managers major group: Eight selected countries in the 1990s**

County	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Ave annual change a <sup>1</sup>	Ave annual change b <sup>2</sup>	Range of annual change
Costa Rica	28.5	30.0	na	32.9	53.4	na	8.3	8.3	1.3 to 20.4
Georgia	27.1	36.3	15.6	22.2	na	na	1.6	11.9	-20.7 to 9.2
Ireland	23.7	26.2	33.4	33.8	26.5	27.9	0.8	3.7	-7.3 to 7.2
Lithuania	35.8	36.4	38.5	41.9	46.9	na	2.8	2.8	0.6 to 5.1
Peru	.266	.198	.272	.233	.281	.271	0.0	4.8	-6.8 to 7.4
Philippines	31.8	34.8	33.7	33.0	34.9	.58.1	5.2	6.0	-1.2 to 23.2
Portugal	32.4	33.0	32.2	31.5	32.1	31.6	-0.2	0.6	-0.8 to 0.6
Singapore	20.1	22.0	20.5	21.5	22.8	.24.5	0.9	1.5	-1.5 to 1.9
<b>Total</b>	<b>.260</b>						<b>2.4</b>	<b>5.0</b>	<b>-20.7 to 23.2</b>

Notes:

<sup>1</sup> Changes are considered to have their observed positive or negative value.

<sup>2</sup> All changes are considered to have a positive value (e.g., -2 is counted as +2).

Two countries selected for illustrative purposes from each of four regions (Developed Economy, Transition Economy, Asia, Latin America).

Available data for up to last six years are reported in this table.

na indicates that data are not available for this year.

Source: 2002 ILO Yearbook of Labour Statistics.

Two important conclusions can be drawn from the illustrative data provided in Table 15.

- It is recommended that analysts who use national values for the latest available year, as reported by ILO, do not use a national value that appears to be unusual for that country without further careful examination, because this value may represent an unrealistic annual fluctuation. Sometimes this is due to a break in a data series such as a change in the national occupational classifications (which is usually noted in the *ILO Yearbook of Labour Statistics*). For example, the large change for the Philippines in Table 15 of 23.2 between years 5 and 6 can be traced to a change from ISCO-68 to ISCO-88 and a (too) liberal interpretation of what constitutes a manager in year 6; this is shown by the fact that the share of non-agricultural workers in this major occupational group increased from 3.7 percent to 13.1 percent between these years. The large change for Costa Rica of 20.5 between years 4 and 5 appears as if it is due to data errors and/or classification changes and/or coding changes. There was an unrealistic increase in the number of LSOM workers in Costa Rica from 2460 to 7835 between years 4 and 5 in Table 15; the number of professional workers fell from 4750 to 942; the number of elementary workers increased from 2196 to 14832; and the number of service workers decreased from 19575 to 12106. Also, the labour force in Costa Rica is reported to have grown by an unrealistic 18 percent. Ireland reported a break in its data series for the years where a large change in percent female for LSOM is observed. Annual reported values for Georgia for percent female in LSOM display an up and down pattern with unrealistically large increases followed by unrealistically large decreases. This pattern appears to be related to accompanying unrealistically large changes in the size of the non-agricultural labour force in Georgia, with the non-agricultural labour force showing unrealistically large changes of a 4 percent decrease and then a 13 percent increase in consecutive years.
- In instances when there is a large change in an annual national value and it cannot be ascertained if this change reflects a real situation, it would be preferable to use national estimates averaged over several years such as three years, rather than the annual value*



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reported for the latest available year, to measure women's share of LSOM for a particular country. In this way, large annual fluctuations due to measurement variation would be reduced. Smoothing out annual fluctuations when calculating world estimates or regional estimates, on the other hand, should not be necessary (assuming there are a sufficient number of national observations), since measurement-related variations in annual values should be averaged out in a sense.

With the above recommendation in mind of the need to use a three-year average when an annual national value changes substantially, we looked at annual values for the last three years including the base year for the 69 countries included in Table 2. Results are produced in Table 16 with shading used to highlight when substantial difference is observed across years. When this occurs, the three-year average was used in Table 2; and to ensure internal consistency for the country, the three-year averages for the other two variables were used as well. Notice that there are many more examples of substantial changes for percent female in LSOM (15 examples) as compared to examples of substantial changes for female share of the non-agricultural labour force (1 example) and LSOM's share of non-agricultural labour force (4 examples). Although speculative, a reasonable explanation for this observed pattern is sampling error, since LSOM is a small occupational group and measuring percent female for LSOM requires that both the number of women and the number of men in LSOM are measured reasonably precisely.

