

THE DIVISION OF LABOUR IN POST-INDUSTRIAL SOCIETIES

THE DIVISION OF LABOUR IN POST-INDUSTRIAL SOCIETIES

Lars H. Hansen

Göteborg Studies in Sociology No 5

Department of Sociology
Göteborg University

Published by the Department of Sociology,
Göteborg University
Box 720
S-405 30 GÖTEBORG
Phone: +46 31 773 10 00
<http://www.sociology.gu.se/>

Copyright © 2001 Lars H. Hansen

Typeset in AGaramond
Cover and Layout by Lars H. Hansen
Printed and bound in Sweden by DocuSys, Göteborg

All rights reserved. No part of this book may be reprinted or reproduced or utilised in any form or by electronic, mechanical, or other means, now known or hereafter invented, including photocopying and recording, or in any information storage or retrieval system, without permission in writing from the publishers.

ISBN 91-974106-1-6
ISSN 1650-4313

ABSTRACT

Title: The Division of Labour in Post-Industrial Societies.

Written in English. 190 pages.

Author: Lars H. Hansen

Doctoral Dissertation at the Department of Sociology, Göteborg University

Box 720, SE-405 30 GÖTEBORG, Sweden

ISBN: 91-974106-1-6

ISSN: 1650-4313

Göteborg 2001

This dissertation is a study of how work is distributed in so-called post-industrial societies. The main question it addresses is how the division of labour in complex societies is developing. That is, what occupations are increasing or decreasing their shares within the occupational structure, and how can these changes be understood?

For many years it has been argued that advanced Western societies are leaving the industrial era and entering a so-called post-industrial phase. The primary feature of this alleged post-industrial development is a shift from the primacy of goods production to a dominance of service production. According to some scholars this change means that repetitive manual labour is becoming more and more rare and is gradually being replaced by a whole set of highly skilled occupations based on theoretical knowledge. On the other hand, there are also those who have predicted a large increase among low-skill service occupations, something which should result in an occupational structure primarily characterised by a polarisation between high-skill and low-skill service workers. It has further been argued that different countries will develop different employment structures because of differences in their welfare-state arrangements.

The studies that are presented in this thesis represent attempts to capture the essence of the division of labour in so-called post-industrial societies. Five economically advanced Western countries (Canada, Denmark, Germany, Sweden, and the United States) are studied regarding such aspects as industrial and occupational employment changes, occupational sex segregation, and changes in educational attainment. Also, the conceptual framework for occupational classifications is analysed and discussed. The countries are studied with the help of official statistics, and, in particular, occupational employment data are utilised in a number of ways. Occupational data are presented on several levels of aggregation and organised according to different classifications in order to arrive at a comprehensive understanding of these countries' division of labour.

The empirical results primarily support the proposition of a universal upgrading of the occupational structure. It is quite clear that the development in these countries is towards more jobs with higher educational requirements, which is connected to the increase in the overall educational attainment of the countries' populations. Second, a growth of low-skill service occupations has not been identified in any of these countries. Thus, the pessimistic image of a polarisation does not receive any support in this study. Third, the shifts that have been observed in the occupational structures of these countries have occurred concomitantly with women's increased participation in paid work. Hence, it seems as if a correlation between welfare-state regime and the occupational structure to some degree is a question about women's economic activity.

Keywords: post-industrial society, division of labour, occupational classification, occupational structure, welfare state, sex segregation, education.

To the memory of my father

CONTENTS

<i>Acknowledgements</i>	9
1. Introduction	11
Sociology and Social Change	12
What is Changing Today?	14
The Purpose and Organisation of this Book	19
2. Industrial and Post-Industrial Scenarios	23
Introduction	23
Industrial Society	25
Post-Industrial Society	29
Professionals, Symbolic Analysts, and Networkers	38
Summary, Discussion, and some Basic Propositions	45
Methods and Data	49
3. The Division of Labour and Occupational Classification	53
Introduction	53
Concepts and Definitions	54
Classifications	58
Occupational Classifications	64
Summary and conclusion	76
4. The Post-Industrial Employment Structure	79
Introduction	79
The Industrial Employment Structure	81
The Occupational Employment Structure	90
Post-Industrial Polarisation	99
Summary and Conclusion	103
5. The Sexual Division of Labour	109
Introduction	109
Labour Force Participation	111
Occupational Sex Segregation	124
Summary and Conclusion	137

6. Occupational Changes and Education	141
Introduction	141
The Occupational Structure	143
Occupational Sex Segregation	153
Educational Attainment	158
Summary and Conclusion	163
7. A Post-Industrial Division of Labour?	165
Summary of Findings	166
Post-Industrial or not?	170
Concluding Remarks	171
Appendix I	173
<i>The hierarchical structure of ISCO-88, major, sub-major, and minor group titles</i>	
Appendix II	177
<i>An outline of ISCO-88 major groups</i>	
References	181

ACKNOWLEDGEMENTS

The research in this book has been made possible by funding from the Swedish Council for Research in the Humanities and Social Sciences and the Swedish Council for Work Life Research. Between 1997 and 2000 they jointly financed the research project *The Post-Industrial Labour Market*, without which this book would never have been written. Already from the beginning of my doctoral studies in 1994, the Department of Sociology at Göteborg University has provided the necessary material resources and a stimulating working environment.

The most important support for the writing of this thesis has been the advice and encouragement I have received from my advisor Bengt Furåker. Also, my 'brother-in-arms' Tomas Berglund has been an important source of inspiration throughout the years, with his constant willingness to discuss matters of importance for my thesis. Inga Hellberg and Dan Jonsson carefully read the full manuscript, and their comments have significantly improved the quality of the final version. All the remaining errors and mistakes are fully my own responsibility.

During the years, numerous other people have made important contributions. Many colleagues have commented on a number of versions of different chapters, both at seminars in Göteborg and at a number of national and international conferences. Other colleagues and all members of the technical and administrative staff at the Department of Sociology have been extremely supportive both regarding practical matters and – most importantly – in

creating a psycho-social working environment that has greatly facilitated my overall well-being and job satisfaction. Also, from my active years in the Swedish Sociological Association a number of board members have become good friends, and they have provided me with a constant impetus to push forward.

Finally, many people outside academia have given me much support. My friends have provided me with an important corrective from the world of science, and my family has always shown great belief in my capacity and supported my choice of vocation.

Lars H. Hansen
Göteborg, July 2001

1

INTRODUCTION

The principal focus of this book is the division of labour in economically advanced Western countries. Often, these countries are referred to as post-industrial societies, and it is implied that this type of society is a natural and inevitable development from the preceding industrial type of society. The primary feature of this alleged post-industrial development is a shift from the primacy of goods production to a domination of service production. According to some scholars this is an evolution that reflects the increasingly immaterial needs of the population in countries where most material needs have been satisfied. This means, consequently, that one of the defining characteristics of a post-industrial society is its configuration of occupations, that is, its division of labour. The share of the working population who are performing certain tasks in a society is, arguably, a central indicator when trying to account for both changes within a society and cross-national similarities or differences. In general terms, the studies that will be presented in subsequent chapters of this book represent attempts to capture the essence of so-called post-industrial societies' division of labour, considering both temporal and cross-national aspects.

The division of labour has been on the agenda of social science ever since the publication of Adam Smith's *An Inquiry into the Nature and Causes of the Wealth of Nations* in 1776. Also in sociology the division of labour has been a constantly visible aspect of the discipline from its inception in the late nineteenth century, and it is no less relevant today than it was in 1893

when Émile Durkheim (1933: 39) stated that modern industry advances steadily towards ‘[...] the extreme division of labour. Occupations are infinitely separated and specialised, not only inside the factories, but each product is itself a speciality dependent upon others’. Even though more than one hundred years old, this statement could just as well serve as a description of the development of the world of work today. An increased interdependency between countries and regions (i.e. globalisation) makes possible a more developed international division of labour. Also, the continual evolution of science and technology has made it almost impossible for a person to make further advances in a field without being extremely specialised, and many jobs are impossible to access without a specific type of higher education (i.e. the professions). Accordingly, how labour is divided in complex societies is one of the primary features behind the notions of a society that is qualitatively distinct from the industrial society, and a change in societies’ division of labour is to be considered as an aspect of the overall process of social change.

SOCIOLOGY AND SOCIAL CHANGE

In one way or the other, sociology has always been preoccupied with social change. In fact, it can be argued that all sociology is about change (Sztompka 1993: xiii). There are, however, a great number of differing opinions among sociologists concerning how changes come about and whether human societies are predominantly stable or if continual change is the typical condition. During its history sociology has shifted its primary attention between change and stability. At the end of the sixties, for instance, Sheldon and Moore (1968: 3) noted a renewed interest in social change among American sociologists. According to them, for many years ‘[...] both theorists and methodologists addressed themselves to cross-sectional interdependence rather than to sequential links through time’. This was a consequence of the structural-functional perspective that reigned during these years. More than thirty years have passed since then and it is no exaggeration, I believe, to contend that during this time-span a major interest for sociologists has been to study what is changing in society and why.

To understand and explain why societies are changing or not changing, is – I will argue – essentially what sociology is all about. Of course, sociology is many other things as well, for instance the search for patterns in human

interaction, the study of attitudes towards social phenomena, the quest for the meaning of human behaviour, etc. To claim that these and many other strands of sociology are unimportant would be ignorant, but in my opinion their importance lies foremost in that they can help us to make sense of either change or stability in human societies. By studying, for example, the attitudes towards work among different social classes, occupations, or strata we might be able to – at least to some degree – explain their behaviour, which, in turn, can give us some clues as to why the society in question has this or that characteristic and in what way it is developing. Research efforts at both micro (e.g. studies of group interaction) and middle levels (e.g. studies of large scale organisations) are essential for an understanding of phenomena at these levels, which are of great importance for politicians, for leaders and workers in organisations, and for the public at large, but for sociology as a social science proper their importance lie primarily in that they can be helpful in explaining social change.

Thus, to understand and explain social change and stability are the sociologist's primary quests, but in order to make sense of what is really happening it is paramount that we have some idea of where to look. What signs does society give us that it is changing? Are the signs that we see just something that is visible on the surface while not corresponding to changes that will have a lasting effect on society? Could it be that we content ourselves with indicators that are familiar to us, by tradition, by habit, or even by pure laziness? In short, are the indicators we make use of when studying change or stability in society actually those that give us the best information of what is going on?

These questions are not primarily empirical ones. It can, of course, be argued that we have to be content with the data that are available, or that our methods are restricting us to the use of a certain set of indicators. Nevertheless, it is our choice of theoretical framework that, in the last instance, decides which way to look at the empirical reality: 'Underlying any answer to this question [What is changing?] is some theory or model of society, however vague, explicit or implicit' (Sheldon and Moore 1968: 4). If we, for instance, use some kind of Marxist theory, we will most probably utilize indicators that illustrate the development of the productive forces and social relations of production. A Durkheimian perspective, on the other hand, may lead us to employ indicators that are signs of social coherence. Therefore, an important part of sociology is to critically assess and develop (theoretically

and empirically) the use of indicators of social change.