**Table 16. Three year average of percent female LSOM, percent female in non-agricultural labour force, and percent of LSOM in non-agricultural labour force, up to year 2000**

Region/Country	Year	% female in LSOM	% female in non-ag LF	% LSOM in non-ag LF
<i>Developed Economies</i>				
Australia	1998	31.35	44.05	11.37
	1999	31.14	44.07	11.89
	2000	32.70	44.41	11.81
	<b>Average</b>	<b>31.73</b>	<b>44.18</b>	<b>11.69</b>
Austria	1998	27.27	42.86	7.82
	1999	25.82	43.19	7.86
	2000	28.21	43.43	7.82
	<b>Average</b>	<b>27.10</b>	<b>43.16</b>	<b>7.83</b>
Canada	1998	37.32	46.24	10.90
	1999	35.13	46.58	10.02
	2000	35.40	46.71	10.05
	<b>Average</b>	<b>35.95</b>	<b>46.51</b>	<b>10.32</b>
Cyprus	1999	14.86	40.36	2.88
	2000	14.46	41.31	3.13
	<b>Average</b>	<b>14.66</b>	<b>40.83</b>	<b>3.00</b>
Denmark	1997	23.10	46.85	7.34
	1998	23.15	47.20	7.26
	2000	22.96	47.49	7.36
	<b>Average</b>	<b>23.07</b>	<b>47.18</b>	<b>7.32</b>
Finland	2000	25.91	48.47	8.81
Germany	1998	26.57	43.46	6.04
	1999	26.31	43.98	6.00
	2000	26.95	44.21	5.91
	<b>Average</b>	<b>26.61</b>	<b>43.88</b>	<b>5.98</b>
Greece	1998	25.08	35.99	13.63
	1999	24.13	36.41	12.31
	2000	25.43	37.04	12.25
	<b>Average</b>	<b>24.88</b>	<b>36.48</b>	<b>12.73</b>
Iceland	1998	25.44	47.97	8.25
	1999	28.16	47.95	7.17
	2000	27.27	48.22	6.78
	<b>Average</b>	<b>26.96</b>	<b>48.05</b>	<b>7.40</b>
Ireland	1998	33.43	42.72	12.04
	1999	33.78	43.37	11.87
	2000	26.49	41.22	17.55
	<b>Average</b>	<b>31.23</b>	<b>42.44</b>	<b>13.82</b>
Israel	1998	22.91	44.93	5.74
	1999	24.68	45.73	6.45
	2000	25.89	46.29	7.40
	<b>Average</b>	<b>24.50</b>	<b>45.65</b>	<b>6.53</b>
Italy	1998	17.82	36.50	3.41
	1999	18.82	37.03	3.44
	2000	18.81	37.44	3.43