WHAT IS CHANGING TODAY?

The discussion of what is changing in today's society is to a great extent centred around the term *post*. The last decades have seen an abundance of different kinds of post-theories. Society has been claimed to have become either post-modern, post-capitalist, post-ideological, post-traditional, post-materialist or – perhaps most commonly – post-industrial.¹ Why, then, this fondness for the use of *post* as a signifier of a new phase in human society? The prefix *post* in itself does not tell us anything about this new society, just that the concept to which it is connected is something that has been superseded. For instance, the concept post-materialist society tells us nothing but the fact that this social mode comes after a mode in which materialist values dominated. Maybe the popularity of the term *post* can be explained exactly by this non-definitional character, that is, that it has an openness towards its subject: 'The term *post* is relevant in all this, not because it is a definition of the new social form, but because it signifies a transition. What the new society will be remains to be seen [...]' (Bell 1976: 112). Thus, the term *post* signifies a movement away from something that is known towards something unknown, not towards something which we can have a clear picture of in advance.

There are, however, other ways to denote the new society than by using *post* something as signifiers. Labels such as *service society*, *knowledge society* or *information society* seem to be the most commonly used.² These labels stand in stark contrast to the *post* labels since they actually tell us what aspect will be the primary feature of the future society. With the help of these labels it is possible to deduce in what direction society is claimed to be heading. First, the production of services will be central, dominating both the economy and employment. Second, the acquisition and deployment of knowledge will be the prime productive force that decides the success of individuals, organisations, and regions alike. Third, the primary tool of power will be access to and control over information. Each of the three labels gives us just one aspect of the emerging new society, which is the major deficiency of such labelling since it might 'block off' our attention to other just as important and relevant areas of change.

Many propositions of how society is currently changing are possible to question, but it is nevertheless important to take them seriously since they seem to reflect an awareness or feeling that society is undergoing rapid and profound changes:

Such a feeling may be in some ways misplaced but we cannot disregard it. The constant stream, over the past twenty to thirty years, of new theories of change cannot all be put down to machinations of the media industry. It must reflect something real in the experience of these societies, a real sense of disruption and disorientation.

(Kumar 1995: 153f)

Thus, even if we are not able to observe any substantial changes whatsoever, we must nevertheless take the discourse of new social modes seriously since this discussion is in itself an important part of society, and, moreover, it can even promote or accelerate changes. It is, for instance, conceivable that the widespread statements about the central importance of information might positively affect the investments made in information technology, which, then, accelerate the change towards an information society.

It is interesting to note, however, that the idea of rapid changes implicitly hinges on the idea that the era that we are now supposedly leaving (industrial society) represented a relatively stable condition of Western societies. Confronted with even a very superficial look at the developments during this epoch, it is obvious that this is not the case. Industrial society has never been especially stable. Since the middle of the eighteenth century (the starting point of the industrial revolution) life, work, and politics have undergone tremendous changes. It is hardly an exaggeration to claim that each generation during the centuries of ongoing industrialisation has been living under vastly differing conditions.

The notion of a radical break with industrial society has been criticised by a number of scholars, for instance by Kumar (1995: 31) who argues that there is '[...] no new age, no new revolution comparable to the Industrial Revolution of the nineteenth century [...]', and Singelmann (1978: 130) who claims that it is '[...] clear, by all accounts of the nature of a post-industrial or service society, that there is no service revolution that would be comparable to the industrial revolution'. Also, much critique has been levelled against 'major-change theoreticians' on the grounds that they do not properly distinguish the features of the earlier social mode:

Authors describe a new social state and the process towards it in terms of comparison to an earlier state, but they hardly pay any attention to the adequacy and consistency of the concepts and terminology used to characterise the earlier state. A closer look reveals that most claims to novelty in the writings on 'new', 'other' or 'post' states evaporate. What is supposed to be new is often a common feature of modernity.

(Wagner 1994: x)

Also Sztompka (1993: 82) has observed that '[...] all these traits of post-industrialism indicate precisely the intensification of phenomena or processes clearly present in modernity from the very beginning'.

Thus, by scrutinising the arguments and propositions of the 'major-change theoreticians' it is sometimes quite easy to question them. On the other hand, by questioning the often sweeping statements of radical change it is possible to find at least some '[...] hard kernels of plausibility' (Sternberg 1999: 4). For the purpose of this book, there seem to be two large-scale change processes that are of interest, that is, *globalisation* and *feminisation*.

Globalisation, to begin with, is a term with no agreed upon definition. Regarding economic matters it seems mostly to be meaning an '[...] evolving pattern of cross-border activities of firms, involving international investment, trade and collaboration for the purpose of product development, production and sourcing, and marketing' (OECD 1994: 28). Hence, one of the central themes in the debate on economic globalisation is the so-called trans-national corporation (TNC), the importance of which – according to many scholars – can hardly be overestimated. Dicken (1992: 47), for instance, argues that '[...] the TNC is the single most important force creating global shifts in economic activity'. Even though it is difficult to assess their economic importance, Dicken estimates that the TNCs' share of total world production is between one-fifth and one-quarter.³ The influence of the TNCs is important in almost every part of the world, either directly or indirectly. Directly by the effects of investments, indirectly by geographic closeness to investment areas, or – in a more negative sense – by the lack of investments.

It is often argued that there has been a qualitative shift in production and international trade relations. Until World War II the old core economies of Europe and the United States dominated global production and trade. The periphery (the developing countries) primarily furnished the core with raw materials for manufacturing. However, during the last fifty years this

simple pattern has changed considerably. International trade has increased by far more than production output, newly industrialised countries (NICs) have become producers of fairly advanced goods, and the activities of TNCs have become increasingly internationalised. Today, the global economy is primarily made up of three regional blocs: North America, the European community and East and South East Asia. This 'triad' [...] sits astride the global economy like a modern three-legged Colossus' (Dicken 1992: 45). Hence, what is called the global economy is not a phenomenon that involves all the world's countries as active participants. Some countries are totally excluded (e.g. Afghanistan, Somalia, North Korea), while others are mere passive bystanders dependent upon the economic situation inside the three power-blocks (e.g. a number of African countries).

Economic globalisation is, on the one hand, a continuation of an old pattern in which the developed world dominates production, consumption, and trade. On the other hand, it is also a new form of international economy with a high degree of functional integration, which has a number of consequences for both the national and international division of labour. In the OECD countries the number of manufacturing jobs has been declining, which seemingly supports the notion of a post-industrial change process. On the other hand, considerably more manufacturing jobs have been created in the developing countries than have been lost within the OECD area (Castells 1996: 253). This, then, might suggest that the overall change process is a trend towards a new global division of labour. That is, goods that were previously produced within the OECD area are now being produced in developing countries and shipped to OECD countries. Accordingly, globalisation is to some extent the cause of a new configuration of occupations in the economically advanced countries.

Feminisation denotes a process of women's increased participation in all spheres of public life. It is primarily a feature of the economically advanced countries, and its prerequisite is the actual confinement of many married women to the private sphere that took place concomitantly with the decrease of the agricultural sector during the twentieth century. The housewife era peaked around 1950, and since then women's work patterns have more and more come to resemble those of men, making the dual-earner family into a norm in many countries. And even though women in most Western countries still have a rather long way to go before they reach the same level of economic and political influence as men, it is an undeniable fact that the feminisation

process is intimately connected to the division of labour in these countries.

There are a number of reasons why women have become more and more involved in paid work. It is partly the result of individual women's striving to become independent and gaining control over their lives and careers, something which has been going hand in hand with women's political struggle. Also, it has been a way of increasing the household's consumption capacity in a society that is constantly flooded with new products that are more or less deemed as necessities. Further, women's labour characteristics have increasingly been sought after on the labour market: '[...] it seems reasonable to argue that there is a fit between women's working flexibility, in schedules, time, and entry and exit to and from the labour market, and the needs of the new economy' (Castells 1997: 173). That is, women are to a great extent used as flexible labour. This development has gone hand in hand with the expansion of the service sector, which in many countries is connected to the growth of the welfare state. Another aspect is that close to general higher education (i.e. secondary education) and an increased demand for well-educated workers have meant that the supply of labour with the proper credentials have become increasingly gender equal.

Perhaps the most important feature of the feminisation process is changing family patterns. The gradual replacement of the single-earner family by the dual-earner family, the increase in divorces with new family constellations as a result, and the increasing occurrence of single-parent households (mostly lone mothers) have had thoroughgoing effects on society as a whole and on individual men and women. Women's increased participation in paid work '[...] alters power relationships between husband and wife, and thus the division of goods within the family' (Goldin 1990: 11). Also, services that used to be performed by women within the household (in particular child-rearing) are to an increasing extent provided by the welfare state (mostly by women). Hence, the feminisation of the labour force is arguably of vital importance for society's pattern of paid work. During a rather short period of time it has altered the way we think about men and women's positions in society's division of labour, which also has affected the traditional patriarchalism of society. Most observers do nonetheless conclude that there persist substantial gender gaps in all economically advanced countries. In general, women work less, earn less, are employed in different industries and occupations than men, and perform the major part of household work (Gornick 1999: 213f).

Surely, both globalisation and feminisation affect society in many ways, but they do not necessarily affect all parts of society in the same manner or to the same extent. Undoubtedly, there are both national and regional variations. For instance, some regions in developing countries are quickly becoming parts of the global economy, while neighbouring regions may be more or less excluded (Castells 1996: 112f). An intriguing question is whether there is a universal trajectory regarding the evolution of the division of labour, meaning that all countries and regions sooner or later will follow the path of the forerunners in the West. Or, is it possible that countries that differ regarding cultural and socio-economic aspects will develop distinctly dissimilar post-industrial patterns?

THE PURPOSE AND ORGANISATION OF THIS BOOK

This book is the result of my involvement in labour market research at the Department of Sociology at Göteborg University, and its contents have mainly been decided by the nature of the projects I have been working with since the beginning of 1997. Early on I came to notice the seemingly unreflective use of indicators of society's division of labour. The occupational structure (which in this context is the empirical equivalent to the theoretical notion of the division of labour) is mostly presented without any comments on occupation as a social scientific concept, or without discussing the validity of the occupational categories that are employed. This is hard to fathom since occupation might very well be the demographic variable that is most difficult to conceptualise and operationalise (Anderson 1994: 6). Many of the propositions concerning the development towards a post-industrial society are based upon analyses of changes in the occupational structure, and it is therefore – as I see it – important not only to describe and discuss the occupational employment structure in society, but also to critically assess the conceptual basis for the variable occupation.

The primary purpose of this book is to describe and analyse the division of labour in so-called post-industrial societies, in relation to dominant theories of post-industrialism. This is chiefly achieved by comparing the evolution of the occupational structure in several economically advanced Western countries. There is also, however, a secondary purpose. That is, to examine in detail the tools for the empirical investigations (i.e. the definitions, concepts,

and classifications that are used as indicators of the division of labour) in order to ascertain their limitations.

The chapter following this introduction deals with the notions of industrialisation and, in particular, ideas on the post-industrial development. The belief in a major shift in the way society is organising its production of goods and services is discussed and also called into question. The chapter also contains a short summary of the basic propositions regarding the post-industrial division of labour, and an outline of where they are treated in the empirical chapters. It ends with some considerations regarding methodology and comments on the data that are used in the empirical chapters. In Chapter 3 the concepts, definitions, and classifications that are utilised when describing society's division of labour are discussed and analysed. Primarily, it is the construction and use of official occupational classifications (e.g. the ILO's International Standard Classification of Occupations) that are examined.

Chapter 4 is the first of three consecutive chapters using official statistics to analyse the post-industrial division of labour. It studies the employment structures of Germany, Sweden, and the United States. These are three countries that have been regarded as archetypical representatives of three distinctly different welfare-state systems, and they should, according to some scholars, display marked differences in their employment structures. Hence, industrial and occupational employment data are utilised in order to assess whether the three countries' labour markets primarily are developing similarly or differently. In Chapter 5 data from the same three countries are employed for an in-depth study of labour force participation and occupational sex segregation. The reason for this undertaking is (as was hinted at above) that women's increased participation in paid work may very well be the most significant aspect of labour market development in the Western world since World War II. The objective of this rather detailed study is to compare and evaluate the impact of women's paid work on the division of labour in the three countries. The sixth chapter examines occupational changes and education in Canada, Denmark, Sweden, and the United States. Like the previous two chapters, the comparison is between countries that differ regarding a number of institutional features: the North American liberal countries on the one hand, and the encompassing Scandinavian welfare states on the other hand. Since they were originally written as single products for publication elsewhere, Chapters 4 to 6 are – in spite of rather thorough-

going revisions – to some extent overlapping regarding in particular their empirical content. Finally, Chapter 7 is a concluding chapter in which the various trains of thought from the preceding chapters are woven together, and the major propositions are re-evaluated in the light of the results from the empirical chapters.

NOTES

- 1 Already in the seventies Bell (1976: 54) found at least twenty different uses of *post* to signal a major change in society.
- 2 In Sweden the term 'K-samhälle' (K-society) has been invented by some futurologists. K denotes three aspects of the new society: kunskap (knowledge), kompetens (competence), and kommunikation (communication) (Andersson and Sylwan 1997). Also, Beck (1992) has argued that the new social mode can be understood by the concept *risk society*.
- 3 One of the major difficulties of assessing the importance of TNCs is that there are few statistics available that distinguish intra-firm trade from total trade flows. According to Dicken (1992: 49) '[...] more than 50 per cent of the total trade (exports and imports) of both the United States and Japan consists of trade conducted within TNCs'.

INDUSTRIAL AND POST-INDUSTRIAL SCENARIOS

INTRODUCTION

This chapter deals with notions of current developments of work in industrial society. Such ideas are often referred to as theories of post-industrial society. In the introduction it was argued that all post-theories are theories of how and in what direction society is changing. In other words, they are attempts to discern certain trajectories in the development of such aspects as technology, the economy, and the social system. The main focus of this chapter will be on the way in which the developing society organises its production of goods and services, that is, its division of labour.

Historically, mankind has always created visions of a way of life that differs from how it is actually lived. These visions have been of many types, utterly fantastic as well as realistic, and positive utopias as well as negative dystopias. Some of the most famous and influential descriptions of utopia are Plato's *The Republic* (380-370 BC), Thomas More's *Utopia* (1516), and Edward Bellamy's *Looking Backward. 2000-1887* (1888). While Plato and More described ideal societies that might possibly have been realised in their own times, Bellamy and other utopians of the nineteenth and early twentieth centuries shifted their focus to the future. This shift is noteworthy since it clearly points to the effects of the industrial revolution on the thoughts of mankind. Most utopias from this period provide images of a future in which manual labour has been replaced by machines and electricity has

become the primary power source.

With the advent of the twentieth century, especially after World War I, the most well-known descriptions of future societies are no longer utopian but anti-utopian or dystopian. For instance, Evgenij Zamjatin's *We* (1920), Aldous Huxley's *Brave New World* (1932), Karin Boye's *Kalloscain* (1940), George Orwell's *Nineteen Eighty-four* (1949), and Ray Bradbury's *Fahrenheit 451* (1953) are all descriptions of totalitarian societies in which the freedom of the individual is heavily circumscribed in the name of the collective good, and in this respect they are peculiarly similar to the utopias mentioned above.

Social science 'proper' has also made its contribution to utopian and dystopian thinking. It has even been argued that all social theory is actually utopian:

All social theory, it can readily be shown, deals in imaginary worlds where impossibly pure or ideal principles reign: states where sovereignty is actually operative, constitutions where powers are truly divided, democracies where the people actually rule. The fiction of social theory does not in this respect differ much from the fiction of utopia.

(Kumar 1991: 31)

In this sense, utopia is closer to the concept 'ideal type' than real world ideals. Many social scientists have, however, voiced both hopes and fears regarding the nature of future society. Marx and Engels, for instance, argued that capitalist society will eventually be superseded by a non-antagonistic social mode. In this utopian state everyone will be able to choose their way of life: '[...] hunt in the morning, fish in the afternoon, rear cattle in the evening, criticise after dinner, just as I have a mind, without ever becoming a hunter, fisherman, shepherd or critic' (Marx and Engels 1970: 53). Quite contrary to this utopian vision, Max Weber expressed fears that the gradual rationalisation of society would lead to a de-mystification of society. The consequence of such a process is that man becomes the prisoner of an 'iron-cage' (Weber 1971: 181f). Weber's vision of a possible future is obviously dystopian. He is not claiming that this is the inevitable outcome of the current development, but that it is an inherent possibility of the bureaucratisation process. In this respect he comes conspicuously close to the frightening visions of the dystopian novelists.

There is a long tradition of describing the future in the history of man-

kind, and social science has contributed markedly to the constantly growing body of literature in the field that is nowadays called futurology. Regardless of whether we look at utopian or dystopian visions, or the images provided by social scientists, the centrality of work is evident. The way in which work is performed, organised, or divided between individuals, classes, or strata is always at the forefront when discussing how society is developing.

INDUSTRIAL SOCIETY

The discourse on industrial society is vast. It can even be argued that all 'classic' sociology primarily is about the industrialisation of society and its consequences. The concept of industrial society was invented by the social scientists of the nineteenth century who wanted to contrast the evolving modern society with the societies of the past that were predominantly military, theological, and hierarchical (Aron 1967: 2). Thus, it was something of a revolutionary concept ushering in the new era in which mankind would finally take charge over nature and rid itself of superstitious beliefs and die-hard adherence to the traditions of the past. Industrial society was to be understood as a new type of society clearly distinct from the preceding agricultural society. In this section it is, however, first and foremost ideas on industrial society from the fifties and sixties that will be focussed, since they constitute the background for all reasoning about post-industrial society.

The idea of industrial society hinges on the belief that the world is entering an age of total industrialisation. Total industrialisation is regarded as a consequence of the inevitable spread of science and technology, a type of knowledge that knows no borders since its language is universal. Hence, the diffusion and further development of scientific technological knowledge is the principal force behind the process of industrialisation. The tight connection between industrialism, science, and technology is made clear by Aron (1967: 4) who argues that it '[...] hardly matters whether the term industrial is chosen, rather than technological or scientific'. Undoubtedly, there is a strong element of technological determinism in the discourse on industrial society, but the industrialist scholars do not imply that all countries inevitably will follow exactly the same route of industrialisation: 'No two cases of industrialisation can be expected to be identical. Industrialisation may be under the control of different leaders with different methods and policies

and proceed at different rates of development' (Kerr *et al.* 1960: 46). For instance, despite the rather obvious differences between the United States and the Soviet Union, in the fifties both were regarded as being on the path towards the totally industrialised society. In the long run major differences are supposed to disappear and finally industrialism is thought to become the dominant organising principle of the whole world.

What then, in order to be somewhat more specific, are the central features of an industrial type of society? According to Aron (1967: 73) an industrial society can be defined as a society where large-scale industry is the dominant form of economic activity, there is a technological division of labour within the firm, and the workplace is clearly separated from the family. The production of goods in large factories is in many ways the actual essence of industrial society. The subsistence economy is extinct, agriculture has become industrialised, and people are working at different places producing different products for each other. So, in other words, in industrial society the division of labour has become all-embracing.

Kerr *et al.* (1960: 28ff) provide us with a number of propositions regarding the development towards industrial society. First, it is argued that modern technology will replace repetitive work thereby raising the general level of skill and responsibility. Also, the creation of new industries will result in a growing incidence of white-collar and service occupations. Second, since modern industry requires very large efforts within the functions of planning, organisation, direction, training, and research the proportion of technical and managerial personnel will increase substantially. Third, enterprise managers will be industrial society's dominant stratum by virtue of their control over the large enterprises. This prediction is in line with that of Burnham (1941: 71) who argues that a 'managerial revolution' will result in a transition from a capitalist type of society (i.e. a society in which the capital owners control the means of production) to a managerial type of society in which professional managers in all important aspects actually rule society.

Underlying these propositions we find a functionalist view of how industrial societies are developing. Erikson and Goldthorpe (1993: 4) argue that theories of industrial society share the idea that '[...] industrialism imposes its inherent "logic" on its social context in a gradual but unremitting and pervasive way – reinforcing features which are functionally consistent with it and undermining those which are not, so as to bring all industrial societies on to convergent developmental paths'. This 'inherent logic' of the industria-

lisation process can be explained by the functional imperatives which all complex societies are subject to.

Functional imperatives are to be understood as the needs every complex society has to meet (Treiman 1977: 8). The primary need of every society is, of course, the production of food, which has been the chief activity of the absolute majority of people during the history of mankind. Only during the last hundred years societies have evolved in which a very small minority is able to produce enough food for the whole population. The second imperative is that clothes, tools, houses, and other necessary goods must be manufactured. Naturally, the goods that are considered to be necessities vary according to the overall affluence of the population. Further, for every society that has surpassed a basic division of labour (i.e. that some essential products are produced outside the immediate surroundings), there must exist institutionalised mechanisms for the exchange of goods and services. This means that there will be people who specialises in trade and other commercial activities. In addition, since all societies are also cultures there will be a need for people who transmit and develop each society's stock of knowledge (i.e. teachers, scientists, artists, etc.). Finally, every society needs people that co-ordinate the activities of its members and preserve order. Hence, political leaders, managers of organisations, the police, and the military are all vital functional roles in a complex society.