Region/Country	Year	% female in LSOM	% female in non-ag LF	% LSOM in non-ag LF
	<b>Average</b>	<b>18.49</b>	<b>36.99</b>	<b>3.43</b>
Netherlands	1997	20.81	42.40	11.93
	1998	22.77	42.51	12.27
	2000	26.66	43.33	13.39
	<b>Average</b>	<b>23.41</b>	<b>42.75</b>	<b>12.53</b>
New Zealand	1998	36.63	46.63	12.98
	1999	37.25	46.89	13.66
	2000	37.92	46.77	14.29
	<b>Average</b>	<b>37.27</b>	<b>46.77</b>	<b>13.64</b>
Norway	1998	23.70	47.64	8.17
	1999	25.43	47.94	8.09
	2000	25.27	47.82	8.43
	<b>Average</b>	<b>24.80</b>	<b>47.80</b>	<b>8.23</b>
Portugal	1998	32.21	44.12	8.16
	1999	31.50	44.70	8.18
	2000	32.10	44.72	7.52
	<b>Average</b>	<b>31.94</b>	<b>44.51</b>	<b>7.95</b>
Spain	1998	31.63	35.91	8.99
	1999	30.42	36.56	8.52
	2000	31.15	37.39	8.18
	<b>Average</b>	<b>31.06</b>	<b>36.62</b>	<b>8.56</b>
Sweden	1998	27.36	48.47	5.20
	1999	28.80	48.55	4.83
	2000	29.17	48.60	4.74
	<b>Average</b>	<b>28.44</b>	<b>48.54</b>	<b>4.92</b>
Switzerland	1998	21.43	44.53	6.57
	1999	21.33	44.81	6.18
	2000	23.28	44.64	6.31
	<b>Average</b>	<b>22.01</b>	<b>44.66</b>	<b>6.36</b>
United Kingdom	1998	32.98	44.58	17.51
	1999	33.31	44.85	17.19
	2000	33.24	44.79	17.64
	<b>Average</b>	<b>33.18</b>	<b>44.74</b>	<b>17.45</b>
United States	1998	44.45	46.97	14.89
	1999	45.14	47.18	15.06
	2000	45.31	47.20	15.00
	<b>Average</b>	<b>44.97</b>	<b>47.12</b>	<b>14.98</b>
<b>Transition economies</b>				
Croatia	1998	25.41	46.04	7.53
	1999	26.24	46.15	7.97
	2000	24.66	45.35	7.76
	<b>Average</b>	<b>25.44</b>	<b>45.85</b>	<b>7.76</b>
Czech Republic	1998	24.92	43.76	6.90
	1999	24.60	43.95	6.79
	2000	24.74	44.02	6.36
	<b>Average</b>	<b>24.76</b>	<b>43.91</b>	<b>6.68</b>

Region/Country	Year	% female in LSOM	% female in non-ag LF	% LSOM in non-ag LF
Georgia	1998	28.77	46.36	10.08
	1999	31.87	47.89	9.22
	2000	18.20	44.73	9.07
	<b>Average</b>	<b>26.28</b>	<b>46.33</b>	<b>9.45</b>
Hungary	1998	35.30	46.15	6.31
	1999	34.38	46.11	6.86
	2000	33.87	46.13	7.27
	<b>Average</b>	<b>34.52</b>	<b>46.13</b>	<b>6.81</b>
Poland	1998	33.60	44.85	7.87
	1999	33.55	45.12	7.44
	2000	32.55	45.11	7.47
	<b>Average</b>	<b>33.23</b>	<b>45.03</b>	<b>7.59</b>
Romania	1998	26.44	46.20	4.64
	1999	26.29	46.96	4.36
	2000	26.00	47.73	4.33
	<b>Average</b>	<b>26.24</b>	<b>46.96</b>	<b>4.44</b>
Slovakia	1998	29.80	44.95	5.95
	1999	32.31	45.42	5.89
	2000	30.76	45.85	6.36
	<b>Average</b>	<b>30.95</b>	<b>45.41</b>	<b>6.07</b>
Slovenia	1998	25.00	46.49	6.02
	1999	31.48	46.05	6.78
	2000	29.69	46.46	7.95
	<b>Average</b>	<b>28.72</b>	<b>46.33</b>	<b>6.91</b>
Estonia	1998	34.59	49.43	14.27
	1999	35.60	49.47	13.51
	2000	37.02	49.52	13.16
	<b>Average</b>	<b>35.73</b>	<b>49.47</b>	<b>13.65</b>
Latvia	1998	41.70	48.56	8.84
	1999	39.36	48.24	9.72
	2000	37.47	49.08	11.36
	<b>Average</b>	<b>39.51</b>	<b>48.63</b>	<b>9.98</b>
Lithuania	1998	36.43	48.92	12.57
	1999	38.51	50.03	11.37
	2000	42.92	52.15	9.81
	<b>Average</b>	<b>39.28</b>	<b>50.37</b>	<b>11.25</b>
Moldova	2000	36.51	48.18	6.28
Russian Fed.	1997	37.50	47.43	6.45
	1998	37.92	47.36	5.58
	1999	37.34	47.80	4.70
	<b>Average</b>	<b>37.59</b>	<b>47.53</b>	<b>5.58</b>
Ukraine	1998	36.85	50.34	7.57
	1999	37.75	48.17	7.35
	2000	36.15	48.13	7.37
	<b>Average</b>	<b>36.92</b>	<b>48.88</b>	<b>7.43</b>

Region/Country	Year	% female in LSOM	% female in non-ag LF	% LSOM in non-ag LF
<b>Asia</b>				
Bangladesh	1996	4.92	22.36	0.93
	2000	8.47	21.79	0.98
	<b>Average</b>	<b>6.69</b>	<b>22.07</b>	<b>0.95</b>
Hong Kong (China)	1998	19.92	39.68	7.83
	1999	21.51	40.56	7.97
	2000	21.93	41.68	7.82
	<b>Average</b>	<b>21.12</b>	<b>40.64</b>	<b>7.87</b>
Japan	1998	9.46	40.54	3.62
	1999	9.30	40.57	3.53
	2000	9.22	40.69	3.38
	<b>Average</b>	<b>9.33</b>	<b>40.60</b>	<b>3.51</b>
Korea, Rep. of	1998	4.75	40.40	2.79
	1999	5.28	39.57	2.90
	2000	4.58	40.33	2.66
	<b>Average</b>	<b>4.87</b>	<b>40.10</b>	<b>2.78</b>
Macau (China)	1998	15.32	45.32	5.71
	1999	17.43	45.75	5.58
	2000	18.49	47.10	6.11
	<b>Average</b>	<b>17.08</b>	<b>46.06</b>	<b>5.80</b>
Malaysia	1998	19.47	35.17	4.97
	1999	21.48	35.88	4.83
	2000	20.20	36.61	4.88
	<b>Average</b>	<b>20.38</b>	<b>35.89</b>	<b>4.89</b>
Maldives	2000	15.39	31.14	6.50
Pakistan	1998	8.71	8.76	1.17
	1999	8.91	8.76	1.17
	2000	8.68	8.82	1.16
	<b>Average</b>	<b>8.77</b>	<b>8.78</b>	<b>1.17</b>
Philippines	1998	33.68	45.31	3.34
	1999	33.03	45.73	3.76
	2000	34.88	45.58	3.70
	<b>Average</b>	<b>33.86</b>	<b>45.54</b>	<b>3.60</b>
Singapore	1998	20.49	43.10	13.24
	1999	21.49	43.76	12.80
	2000	22.78	40.27	12.22
	<b>Average</b>	<b>21.59</b>	<b>42.38</b>	<b>12.75</b>
Sri Lanka	1995	2.36	31.23	1.61
	1998	3.66	34.99	2.46
	<b>Average</b>	<b>3.01</b>	<b>33.11</b>	<b>2.04</b>
Thailand	1998	21.63	46.18	5.22
	1999	22.45	46.24	5.56
	2000	26.53	46.22	5.48
	<b>Average</b>	<b>23.54</b>	<b>46.21</b>	<b>5.42</b>

Region/Country	Year	% female in LSOM	% female in non-ag LF	% LSOM in non-ag LF
<i>Latin America</i>				
Barbados	1999	39.76	47.16	6.93
Bolivia	1997	25.35	44.07	4.01
	1999	27.97	44.60	3.04
	2000	35.71	44.87	2.16
	<b>Average</b>	<b>29.68</b>	<b>44.52</b>	<b>3.07</b>
Chile	1998	22.40	<b>37.68</b>	4.06
	1999	22.23	<b>37.70</b>	4.37
	2000	25.73	<b>37.37</b>	4.31
	<b>Average</b>	<b>23.45</b>	<b>37.58</b>	<b>4.25</b>
Colombia	1998	40.42	44.25	2.65
	1999	39.94	45.39	2.62
	2000	38.16	45.93	2.61
	<b>Average</b>	<b>39.51</b>	<b>45.19</b>	<b>2.63</b>
Costa Rica	1997	28.55	32.65	4.85
	1998	29.88	33.41	4.95
	2000	32.94	33.12	6.00
	<b>Average</b>	<b>30.46</b>	<b>33.06</b>	<b>5.27</b>
Ecuador	2000	29.28	39.37	2.86
	2001	25.23	40.59	2.75
	2002	25.05	39.10	2.88
	<b>Average</b>	<b>26.52</b>	<b>39.69</b>	<b>2.83</b>
El Salvador	1998	27.96	43.25	2.22
	1999	33.41	44.51	2.13
	2000	25.97	44.83	1.60
	<b>Average</b>	<b>29.11</b>	<b>44.19</b>	<b>1.98</b>
Honduras	1996	46.38	49.83	4.13
	1997	39.11	50.39	3.54
	1999	36.46	50.03	3.00
	<b>Average</b>	<b>40.65</b>	<b>50.08</b>	<b>3.56</b>
Mexico	1998	20.74	38.25	2.67
	1999	22.70	38.19	2.33
	2000	23.52	38.59	2.77
	<b>Average</b>	<b>22.32</b>	<b>38.34</b>	<b>2.59</b>
Netherlands Antilles	1997	29.55	46.36	9.11
	1998	27.39	46.08	9.24
	2000	29.75	47.84	9.59
	<b>Average</b>	<b>28.90</b>	<b>46.76</b>	<b>9.32</b>
Panama	1997	29.25	40.49	7.78
	1998	33.03	39.75	7.24
	1999	32.54	39.81	7.58
	<b>Average</b>	<b>31.61</b>	<b>40.02</b>	<b>7.53</b>
Peru	1998	27.23	44.72	0.72
	1999	23.27	46.43	1.16
	2000	28.09	44.20	0.48
	<b>Average</b>	<b>26.20</b>	<b>45.12</b>	<b>0.78</b>