Now, it can of course be argued that the existence of a number of functional imperatives do not necessarily coincide with the same number of functional roles performed by different people. Perhaps it is actually possible to 'hunt in the morning, fish in the afternoon, rear cattle in the evening, and criticise after dinner'. The problem is, however, that it takes time to master each task, and that an individual specialising in only one occupation will generally be far more efficient when performing his occupational tasks than the individual trying to master two or more occupations. This is something which already Adam Smith argued to be true not only of manual occupations:

In the progress of society, philosophy or speculation becomes, like every other employment, the principal or sole trade and occupation of a particular class of citizens. Like every other employment too, it is subdivided into a great number of different branches, each of which affords occupation to a peculiar tribe or class of philosophers; and this subdivision of employment in philosophy, as well as in every other business, improves dexterity, and

saves time. Each individual becomes more expert in his own peculiar branch, more work is done upon the whole, and the quantity of science is considerably increased by it.

(Smith 1976: 21f)

Hence, specialisation of tasks is efficient, and therefore all societies develop a division of labour that goes beyond the most simple one which is based on age and sex. However, in order for a full occupational division of labour to take place, one premise must be satisfied; that is, that the social system must be large enough to be able to support specialists. Durkheim (1933: 262) even proposed that the division of labour ‘[...] varies in direct ratio with the volume and density of societies [...]’, which, of course, implies that societies that are similar regarding their volume and density ought to display approximately the same configuration of occupations.

So, industrialised societies face the same functional imperatives, which results in a basically similar division of labour in these societies. The tendency towards greater similarity is further strengthened by the logic behind the diffusion of technology. Dosi (1982: 153) argues that it is possible to identify specific *technological paradigms*, which for long periods of time decides the actual development and spread of technology: ‘Technological paradigms have a powerful *exclusion effect*: the efforts and the technological imagination of engineers and of the organisation they are in are focussed in rather precise directions while they are, so to speak, “blind” with respect to other technological possibilities’. A specific technological paradigm results in an accompanying *technological trajectory*, which is ‘[...] the pattern of ‘normal’ problem solving activity [...] on the ground of a technological paradigm’ (Dosi 1982: 152). The consequence of this way of looking at technology is that – once established – a technology in a certain field will decide how people think about the future possibilities of advances in that field (two examples of strong technological paradigms are the internal combustion engine and semi-conductors). Further, the technology itself ‘[...] determines the number and the content of the occupational roles involved in the performance of any given function’ (Treiman 1977: 10).

To conclude, the notion of industrial society is an abstract analytical construct that gives us an image of the fully industrialised society, towards which modern society is constantly moving because of its inherent properties. This development is fuelled by the constant evolution of science and technology, both within state universities and the private research institutes of

large enterprises. Professionals, technicians, and managers have an especially important and strategic position in industrial society since they control the use and diffusion of modern technology. Also, because of the advanced level of technology the labour force of industrial society is highly differentiated according to specialisation of tasks and levels of authority. Further, the industrialist scholars more or less take an increased similarity (convergence) for granted because of the unremitting diffusion of the universal language of science and technology. The basic division of labour in industrial society is determined by a number of functional imperatives and dominant technological paradigms. All in all, the notions of industrial society and the importance of technology imply that economically advanced countries ought to display a high degree of similarity regarding the way in which labour is divided.

The developmentalism or evolutionism of industrialism has been criticised at length, a critique that, however, will only be touched upon here. First, there is the apparent absence of conscious actors. Society is seemingly evolving without the active intervention of human beings, they are, so to speak, prisoners of technology and the necessity of certain functions. Individual intentions, political and other sorts of collective action do not seem to have any real significance for the overall universal trajectory of society (Sztompka 1993: 111). The unidirectional character of industrial evolution has also been questioned on the grounds that complex societies of the same size and density can display quite different patterns of differentiation and that a presupposed cultural homogenisation is in fact quite hard to identify (Waters 1994: 321).

POST-INDUSTRIAL SOCIETY

To begin with, it is important to note that post-industrial society is not to be understood as an anti-thesis to industrial society. The transformation from an industrial to a post-industrial society is not as revolutionary as that from a traditional to an industrial society. Many of the distinguishing features of industrial society also form the backbone of post-industrial society. In particular the focus on science and technology as the primary productive forces, the technical division of labour, and the emphasis on the family and the workplace as distinct spheres of life. Actually, it is not all that easy to

make a clear distinction between industrialism and post-industrialism when scrutinising the arguments of both industrialists and post-industrialists. This is something which will be discussed in greater detail below, but first the basic post-industrial arguments will be presented.

Daniel Bell is probably the most well-known of the post-industrialists, and he is therefore the 'natural' point of departure when discussing the post-industrial development. In the foreword to the 1976 edition of *The Coming of Post-Industrial Society* he clarifies what he means by post-industrial:

The concept 'post-industrial' is counterposed to that of 'pre-industrial' and 'industrial'. A pre-industrial sector is primarily *extractive*, its economy based on agriculture, mining, fishing, timber, and other resources such as natural gas or oil. An industrial sector is primarily *fabricating*, using energy and machine technology, for the manufacture of goods. A post-industrial sector is one of *processing* in which telecommunications and computers are strategic for the exchange of information and knowledge.

(Bell 1976: xii)

Bell (1976: xvi) is careful not to claim that one social mode totally supersedes another: 'The post-industrial society [...] does not *displace* the industrial society, just like an industrial society has not done away with the agrarian sectors of the economy'. The agrarian and industrial sectors might still be significant in the post-industrial society, but the majority of workers will not be directly involved in these activities. Rather, the texture of society thickens when new elements are introduced, but there are, at the same time, according to Bell, clearly observable shifts concerning the dominant socio-economic order and how individuals relate to nature and themselves. Thus, in pre-industrial societies life is a game against nature, in industrial society life is a game against fabricated nature, and in post-industrial society life is a game between persons:

What counts is not raw muscle power, or energy, but information. The central person is the professional, for he is equipped, by his education and training, to provide the kinds of skill which are increasingly demanded in the post-industrial society. If an industrial society is defined by the quantity of goods as marking a standard of living, the post-industrial society is defined by the quality of life as measured by the services and amenities – health, education, recreation, and the arts – which are now deemed desirable and possible for everyone.

(Bell 1976: 127)

Continuing this line of reasoning, Bell (1976: 298) predicts the movement away from economic rationality to a communal ethic: 'In a sense, the movement away from governance by political economy to governance by political philosophy – for that is the meaning of the shift – is a turn to non-capitalist modes of thought'. Further, he draws the conclusion that such a shift necessarily will lead to more social planning, which means that a social technology dominated by professionals will be the prime mover of post-industrial society.

This is a quite distinctive feature of Bell's post-industrial society that sets it apart from the ideal typical industrial society: 'Technological development comes within the ambit of human control and planning. Technological goals can be set and activities coordinated to accomplish them. Invention is no longer an individualised activity governed by chance' (Waters 1993: 311). Hence, this perspective opens the door for active human intervention in the evolution of society, which, in essence, means that the outcome is not determined beforehand.

Here it is also, in my view, possible to find a flaw in Bell's argument, one that might be attributed to a utopian element affecting his thinking, resulting in '[...] a forecast of a liberal and humane future [...] in which social change is directed, no longer by a mechanical rationality, but rather in response to human needs' (Gershuny 1978: 2). Why is it, one must ask, that the distribution of health, education, recreation, and the arts must be planned and organised according to different principles than the distribution of goods? According to Bell (1976: 28), it is axiomatic that '[...] the consumer-oriented free-enterprise society no longer satisfies the citizenry, as once it did. So it will have to change, in order that something we still recognise as a liberal society might survive'. Obviously, Bell finds it difficult to see that, for instance, recreation and the arts (the so-called entertainment industry) are activities that are very much oriented towards private consumers on an open and free market, and that a number of these so-called human needs can function as commodities on a market.

Further, his ideas on the possibility of planning and forecasting the needs of a society are rather questionable. After a thorough exposure of how the techniques of forecasting have evolved, Bell (1976: 197) claims that the creation of new techniques of forecasting '[...] will lay out the future areas of development and which will allow industry, or society, to plan ahead systematically in terms of capital possibilities, needs, and products'. However, a thickening social texture or, to phrase it another way, an increasing

complexity in all social relations, is making forecasting more and more difficult, no matter how advanced techniques we employ in the task. The sum total of social and economic relations in a globalising world makes it difficult to comprehend, and also increases the complexity of social planning.

Bell's post-industrial society is dominated by well-educated service workers, the so-called knowledge class. This elite will eventually emerge as the only class that has the resources to instigate a policy that has social improvement as its primary goal instead of economic growth. Gershuny (1978: 27) opposes this view and argues that '[...] personal consumption has become increasingly material and that on present trends provision for needs in the future will be increasingly organised on an individual material "goods" basis and less on collective non-material "services" '. He also criticises Bell for not comprehending that the growth in the service sector can be tied to an increase in manufacturing:

Once we realise that service occupations may just as well be engaged in the production of goods as of services, and that needs we customarily consider as calling for services might as well be met by goods, we must also understand that the identity Bell asserts between the growth in service employment and the growth in demand for services is a false one.

(Gershuny 1978: 59)

Gershuny's argument is that there is an increasing production of utilities that make it easier for the household to 'produce' services that otherwise could have been provided by service workers (e.g. warming ready-cooked food in a microwave oven). He argues that the nature of recent changes may make it more relevant to talk about a 'self-service' economy instead of a service economy (Gershuny 1978: 91). It is also, of course, possible to question the arguments of Gershuny. His major fallacy is that he is rather too quick to assert that services will become relatively more expensive than goods. He does not discuss the possibility of an emerging service proletariat. For instance that – quoting Myles (1997: 278) – the development of a service economy '[...] does not mean our children will become knowledge workers; the more likely prospect is a job in a fast-food outlet'.

Services and service jobs can be understood in a number of ways, and it is, I will argue, important to come to terms with a number of possible connotations when talking about services. For instance, Lash (1994: 129) argues that the transition to a service economy means that a new kind of

middle class will come into existence, and that this new class is ‘[...] more a ‘served’ than a service class’. That is, this middle class is not a class that primarily provides services to another class (i.e. the capital owners of industrial society), but instead a class that is being served by another (low-skill) service class.

What has been presented so far, then, is a number of images of a society that primarily produces services instead of goods. One, by Bell, stressing the primacy of collective services provided by highly skilled professionals (e.g. health and education), another, by Gershuny, focussing on self-service in the household by the help of capital goods acquired from the manufacturing industry, and a third pointing to the growth of a service proletariat concomitant with the increase in professional jobs.