Region/Country	Year	% female in LSOM	% female in non-ag LF	% LSOM in non-ag LF
Puerto Rico (United States)	1998	36.15	42.75	11.85
	1999	37.23	43.04	12.31
	2000	37.41	43.42	12.89
	<b>Average</b>	<b>36.93</b>	<b>43.07</b>	<b>12.35</b>
Suriname	1996	13.34	36.15	3.00
	1997	11.61	35.62	2.28
	1998	28.16	34.03	2.32
	<b>Average</b>	<b>17.70</b>	<b>35.27</b>	<b>2.53</b>
Trinidad & Tobago	1998	39.74	37.09	6.63
	1999	41.87	37.47	7.02
	2000	39.23	37.83	7.44
	<b>Average</b>	<b>40.28</b>	<b>37.46</b>	<b>7.03</b>
Uruguay	2000	36.27	44.00	6.44
Venezuela	1998	27.54	38.94	4.11
	1999	27.35	39.59	3.99
	2000	28.09	40.13	3.88
	<b>Average</b>	<b>27.66</b>	<b>39.55</b>	<b>3.99</b>
<b>Middle East</b>				
Bahrain	1997	7.32	10.77	3.62
	1999	8.70	13.10	3.52
	2000	8.70	13.60	4.04
	<b>Average</b>	<b>8.24</b>	<b>12.49</b>	<b>3.73</b>
Egypt	1998	11.17	17.14	14.52
	1999	10.19	17.74	13.71
	2000	10.11	16.19	13.67
	<b>Average</b>	<b>10.49</b>	<b>17.02</b>	<b>13.97</b>
Turkey	2001	7.84	16.63	12.71
West Bank & Gaza	1998	9.30	10.50	4.34
	1999	10.06	11.22	4.42
	2000	12.82	11.71	3.35
	<b>Average</b>	<b>10.73</b>	<b>11.14</b>	<b>4.04</b>
<b>SubSaharan Africa</b>				
Botswana	1998	26.52	45.68	3.48
	2000	35.43	48.96	4.04
	<b>Average</b>	<b>30.98</b>	<b>47.32</b>	<b>3.76</b>

Notes:

Purpose of this table is to identify when a three-year average up to latest year (almost always 2000) is substantially different from value for latest year. Substantial difference is defined as at least two percentage points for percent female in LSOM and for percent female in non-agricultural labour force, and as at least one percentage point difference for percent of LSOM in non-agricultural labour force. Values highlighted in grey are those when the three-year average differs substantially from latest year. In tables and regressions in the main text of this monograph, average values for all three indicators are used when there is a substantial difference for any indicator.

Data for up to three years before latest year are used in this table with the exception of only Bangladesh because these are the only other available data; Ecuador for 2001 and 2002 because they show a different but consistent pattern as compared to 2000; Turkey for 2001 as this is the first year that data are reported based on ISCO-88.

Size of non-agricultural labour force is estimated by subtracting workers in agriculture, armed forces and occupations not elsewhere classified from the total labour force.

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Preference is given to data based on an ISCO-88 classification in order to increase comparability as most countries now report using this classification. The only countries based on ISCO-68 classification are Bahrain, Bangladesh, Chile, Colombia, Honduras, Japan, Malaysia, Pakistan, the Philippines, Suriname, Thailand, United States and Venezuela.