Judging from the examples above, trying to describe the evolution of modern society is a rather difficult thing. Even by using approximately the same information, the conclusions may vary quite considerably. It is all too easy – and evidently very tempting – to focus on just one or two aspects of society and, extrapolating from them, draw conclusions concerning the future. It is also – as has been shown in the case of Bell – easy to be led by more or less unconscious ideals or utopias, thereby making statements that are not validated by the empirical data at hand.

The discourse on post-industrial society comes in a variety of shapes, but regarding specifically the division of labour it seems possible to identify two broad perspectives. On the one hand, there is a rather optimistic picture of a society where repetitive manual labour is becoming more and more rare to be replaced by a whole set of information or knowledge based service occupations (e.g. Bell 1976; Andersson and Sylwan 1997). This perspective recognises almost only positive changes, where knowledge, information, and competence will dominate the world of work in the future and where very few individuals will not benefit from this development. The division of labour is primarily the result of increased technical specialisation, which means that most workers will have detailed knowledge of very narrow specialities. This version of the post-industrial society ‘[...] stands squarely in the “American utopia” tradition’ (Waters 1993: 311).

On the other hand, there is the view put forward by those who see an increasing polarisation, that is, a growth of both the well-educated stratum and the group of unskilled workers (e.g. Doeringer and Piore 1971; Sengenberger 1987; Bluestone and Harrison 1988). This development results in

increasing wage gaps, increasing differences in work conditions, etc., which, taken together, means more marked resource differences. This perspective exists in a number of varieties, all including the basic proposition of a dual working life structure. Jobs with good working conditions are to be found in a core sector or primary segment, while the periphery or secondary segment is made up of all lousy jobs. Perhaps this perspective should be denoted as pessimistic, since it – in all its varieties – assumes that at least a part of the labour force will be forced to accept rather poor working conditions, low wages, and a high degree of insecurity. During the late eighties and the nineties many of these ideas were put forward by scholars studying the development of the so-called flexible firm (e.g. Atkinson 1984).

The dual or polarising perspective concerns not just a differentiation between good and bad jobs in a single national labour market, or the character of the new service jobs. It is also possible to talk about a differentiation between firms according to a core-periphery perspective, that is, high-tech core firms that can be contrasted to low-tech sub-contractors. Further, we can envision a demarcation between regions within and across nations where high-knowledge regions with a focus on research and development (which is often performed in close proximity to universities) can be contrasted with low-knowledge regions that cannot attract firms with the need for highly educated labour (Reich 1991). A major postulate of this account is that the post-industrial world of work is to be understood as an integrated system with an almost infinite number of dividing lines: vertical and horizontal, within and across sectors and industries, differentiating according to gender, ethnicity, and age, and also cutting across national borders creating specific regional labour markets (Castells 1996: 220).

The coexistence of sometimes contradictory views regarding the evolution of a post-industrial occupational structure can be understood if we take into account that different occupational categories can be subject to vastly different forces and constraints. A couple of examples will clarify this argument. First, we have the so-called professions. By virtue of their monopoly of a specific field of knowledge they can control who has the right to perform a certain kind of work. Therefore, professionals do not have to compete for jobs with those who do not have the proper credentials. For instance, the labour market for medical doctors is restricted to medical doctors only. However, a profession can be challenged by the sudden rise of an occupation that lays claim to some of the tasks previously performed by

the professionals (e.g. chiropractors). Whether a profession chooses to defend or let go of its privilege depends on a number of factors. For example, if there is a shortage of medical doctors on the labour market then the medical profession will have great troubles defending its monopoly concerning tasks that can be performed by registered nurses (e.g. giving injections or carrying out the initial screening of patients). Such a situation can result in quite considerable changes in the occupational structure in a rather short period of time.

Second, at the other end of the job hierarchy we find a large collection of occupations that are totally open to competition since they do not require any specific education whatsoever. In this motley group there are jobs both within manufacturing (e.g. assemblers) and services (e.g. cleaners). The growth or reduction of these kinds of jobs is clearly subject to other forces than what is the case among the professional groups. For instance, whether a manufacturing firm chooses to employ manual assembly workers or invest in highly automated machinery has to do with the wage level, the type of production, and the supply of either unskilled labour or technicians and engineers. Thus, it is possible to argue that different types of social mechanisms affect different strata in the occupational structure, which means that several processes (e.g. shedding of manual labour and specialisation) can be active at the same time on the same labour market but affecting different occupational categories.

Another aspect of the economically advanced countries has been a steadily growing impact on the world of work from the nation state, a development that has restricted the direct working of market forces. In general, employers have less control over their employees today than they had one hundred years ago. State legislation has imposed restrictions upon how labour can be bought and sold, and also on what characteristics labour must have to enter the labour market in the first place (e.g. legislation regarding child labour).

Hence, the welfare state – in all its different shapes – is an important agent for the structuring of the labour market:

The advanced welfare state has developed new principles with regard to its proper role in its citizens' life cycles. It aims explicitly to optimize people's capacity to work, their ability to find work, and even their capacity to count on a good job with good pay and a good working environment. It seeks to make it as easy as possible for people to resolve the difficulties of harmonizing working life with family life, to square the dilemmas of having children and

working, and to combine productive activity with meaningful and rewarding leisure.

(Kolberg and Esping-Andersen 1991: 6)

Kolberg and Esping-Andersen (1991: 6) even argue that the welfare state directly and systematically shapes the labour market. This view represents a considerable departure from the neoclassical economic notion of what forces decide labour market outcomes. The welfare state is an active participant on the labour market, both as employer and as a distributor of labour market related welfare benefits (e.g. economic compensation in the case of sickness, child care, and unemployment).

Thus, labour force participation is to a great extent determined by actions taken by the welfare state. The most prominent part of state intervention is its 'clearing function', that is, the way in which it makes it possible for people with few or no possibilities on the labour market either to exit the labour market (early retirement) or to be re-educated. Quite possible, this type of intervention reduces the labour supply for low-skill jobs. Another way for the state to achieve this is by minimum wage legislation, which is supposed to make employers more interested in hiring labour with high productivity. On the other hand, the state can – by avoiding active intervention – clear the ground for a growth of the low-skill jobs. So, by its degree of intervention – based on ideological considerations – the state is in a position where it has a certain impact upon the development of the division of labour.

Esping-Andersen (1990: 26ff) has elaborated the notion of the state's influence on the labour market structure. His basic idea is that differences between countries regarding the arrangements between state, market, and the family is not random, but clustered by welfare-state regime types. The specific character of a country cluster is the result of a similarity in countries' economic-political history. On the basis of such similarities Esping-Andersen has created a typology consisting of three ideal-typical welfare-state regime types.

The first ideal-type is the *liberal* welfare-state regime. In this type of regime the state actively tries to maximise the market sphere, or, in other words, extend the scope for supply and demand forces, since competition on an open market is supposed to provide the citizens with the best and cheapest products in all areas. It is also characterised by modest benefit levels with strict rules for entitlement, and also few universal transfers (e.g. regarding such aspects as sickness insurance and economic compensation

for parental leave). Australia, Canada, and the United States are archetypal examples of this model.

Second, Esping-Andersen identifies a *corporatist* welfare-state regime. This type of state adheres to tradition and conservative values, and it has strong historical ties with the church. Benefits are attached to class and status, and the state has an almost negligible redistributive impact. Family services such as day care are underdeveloped since the traditional family pattern with men as providers and women as housewives is encouraged. Germany, France, Austria and Italy exemplify this regime-type.

The last type of regime is called *social democratic*, since social democratic parties have dominated the creation of the welfare state in the countries where this regime is at hand (i.e. the Scandinavian countries). In the social democratic welfare regime social transfers are to a great extent universal, and care for the children and the elderly are mostly public and heavily subsidized: 'The ideal is not to maximize dependence on the family, but capacities for individual independence. In this sense, the model is a peculiar fusion of liberalism and socialism' (Esping-Andersen 1990: 28). To be able to bear the cost of this encompassing welfare system it is necessary that the employment level is very high and, consequently, full employment for both men and women is a top priority in the social democratic regime-type.

According to Esping-Andersen (1990: 192) the institutional characteristics of the three different welfare-state regimes will have the result '[...] that nations are following distinctly different "post-industrial" trajectories; that, indeed, we confront a variety of future employment-scenarios'. Consequently, a country's institutional features can alleviate the impact of functional imperatives and technological paradigms, thereby opening up the possibility that equally economically advanced countries can display rather large differences regarding their way of distributing and dividing work. One of the most significant possible effects of state intervention is to what degree women – in particular women with small children – will be involved in paid work.

Before moving on to further topics, the most radical scenario of the future world of work needs to be commented on, that is, an image of a future without work as we know it. It has been proposed by authors (e.g. Aronowitz and DiFazio 1994; Rifkin 1995) who combine recent technological, economic, and organisational developments, which make them conclude that the number of jobs that will be created in future years cannot possibly swallow all the new entrants on the labour market. This vision can

be either utopian or dystopian. A world in which people are not forced to perform mindless alienating work just in order to survive is surely a utopia. On the other hand, there is the frightening possibility of a society where employment is a scarce resource creating an abyss between those who have and those who do not have a job. However, up till now no empirical evidence that supports the notion of large-scale job destruction has been presented, and the development of employment in some of the most technologically advanced countries actually points in the direction of increasing job creation (Castells 1996: 255).

Notwithstanding the existence of a number of differing views regarding the evolution of work in complex societies, the absolute majority of observers seems to agree on one point specifically. That is, that occupations which require extensive theoretical education will increase in both absolute and relative numbers. Therefore, the next section will deal with some propositions regarding this highly educated stratum.

PROFESSIONALS, SYMBOLIC ANALYSTS, AND NETWORKERS

The original post-industrial thesis argues that the division of labour in post-industrial society is primarily a division between occupations based on theoretical knowledge and occupations that can be accessed without any higher education. Thus, when describing and analysing the alleged post-industrial division of labour the professional stratum will always have to be at the forefront. According to Bell (1976: 129) the centrality of the professional occupations means that there will be novel power relations in post-industrial society: 'If the struggle between capitalist and worker, in the locus of the factory, was the hallmark of industrial society, the clash between the professional and the populace, in the organisation and the community, is the hallmark of conflict in post-industrial society'.

What, then, in order to be somewhat more specific, is a profession? It is – despite the existence of many different types of professions – possible to find some similarities that make it relevant to look upon professionals as a distinguishable group or stratum in today's division of labour:

[...] contemporary professionals differ from other strata in so far as they are simultaneously 'retainers', 'merchants', and 'priests'. They are 'priestlike' in their authority over secular knowledge bases. But, no less importantly, they

are also merchants of the cultural and human ‘capital’ that is their major source of mobility across and up organizational hierarchies; and, within organizations, they typically occupy positions as relatively high-ranking officials.

(Brint 1994: 12)

It is possible to focus on either the homogeneity or the heterogeneity among professional occupations depending upon whether the analysis has to do with professionals in relation to society at large or if it concerns the differences inside the professional strata. For the purpose of this discussion a rather straightforward definition of profession will have to do: *A profession is an occupational category with a considerable control over the acquisition, development, and application of a certain type of abstract formal knowledge obtained at higher educational institutions.* Professionals, in turn, are those who make their living from the exclusive right to use this complex body of knowledge, which often places them quite high in the income and status hierarchies. This definition is rather restrictive since it excludes all occupations that do not control the knowledge they make use of when they perform their tasks. It is common to refer to an occupation that do not fully correspond to a definition like the one above as a ‘semi-profession’ or ‘pseudo-profession’ (e.g. nurses, social workers). However, such occupations can be involved in a process of becoming a profession ‘proper’, that is professionalisation.

Hellberg (1978) identifies three stages in the professionalisation process. In the first stage – the occupation as a ‘profession-in-itself’ – the members of an occupational group act as separate individuals, their only common feature being their education. The second stage – the occupation as a ‘profession-for-others’ – is characterised by the identification of the profession as a group by another group in society, that is, when the profession is perceived of as a distinct group providing specific services that are demanded by other groups. This stage is a prerequisite for the last stage; the occupation as a ‘profession-for-itself’. The last stage is intimately connected to the creation of professional organisations:

The practical consequence of the occupational group’s consciousness of being a “profession-for-itself” is organised collective behaviour. The professions’ aspiration to arrive at and uphold a monopoly of knowledge and occupation, to look after the group’s work conditions and economic interests, and to create conditions for a strong unity between members require collective action, in practical terms by and through the professional organisation.

(Hellberg 1978: 105)

The process of professionalisation has consequences for a society's division of labour. Obviously, if a number of occupations succeed in becoming professions, then there will be more people who belong to the category professionals.

Several scholars have suggested typologies of professional types. Hellberg (1999), to begin with, proposes a distinction between L- and T-professions, where L stands for 'life' and T for 'thing'. L-professions are those that take care of a modern society's basic human needs (e.g. legal security, health, and education), while T-professions provide services to manufacturing and services industries (e.g. engineers and economists). Obviously, it is the L-professions that mostly correspond to Bell's vision of the post-industrial society in which health, education, and recreation have become central to most people. The T-professions, on the other hand, represent the dominant stratum of the industrial society where the quantity of goods is the most essential aspect of people's standard of living.

Brante (1990: 81) distinguishes '[...] four main types of professions: "free" professions, academic professions, professions of the (welfare) state and professions of capital'. He also argues for the possible rise of a fifth professional type, that is, the political profession (at least in Sweden that is). However, Brante also contends that the two dominant professional types of today are the professions of the welfare state and the professions of capital, which correspond quite well with Hellberg's L- and T-professions respectively. There are a number of differences between these two typologies of professional types, but they both point in the direction of a primary distinction between professions that are typical of either the industrial or the post-industrial type of society as defined by Bell.

Notwithstanding the definition and discussion above, it is no easy task to single out the occupations that can be regarded as making up the professional stratum. Of course, those occupational groups that traditionally have been denoted professionals (i.e. doctors, dentists, lawyers, priests, etc.) must – together with the above mentioned T-professions or professions of capital – be included in the broad group of professionals. Also, it has been argued that a number of occupations that normally does not count as professions must nevertheless be regarded as such since they have several important characteristics in common with professions 'proper'. Perkin (1996), for instance, includes bureaucrats and managers together with a number of 'lower' occupations (e.g. technicians and administrators) among the occupa-

tional stratum that he calls the ‘professional expertise’. Accordingly, this is a group of occupations that can be regarded as one only at a rather high level of abstraction.

The reason why Perkin is giving so many occupations the status of profession is the overall argument of his book *The Third Revolution*. He is arguing that the third revolution in human history is the revolution of the professionals. According to Perkin, the first revolution took place when man became settled (the Neolithic revolution), and the second was the industrial revolution when human work became a commodity on a market. Today, then, we are witnessing a revolution where mind is finally defeating matter, and human capital is becoming the most valuable asset: ‘It is in effect Adam Smith’s division of labour, raised to a higher power of applied intelligence and expertise’ (Perkin 1996: xii).

Perkin identifies ten major trends of professional society, which, taken together, mean that society will be transformed from top to bottom:

It [the rise of professional society] raises living standards not just for the few but for every member of society. It puts most of its man-and woman-power into services rather than agriculture and manufacturing. It substitutes professional hierarchy for class as the primary matrix of the social structure. It recruits to those hierarchies by means of meritocracy, entailing an increase in social mobility from below. It extends this to women, thus ensuring their (admittedly limited) emancipation. It entails the massive growth of government, including the universal benefits of the welfare state, which enlarges and moralizes the concept of citizenship. It expands the provision of higher education in order to create human capital. It concentrates production of both goods and services in large business corporations whether private or state-owned, in a new structure of corporate neo-feudalism. And, paradoxically perhaps, it threatens to erode the nation state by internationalising corporate neo-feudalism and creating a global economy.

(Perkin 1996: 8)

Perkin is aware that he is describing what most other social scientists would call a post-industrial development, and his description is, in essence, nothing but the frequent statement of the knowledge society that mankind is supposedly soon to enter. In my view, by defining professionals as a rather wide category Perkin over-emphasises the importance of the professions to the extent that society as a whole can be viewed as professional. It is clear that – by using different definitions – it is easy to arrive at completely different

conclusions concerning the nature and extension of the professional stratum in contemporary societies.

Reich (1991) has proposed a work typology that constitutes a novel and different way of looking at the division of labour. He distinguishes three broad categories of work: routine production services, in-person services, and symbolic-analytic services. Routine production services are those that can be found in traditional high-volume manufacturing enterprises. Not only blue-collar jobs, but also routine supervisory jobs. In-person services are jobs that must be performed in direct contact with those receiving the service, for instance, sales persons, hairdressers, and physical therapists. The novelty of Reich's typology lies mostly in the third category. However, the symbolic-analytic services are jobs that correspond rather closely to those performed by Perkin's professional expertise.

Symbolic analysts solve, identify, and broker problems by manipulating symbols. They simplify reality into abstract images that can be rearranged, juggled, experimented with, communicated to other specialists, and then, eventually, transformed back into reality. The manipulations are done with analytic tools, sharpened by experience. The tools may be mathematical algorithms, legal arguments, financial gimmicks, scientific principles, psychological insights about how to persuade or to amuse, systems of induction or deduction, or any other set of techniques for doing conceptual puzzles.
(Reich 1991: 178)

Thus, the work of the symbolic analyst consists to a great extent of handling and (in particular) transforming information.¹

An important distinguishing feature of the three categories of Reich's typology is where they actually can be performed. Routine production services can be carried out wherever there is a supply of the right type of workers and transportation facilities. The finished products can then be shipped to final customers all over the globe. For many years, these types of jobs have been disappearing from the economically advanced countries, and often production facilities have been moved to neighbouring countries with lower wages (e.g. Mexico, Poland). In-person services, on the other hand, cannot be performed at a distance. The bartender, the waiter, and the hairdresser must all be in personal contact with their final customers. Symbolic analysts, finally, can – with the help of modern information technology – perform their work practically everywhere. They tend, however, to be concentrated to regions harbouring higher educational institutions, and firms actually

have to locate their more advanced activities to these areas (e.g. Silicon Valley). So, logically, high wage countries ought to display a development where the employment share of routine production services is declining, while in-person services and symbolic-analytic services should be on the increase. Also, an increasing economic globalisation can reinforce this pattern and help to create a distinct international division of labour.

In his influential trilogy *The Information Age* Manuel Castells (1996) presents what he considers to be a new division of labour that characterises the emerging informational paradigm. In order to better understand the specificities of this new division of labour he has constructed a typology consisting of three dimensions:

The first dimension refers to the actual tasks performed in a given work process. The second dimension concerns the relationship between a given organisation and its environment, including other organisations. The third dimension considers the relationship between managers and employees in a given organisation or network.

(Castells 1996: 243f)

The first dimension is denoted *value-making* and consists of six categories of workers who perform different tasks in a production process organised around information technology: 1) the *commanders*, who make all strategic decisions, 2) the *researchers*, who are the innovators of products and processes, 3) the *designers*, who adapt, package, and target the products for the market, 4) the *integrators*, who manage the inter-organisational relationships between decision, innovation, design, and execution, 5) the *operators*, who execute tasks under their own initiative and understanding, and 6) the *operated*, who carry out pre-programmed tasks that cannot (at least not yet) be automated. It is worth noticing that if we aggregate categories 1 to 4, the result is a category which is very similar to Perkin's professional expertise and Reich's symbolic analyst.

The value-making dimension is arguably the most central when analysing the division of labour, but according to Castells all three dimensions are necessary to fully understand the new division of labour. So, the second dimension is called *relation-making* and distinguishes between 1) the *networkers*, who initiate connections within and without the company, 2) the *networked*, who participate in the networks created by the networkers, and 3) the *switched-off* workers, who receive one-way instructions and perform

their tasks accordingly. The third dimension is referred to as *decision-making*, which differentiates between 1) the *deciders*, who actually make the decisions, 2) the *participants*, whose opinions are considered by the deciders, and 3) the *executants*, who just carry out decisions.

Castells (1996: 245) does not consider this construction an ideal type: 'It is a synthetic representation of what seems to be emerging as the main task-performing positions in the informational work process [...]'. He also argues that the three dimensions do not coincide, which is somewhat hard to grasp. For instance, only the *operators* and the *operated* in the value-making dimension can have the positions of *switched-off* workers or *executants* in the other two dimensions respectively. Berglund (2001: 27f) has commented upon this discrepancy and argues that commanders, researchers, designers, and integrators should be regarded as functionally flexible self-programmable core workers with power and authority, while operators and the operated are exchangeable (or even disposable) workers without power and authority. Also Castells (1996: 272) contends that there is a distinction between a core labour force and a disposable labour force in the new information-based economy.

The images of today's division of labour that have been presented above have some common features. First, there is the overall notion of a more or less clear-cut divide between a professional stratum and the rest of the working population, that is, a dualistic perspective seems to prevail. Second, there is the sometimes explicit or implicit notion of a continuous growth and expansion of professional occupations. They supposedly increase their share of total employment, and the increased length of education tends to make more and more occupations into professions or at least semi-professions. Some scholars also make distinctions within the professional stratum, and often between the 'soft' (i.e. L-professions or welfare state professions) and the 'hard' professions (i.e. T-professions or professions of capital). Perkin – who has a more inclusive definition of professions – makes another distinction and argues that

[...] the dominant professions in the new society are, surprisingly perhaps, not the high priests of the new technology but those who employ and set them to work, the corporate managers and state bureaucrats. They are the elites who will make or break modern post-industrial society, who will lead it to its full potential of service to the community or pitch it down into the abyss of corruption, violent conflict, and self-destruction.