Data are reported for consecutive years unless such data are not available with same classification.

Finland, Moldova, Maldives and Uruguay began reporting in 2000 using ISCO-88; Turkey began using ISCO-88 in 2001. Ecuador began using ISCO-88 in 2000; data are shown for 2000 and 2001, because they imply that percent female in LSOM for 2000 are probably incorrect. Honduras reported data for 1998, but these data are not used because they appear to be unrealistic and probably incorrect. They report that women in Honduras in 1998 comprised 35.7 percent of the non-agricultural labour force (compared to three-year average of 50.1 percent) and women comprised 54.4 percent of LSOM (compared to three-year average of 40.7 percent).

Source: ILO LABORSTA database on website.

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## Appendix C. National values for percent female and percent of non-agricultural labour force in three sub-major and six minor LSOM occupational groups, Europe 2000

Table 17. Percent of non-agricultural labour force in sub-major and minor LSOM occupational groups, Europe 2000

Country	111/112	114		121	122	123		131	13	
	Legislators and senior government officials	Senior officials of special interest organisations	% in code 11	Directors and chief executives	Production and operations department managers	Other department managers	% in code 12	General managers	% in code 13	TOTAL
Austria	0.1	0.02	0.12	2.31	1.31	0.84	4.46	3.38	3.38	7.96
Belgium	0.29	0.05	0.34	2.79	1.31	1.85	5.95	3.94	3.94	10.23
Bulgaria	0	0.02	0.33	0.19	2.01	0.55	2.75	3.16	3.16	6.25
Czech Republic	0.29	0.03	0.32	0.05	1.17	0.6	1.83	3.98	4.03	6.18
Denmark	0.06	0.09	0.16	1.58	1.33	1.85	4.77	2.36	2.36	7.29
Estonia	0.07	na	0.07	1.34	4.33	2.03	7.7	4.46	4.46	12.23
Finland	0.18	0.15	0.33	1.52	1.65	2.94	6.12	3.06	3.06	9.51
France	0.09	na	0.09	0.11	2.61	1.77	4.49	2.84	2.84	7.42
Germany	0.04	0.05	0.09	0.81	0.87	0.78	2.97	1.81	2.56	5.63
Greece	0.02	na	0.02	0.08	0.71	0.59	1.38	8.54	8.54	9.94
Hungary	0.21	0.07	0.28	0.7	2.87	1.1	4.68	1.95	1.95	6.91
Iceland	0.07	0.18	0.25	1.6	1.35	1.57	4.52	1.51	1.51	6.28
Ireland	0.16	0.05	0.21	0.12	0.48	3.14	3.74	7.52	7.52	11.47
Italy	1.47	0.07	1.55	1.71	1	na	2.71	na	0	4.25
Latvia	0.01	0.22	0.93	1.08	3.24	0.84	5.15	4.04	4.05	10.2
Lithuania	0.02	na	0.02	1.84	2.68	2.51	7.06	1.66	1.72	10.85
Luxembourg	0.01	0.04	0.05	0.8	0.66	0.15	1.62	4.6	4.6	6.26
Netherlands	0.14	0.08	0.23	1.53	3.89	1.04	6.47	5.27	5.27	11.96
Norway	0.07	0.11	0.18	0.65	3.17	2.26	6.08	1.98	1.98	8.24
Poland	0.05	0.04	0.09	0.77	0.81	0.62	2.2	3.88	3.88	6.17
Portugal	0.07	na	0.07	0.38	0.56	0.29	1.23	5.36	5.36	6.66
Romania	na	na	na	na	na	na	na	na	na	1.79
Slovak Republic	0.17	0.04	0.22	0.09	1.68	0.55	2.41	3.6	3.6	6.23
Slovenia	0.5	0.01	0.52	1.6	1.3	0.78	3.69	3.04	3.04	7.5
Spain	0.1	0.01	0.11	0.63	0.47	0.85	1.95	5.6	5.6	7.67
Sweden	0.1	0.01	0.11	0.15	1.54	1.09	2.78	1.7	1.7	4.59
Switzerland	0.61	0.07	0.68	0.36	1.19	0.66	2.23	3.07	3.07	5.98
United Kingdom	0.43	0.15	0.58	0.33	5.83	6.01	12.1	2.48	2.48	15.23
<b>Average (unweighted)</b>			<b>0.29</b>				<b>4.19</b>		<b>3.54</b>	<b>7.89</b>
Standard deviation			0.33				2.44		1.83	2.85

Source: EUROSTAT unpublished data.