(Perkin 1996: 7)

Hence, it is not the professionals proper that primarily control the creation or dissemination of knowledge since they themselves are controlled by corporate managers or state bureaucrats. However, it is quite conceivable that many top level managers and bureaucrats begin their careers as professionals, and carry with them some kind of professional ethics or loyalty to the profession. So, there is presumably a rather tight connection between society's top decision-makers and their professional staff, at least in comparison with their contacts with other strata in society.

SUMMARY, DISCUSSION, AND SOME BASIC PROPOSITIONS

To begin with, it must once again be emphasised that the differences between an industrial and a post-industrial society are much smaller than those between a traditional and an industrial society, at least regarding most aspects of work. The advent of industrial society meant a thorough break with the previous mode of production. Wage labour replaced subsistence labour, the workplace was separated from the family, and the production of both goods and services began to be based on theoretical scientific knowledge attained at educational institutions instead of practical knowledge conferred from person to person in the concrete work situation. These basic features of industrial society have not been fundamentally altered in the images of a new social mode presented by the post-industrialists.

Hence, the notion of theoretical knowledge as the primary productive force is not something that has been invented by the post-industrialists. In this assertion they are, arguably, not that different from the industrialists of the fifties and sixties who argued that the evolution and dissemination of science would be the prime mover of development. The most conspicuous difference between the industrialists, on the one hand, and Bell, on the other hand, is Bell's emphasis on the communal ethic of post-industrial society as opposed to the market-oriented consumerism of industrial society. In many ways, Bell's post-industrial society is the dream of the social engineer come true. It is a society in which welfare state professionals use social technology for the planning of future needs of services and goods. This belief in the possibility of large-scale planning is – in Bell's (1976: 298) own words – '[...] a turn to non-capitalist modes of thought'. So, Bell's professional post-industrial society is governed according to a political philosophy that

emphasises high-level needs (i.e. health, education, arts, etc.). In this respect, Bell's forecast is arguably rather similar to some nineteenth century utopias. Also, it is quite obvious that the development during the years since Bell made his forecast has not been moving in the direction of more social engineering. On the contrary, the 'consumer-oriented free-enterprise society' that Bell deemed as soon becoming obsolete in the mid-seventies has not only survived, but actually come to include a constantly growing part of the world's countries.

Castells (1996: 13ff) argues that the analytical emphasis should be shifted from post-industrialism to informationalism. Therefore, the distinction should not be between an industrial and a post-industrial type of society, but instead between industrial and informational society. While industrialism is oriented towards economic growth informationalism is oriented towards the accumulation of knowledge, which is made possible by the new technological paradigm based on information technology. Further, Castells also maintains that '[...] informationalism is linked to the expansion and rejuvenation of capitalism [...]' (Castells 1996: 19). Thus, the prime mover of informational society is very different from that of Bell's post-industrial non-capitalist society. Also, in informational society it is not self-evident that services will be the dominant economic activity. Agriculture, manufacturing, and services will all become informational when they make use of the new technology. Therefore, the relative size of the three sectors in a country does not necessarily tell us especially much about its level of development.

Esping-Andersen has argued that societies' political and socio-economic history has resulted in some specific institutional patterns that he denotes welfare-state regimes. Three types of regimes are identified (the liberal, the corporatist, and the social democratic), and they are supposed to have decisive effects on the way in which a society organises its production of goods and services. In particular, a welfare-state regime affects the households' decisions on such matters as education and labour force participation.

Regarding specifically the division of labour, the ideas of the industrialists and Bell are quite similar. Both see the highly educated stratum as the future elite, but Bell accords a more central position to the L- or welfare professions. Among the contemporary scholars Perkin envisions a professional society in which corporate managers and state bureaucrats will be dominating, Reich forwards the idea of a tripartite occupational structure dominated by symbolic

analysts, and Castells provides us with a rather complex image of the future division of labour but, at the same time, likewise dominated by well-educated people. Explicitly or implicitly, all of these observers give us a picture of a division of labour with a primary distinction between jobs that require some kind of college or university education and jobs with less educational requirements. So, the division of labour of the society (whatever we prefer to call it) that is unfolding before our eyes is primarily a division that reflects the knowledge that is required for the performance of specific tasks.

Finally, based on the discussion in this chapter it is possible to deduce some propositions concerning the division of labour in economically advanced countries. First, it can be argued that there ought to be a universal development of the world of work, since complex societies face the same functional imperatives, use the same technological paradigms, and is more and more focussing on high-level needs (i.e. health, education, entertainment, etc.) after the basic needs (i.e. food, clothing, housing, etc.) have been satisfied for the absolute majority of the population. Hence, a primary proposition can be formulated: *The post-industrial development implies that complex societies should become increasingly similar regarding their division of labour.* This proposition can be called the hypothesis of universal development. It was formulated already in the fifties by the industrialists, and it is still endorsed by many scholars. Of course, a universal development can be either positive (as with the industrialists and Bell) or negative (e.g. Braverman 1974). However, in this book it is primarily the optimistic version that will be focussed and called into question.

The second proposition builds upon the argument that advanced services provided by highly educated professionals will increasingly dominate the demand of both individuals and organisations in post-industrial society: *The post-industrial development implies a constantly increasing share of highly educated workers.* This can also be called the upgrading hypothesis. Proposition number three takes its departure in the common assertions of a development towards a dual labour market structure: *The post-industrial development implies the simultaneous increase in the share of professional workers and unskilled service workers.* This proposition is commonly referred to as the polarisation hypothesis. Since most scholars adhering to propositions two and three seemingly assume that countries develop in the same way, they can be regarded as being complementary to the first proposition.

A fourth proposition can be deduced from Esping-Andersen's idea of

institutionally generated differences in the developmental paths of post-industrial societies: *The division of labour in post-industrial societies ought to differ if they belong to different welfare-state regimes*. This proposition can be called the diversification hypothesis, and, obviously, it constitutes a challenge to the first proposition that argues for a universal development of all complex societies.

Regarding women's increased participation in paid work two propositions can be formulated. First, it is possible to argue that women's increased labour force participation *per se*, an increased demand for well-educated labour, and more years in education for all will result in a less gendered division of labour. Such a development presupposes that men and women are interested in the same type of jobs, that employers do not discriminate against any sex, and that men and women take equal responsibility for all domestic matters. Thus, the following proposition can be formulated: *The post-industrial development implies a levelling out of sex differences in society's division of labour*. Second, it is also possible to argue that different types of welfare-state regimes should have a decisive impact on women's overall labour force participation and what jobs they tend to cluster in, hence: *The sexual division of labour is dependent on the character of the welfare state*.

So, based on the notions of how complex societies are developing six propositions have been formulated. They will all be tested and discussed further in Chapters 4, 5, and 6. Since these chapters originally were written as single products, there is no clear-cut distribution of propositions to this or that chapter. However, Chapter 4 primarily treats propositions one to four, Chapter 5 focuses on propositions five and six, and in Chapter 6 all propositions are touched upon. Finally, in Chapter 7 each proposition will be evaluated when the empirical results from the preceding chapters are summarised.

At last, one final proposition will be formulated. It is related to the secondary purpose of the book (i.e. to examine in detail the definitions, concepts, and classifications that are used as indicators of the division of labour), so: *The way in which we comprehend society's division of labour is a consequence of the definitions and classifications we make use of*. This topic is the subject for the discussion in the next chapter, since it is essential that such conceptual issues are treated before beginning the more straightforward empirical analyses in the chapters to follow.

METHODS AND DATA

In a broad sense this study can be described as *a comparative study of the post-industrial division of labour*. The first question that has to be dealt with is why it is necessary to use more than one country in order to ‘describe and analyse the division of labour in so-called post-industrial societies’. Actually, it is not uncommon to concentrate on just one country that – for some reason or other – can be regarded as being representative of many countries. This strategy was used already by Tocqueville who used America ‘[...] as the archetypal society to test and develop a theory of social conflict in the capitalist epoch’ (Benson 1979: 195). Also Bell (1976) used the United States for his investigation since it can be considered as the capitalist society *par excellence*. These studies are examples of *archetypal* case studies, in contrast to *comparative* case studies. The main problem of the archetypal case study is that it must be able to present a case that without doubt is representative for a larger group of countries. In contrast, the comparative case study can choose a number of countries (either similar or different depending on the purpose), which makes generalisation more feasible than when using the archetypal case study:

I argue that cross-national research is valuable, even indispensable, for establishing the generality of findings and the validity of interpretations derived from single-nation studies. In no other way can we be certain that what we believe to be social-structural regularities are not merely particularities, the product of some limited set of historical or cultural or political circumstances.
(Kohn 1989: 77)

Since today it has become quite common to argue that there can be several different routes to and patterns of post-industrialism (Esping-Andersen 1990; Castells 1996), the strategy of choosing just one archetypal post-industrial country seems inappropriate for the purpose of this book.

Hence, in order to study the way in which the production of goods and services is distributed among occupational roles in the so-called post-industrial society, the use of more than one country is preferable. Consequently, the second question to be considered is what countries to choose for the comparison. In the case of this book the choice of countries more or less presented itself. A couple of years ago I was asked whether I would like to partake in a book project that should study the labour markets of two

North American (Canada and the United States) and two Scandinavian countries (Denmark and Sweden). This work eventually resulted in Chapter 6 of this book. The countries in Chapters 4 and 5 were chosen in order to check whether Esping-Andersen's findings and conclusions using data from the mid-eighties still are valid. Since Esping-Andersen (1990: 192) argues that Germany, Sweden, and the United States can be regarded as typical representatives of the corporatist, the social democratic, and the liberal welfare-state regime respectively, the choice of countries practically took care of itself.

Intimately connected to the question of what countries to study is a question of whether countries or nation states are actually the best units of analysis for the purpose of this book. Of course, if country equals society, then this question is irrelevant. However, if there are large regional differences in a country, or if a homogeneous region crosses the borders of several countries, a region might be a better unit of analysis. Carnoy, Castells and Benner (1997) have, for instance, studied the labour market of Silicon Valley, since it is possible that it is a forerunner in today's development. Nation-states are, however, clear-cut empirical objects, and also conventionalised in, for instance, comparative labour market analysis and data collection. Therefore, in most cases, the researcher has simply to accept the nation-state as the unit of analysis. In this study, both access to data and the ambition to replicate earlier studies decided that countries should be studied.