**Table 18. Percent female in sub-major and minor LSOM occupational groups, Europe 2000**

Country	111/112 Legislators and senior government officials	114 Senior officials of special interest organisations	% female in code 11	121 Directors and chief executives	122 Production and operations department managers	123 Other department managers	% female in code 12	131 General managers	% female in code 13	Total % female
Austria	9.04	53.39	17.81	26.78	26.62	35.74	28.41	32.7	32.7	30.08
Belgium	28.83	24.16	28.11	16.44	28.45	33.12	24.27	43.26	43.26	31.7
Bulgaria	0	0	27.42	26.7	35.38	54.97	38.72	22.53	22.53	29.93
Cyprus	0	na	0	15.37	21.55	15.13	19.59	8.4	8.4	15.14
	24.79	13.01	23.57	0	26.32	31.88	27.34	23.09	22.87	24.23
Czech Republic										
Denmark	0	40.1	24.05	13.68	28.43	17.28	19.2	33.86	33.86	24.06
Estonia	61.31	na	61.31	31.77	32.09	36.83	33.52	47.88	47.88	38.77
Finland	50.5	46.55	48.69	10.96	33.65	30.75	26.6	24.48	24.48	26.69
France	33	na	33	13.42	26.09	41.09	31.75	39.88	39.88	34.84
Germany	26.65	31.34	29.02	15.78	16.25	28.01	20.45	38.15	34.75	27.1
Greece	31.13	na	31.13	9.04	16.19	25.59	19.8	26.52	26.52	25.59
Hungary	42.36	47.25	43.51	37.01	29.19	43.74	33.8	31.7	31.7	33.6
Iceland	0	58.67	42.14	10.86	35.76	46.8	30.75	24.95	24.95	29.81
Ireland	45.58	29.92	41.74	10.57	28.16	49.11	45.21	30.19	30.19	35.3
Italy	8.7	18.22	9.15	20.34	12.17	na	17.33	na	na	14.36
Latvia	0	29.32	35.85	14.71	39.82	58.35	37.58	35.74	36.01	36.79
Lithuania	0	na	0	27.74	38.38	58.2	42.93	39.27	41.18	42.2
Luxembourg	0	0	0	10.16	35.77	56.59	25.04	28.28	28.28	27.22
Netherlands	22.86	37.92	28.39	20.85	20.4	23.93	21.07	29.86	29.86	25.08
Norway	43.49	61.97	54.6	9.54	25.82	25.78	24.05	25.34	25.34	25.03
Poland	13.43	22.76	17.69	32.13	31.4	34.67	32.58	33.46	33.46	32.92
Portugal	15.09	na	15.09	12.74	28.46	22.79	22.32	34.28	34.28	31.87
Romania	na	na	na	na	Na	Na	na	na	na	27.03
	40.09	46.95	41.4	14.67	32.5	36.39	31.98	30.32	30.26	31.31
Slovak Republic										
Slovenia	46.24	0	44.95	29.97	33.94	47.18	35.02	22.49	22.49	29.81
Spain	26.26	7.18	24.92	13.02	9.56	20.39	15.4	36.97	36.97	31.3
Sweden	43.29	0	40	7.64	30.97	23.79	26.9	38.17	38.17	31.4
Switzerland	21.83	69.2	26.88	9.61	15.44	8.88	12.36	30.27	30.27	23.21
	48.2	54.7	49.93	7.57	27.48	40.14	33.19	33.26	33.26	33.84
United Kingdom										
<b>Average</b>	<b>24.38</b>	<b>31.48</b>	<b>30.01</b>	<b>16.75</b>	<b>27.37</b>	<b>35.08</b>	<b>27.76</b>	<b>31.31</b>	<b>31.25</b>	<b>29.32</b>
<b>(unweighted)</b>										
<b>Standard deviation</b>	<b>0.19</b>	<b>0.22</b>	<b>0.16</b>	<b>0.09</b>	<b>0.08</b>	<b>0.14</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.06</b>

Notes: na indicates that no workers are reported for this group, and therefore it was not considered in calculating average and standard deviation.

Source: EUROSTAT, unpublished 2000 data.

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## Appendix D. Inter-relationships between feminization of sub-major and minor occupational groups of legislators, senior officials and managers, Europe 2000

This Appendix examines percent female in all of the different LSOM sub-major groups and minor group for European countries. A priori, one would expect these percentages to be positively and significantly related to each other, since each should be measuring the same underlying tendency in a country for women to have access to positions of decision-making power and authority.

Analysis uses detailed EUROSTAT occupation data for 28 European countries.<sup>28</sup> As noted in Section 4e, major advantages of these EUROSTAT data are that country coverage is almost complete for three sub-major occupational groups and six minor occupational groups, and national occupational classifications have been standardized by national statistical offices to the best of their ability (to ISCO-COM that is very similar to ISCO-88). The major disadvantage of these data is that only European countries are covered (although it is worth noting that both Transition Economy and Developed Economy countries are included). Correlation matrices between sub-major groups and between minor groups are provided in Tables 19 and 20.

- *Interrelationships are weak at the sub-major group level.* Percent female in the three sub-major groups are not significantly related to each other at the .10 level. On the other hand, all three relationships are positive (with correlation coefficients ranging from .15 to .27).
- *Interrelationships also tend to be weak and insignificant at the minor group level.* And unexpectedly, relationships are generally negative (although insignificant) between the minor groups of legislators and senior government officials as well as senior officials of special interest groups with the managers minor groups.
- There is one statistically significant relationship in Tables 19 and 20. *Percent female in the two minor occupational groups for corporate department managers (i.e., corporate production and operations department managers, and corporate other specialist department managers) are significantly related at the .01 level with a correlation coefficient of .75.*<sup>29, 30</sup>

<sup>28</sup> Data for are not available for Romania for sub-major or minor occupational groups.

<sup>29</sup> This positive significant relationship is also observed separately for European Developed Economy countries as well as for European Transition Economy countries.

<sup>30</sup> The sizes of these two minor groups (as measured by the share of the non-agricultural labour force in these groups) are also positively and significantly related as their correlation coefficient is .614 and it is significant at the .01 level.

**Table 19. Correlation coefficients between percent female in the three LSOM sub-major occupational groups, Europe 2000 (significance level in brackets)**

	Legislators and senior govt officials	Corporate managers	General managers
Legislators and senior govt officials	1.0		
Corporate managers	.269 (.17)	1.0	
General managers	.175 (.38)	.154 (.44)	1.0

Notes and source: see Table 20.

**Table 20. Correlation coefficients between percent female in the six LSOM minor occupational groups, Europe 2000 (significance level in brackets)**

	Leg & senior govt officials	Senior officials of spec int orgs	Corporate directors and chief executives	Corporate prodn & operations dept managers	Corporate other specialist dept managers	General managers
Leg & senior govt officials	1.0					
Senior officials of spec int orgs	.145 (.52)	1.0				
Corporate directors and chief executives	-.024 (.90)	-.104 (.64)	1.0			
Corporate production and operations dept managers	-.077 (.70)	-.10 (.66)	.224 (.25)	1.0		
Corporate other specialist dept managers	-.141 (.48)	-.321 (.16)	.323 (.10)	.745*** (.00)	1.0	
General managers	.226 (.26)	-.030 (.90)	.212 (.29)	.078 (.70)	.128 (.52)	1.0

Notes:

\*\*\* indicates significant at .01 level. \*\* indicates significant at .05 level. \* indicates significant at .10 level.

Pearson correlations are used. Significance level is shown in brackets and is based on a two-tailed test.

Results are based on data for 28 European countries. Romania is excluded, because it only reports data for the major group as a whole.

Data are not available for Italy for minor group 123 (corporate other specialist department managers) and sub-major group 13 (general managers).

Data are not available for minor group 114 (senior officials of special interest organizations) for Cyprus, Estonia, France, Greece, Lithuania, and Portugal.

Source: EUROSTAT, unpublished data for 2000. See Appendix C.

Results in this Appendix indicate that there is only a weak and generally insignificant positive tendency in Europe for percent female in different types of occupations with decision-making power and influence to be related. This result is contrary to expectations that there should be a strong underlying tendency for women in a given country to be better (or less well) represented in all LSOM sub-major and minor occupational groups. Therefore, these results cast some doubt on feminization of the LSOM major occupational group as a meaningful measure of women's position in the labour market in Europe.

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