All data that have been used in the empirical chapters come from official sources such as the countries' statistical agencies (e.g. Bureau of Labor Statistics and Statistics Sweden) or the statistical offices of international bodies (e.g. the International Labour Organisation). Hence, all data are of course subject to the advantages and disadvantages of these organisations' methods of data collection. Further, different countries and organisations use different definitions, methods, and classifications when collecting data. For instance, regarding occupational data it has been asserted that

[...] detailed occupational classifications tend to differ both cross-nationally and, within societies, over time (national census bureaus typically upgrade their classifications for each new census). Classifications differ not only with respect to the level of detail and specific occupational titles included but also with respect to their logic. For instance, some detailed classifications distinguish employment statuses within the same occupations and others

do not. Some classifications are heavily industry oriented and others are not.

(Ganzeboom and Treiman 1996: 202)

This is a problem common to all cross-national studies that use official statistics, and it is practically impossible to account for all problems of comparability that are connected to the use of those specific sources that have been employed in this book. Beneath each table and figure in the empirical chapters the sources of the data are presented (e.g. OECD *Labour Force Statistics* or the United States' *Current Population Survey*). Also, specific data problems will be commented on in connection to the data analysis in the empirical chapters.

According to Treiman (1977: 46) two basic decisions has to be made in order to match occupational titles across countries. First, an occupational classification has to be chosen, and, second, some criteria for what is an acceptable match must be devised. Here, the International Standard Classification of Occupations (ISCO) has been used throughout the book. Both the former (ISCO-68) and the latest versions (ISCO-88) of this classification have been used since they are not fully comparable (see Chapter 3 for an extensive discussion of this problem). Since the mid-nineties two of the five countries in this study use occupational classifications that are directly derived from ISCO-88, in Sweden SSYK96 and in Denmark DISCO-88. The Occupational Classifications of Canada and the United States are not directly comparable to ISCO-88, but since they consist of over 500 occupational categories it has been possible to aggregate them into most of the 111 minor groups of ISCO-88. This procedure was greatly facilitated by using the occupational index of ISCO-88 (ILO 1990: 397ff). In this index there are over 7,000 job titles in English, which made it quite easy to assign ISCO-88 codes to the job titles of the two North American classifications. Finally, the Federal Statistical Office of Germany has converted the occupational data of the *Microcensus* 1999 into 3-digit ISCO-88 data.

NOTE

- 1 Occupations that can be considered to be symbolic-analytic services are '[...] research scientists, design engineers, software engineers, civil engineers, biotechnology engineers, sound engineers, public relations executives, investment bankers, lawyers, real estate developers, and even a few creative consultants. Also included is much of the work done by management consultants, financial consultants, tax consultants, energy consultants, agricultural consultants, armaments consultants, architectural consultants, management information specialists, organisation development specialists, strategic planners, corporate headhunters, and system analysts. Also: advertising executives and marketing strategists, art directors, architects, cinematographers, film editors, production designers, publishers, writers and editors, journalists, musicians, television and film producers, and even university professors' (Reich 1991: 177f).

THE DIVISION OF LABOUR AND OCCUPATIONAL CLASSIFICATION

INTRODUCTION

In order to assess society's division of labour it is necessary to find a way to measure how many among the population are performing this or that kind of work. This is mostly accomplished with the help of an occupational classification, that is, an ordering of all tasks performed in a society into distinct classes (occupations) according to some idea of what are their primary distinguishing attributes. An occupational classification can be made up of everything from just two classes (e.g. white-collar vs. blue-collar workers) to an almost infinite number of very specific jobs distinguished by their precise titles (e.g. an obstetrics nurse as distinguished from a paediatric nurse). Irrespective of the level of analysis the classification we have chosen will affect our image of society's division of labour.

However, since occupational statistics serves a number of purposes there can be no one optimal way of classifying occupations (Hoffmann 2000: 4). Apart from its use in social scientific research as an indicator of society's division of labour, occupational statistics is also used by legislators and public sector administrators for occupational guidance and educational planning. Managers use occupational data to monitor working conditions in their enterprise and to assess such aspects as the recruitment possibilities of different labour markets. Further, doctors use occupation as an important variable when studying work-related health hazards and mortality, and sociologists,

psychologists, and economists use the occupation variable in a wide variety of studies concerning such things as status, life styles, personality, earnings, mobility, sex segregation, and inequality. Also, depending on the purpose of the study, occupation can be used as either an independent or a dependent variable. For instance, the employment shares of occupations in a country can be used to explain the attitudes towards paid work (Berglund 2001), or the different institutional arrangements of some countries might help to explain their differing occupational structures (Esping-Andersen 1990; 1993; 1999).

Hence, the division of labour as illustrated by, for example, an alphabetical list of more than 7,000 specific job titles (ILO 1990: 397ff) cannot be understood or analysed unless we apply some kind of classification scheme to the otherwise incomprehensible and chaotic world of work. In this chapter the nature and foundations of occupational classifications will be discussed. The purpose is to dig beneath the surface of the classificatory practices in order to arrive at a better understanding of what an occupational classification is and how it helps to create and maintain (or change) our image of society's division of labour. The section following hereafter will deal with some basic questions regarding concepts and definitions. Next follows a section that introduces a discussion of what classifications are all about. Thereafter follows the chief part of the chapter which is devoted to occupational classifications as such. Here, the International Standard Classification of Occupations (ISCO) is used as an illustration. The chapter ends with a summary and some conclusions.

CONCEPTS AND DEFINITIONS

It is possible to conceive of the division of labour in two ways. First, it can be understood as the division of a full work sequence into a number of simple tasks. The most developed form of this type of labour division is without doubt the so-called Fordist production regime within manufacturing, where every manual worker is repeatedly performing one and the same task at an assembly line. Second, the division of labour can be looked upon as society's set of functional roles, that is, the way in which a society's production of goods and services is allocated among its population. Throughout this book, it is the second way of understanding the division of labour that

will be at the centre of analysis. More specifically, the subject of investigation is the *occupational* division of labour.

It is, however, difficult to discuss and analyse the division of labour without having decided what a job or an occupation actually is. In order to do this, we need a definition. To begin with, it is important to note that definitions '[...] are neither right nor wrong; they are rather boundaries of usage' (Bell 1976: 176). This means that there is not one correct definition of the concept occupation. Instead, we find a number of definitions that differ from each other depending on the purpose of the definition. Of course, there are both good and bad definitions, but the quality of a definition is not decided by its supposed correspondence with reality but by its agreement with the objective of the undertaking of which it is a part. For scientific purposes, a good definition is one that makes it possible to describe, compare, interpret, evaluate, or measure the phenomenon that is to be studied.

A definition of occupation must delineate what legitimately can be called occupation. That is, it must tell us what it is that makes an activity into an occupation. One such definition is the following, which contends that an occupation is be conceived of as that '[...] specific activity with a market value which an individual continually pursues for the purpose of obtaining a steady flow of income; this activity also determines the social position of the individual' (Taylor 1968: 8). This definition covers three sets of conditions; technological (specific activity), economic (income), and social (social position), and it excludes all activities that are not financially rewarded. Thus, no form of unpaid activity (e.g. voluntary work, housework, or work by students) can be called an occupation. This way of defining occupation stays quite close to the everyday meaning of the concept occupation, that is, as the type of job a person executes.

In contrast, Hall (1969: 5f) defines occupation as '[...] *the social role performed by adult members of society that directly and/or indirectly yields social and financial consequences and that constitutes a major focus in the life of an adult*'. This way of understanding the nature of an occupation focuses on its function as a social role and its significance for the individual. Hall seems to imply that an occupation must be looked upon as something which is enacted by the individual. With such a view, a wide variety of human activities and behaviour can be regarded as occupations. For instance (to take an extreme example), a person who is unemployed and lives on unemployment benefit but, at the same time, regards himself and behaves like an actor,

author, or musician must be considered as an incumbent of such an occupation since Hall speaks about *indirect* 'social and financial consequences'. By the same token, Hall's definition also covers the role as housewife since that kind of activity clearly yields indirect financial consequences for the household.

The above definitions differ quite much from each other, in particular regarding the scope of what legitimately can be called occupations. Arguably, how we choose to define occupation will have considerable consequences for our image of society's division of labour. If we include only paid work in our definition, all work performed by, for example, housewives and voluntary workers becomes invisible. One annoying consequence of excluding unpaid work is that an activity (e.g. taking care of children) becomes a part of society's division of labour only if it is financially rewarded. On the other hand, the drawback of a definition that includes unpaid work is that the boundary between occupation and non-occupation tends to be blurred. How many hours a week do I, for instance, have to be engaged in an activity/social role for it to be regarded as my occupation? Clearly, it is very difficult (if not impossible) to formulate a definition of the concept occupation that fits all situations. Instead, different definitions will have to be used for different purposes.

Irrespective of their scope, both definitions discussed above are similar in that they primarily claim something about the relation between occupations, individuals, and society, but have conspicuously little to say about occupations as such. They define the role or place of occupations in society, and thereby help us to distinguish between occupations and non-occupations. Essentially, these definitions make a distinction between occupational and non-occupational work, which means that occupation is a property of the object work. Further, this property is a dichotomous attribute since work can only be either occupational or non-occupational (Barton 1955: 41). In other words, these definitions tell us which activities should and which should not be included when describing or analysing the division of labour.

However, in order to conceptualise the division of labour it is not enough to have a definition that marks off the boundaries of occupational work, we also need a definition that makes it possible to sort and order different occupations: '[...] before we can rank objects or measure them in terms of some variable, we must form the concept of that variable' (Lazarsfeld and

Barton 1955: 83). In this case, the variable is occupation, and the conceptualisation/definition should provide us with a means of distinguishing between occupations. In the latest version of the International Standard Classification of Occupations (ISCO-88) we find an example of how this can be accomplished. To begin with, it is stated that the design and construction of ISCO-88 is based on two main concepts: *job* and *skill*. Job is defined as ‘[...] a set of tasks and duties executed, or meant to be executed, by one person [...]’ (ILO 1990: 2). The definition of skill is ‘[...] the ability to carry out the tasks and duties of a given job [...]’ (ILO 1990: 2). Job is the statistical unit of ISCO-88, and the concept skill is used to delineate and aggregate occupational groups. The specific tasks and duties of a job find their expression in the many thousands of job titles. This plethora of jobs forms the basis for the different occupations, and ISCO-88 defines an occupation as a ‘[...] set of jobs whose main tasks and duties are characterised by a high degree of similarity [...]’ (ILO 1990: 2).

The conceptual framework of ISCO-88 provides us with the tools we need to classify occupations, but it is not especially useful if we want to distinguish between occupations and other social activities in society. Obviously, what we have found here is a marked difference between a general definition of a social scientific concept and the definition of the basic unit for a classification. The latter type of definition is a practical tool that serves to create occupational classes, while the former definitions tell us something about occupations as a part of society. The conceptualisation of occupation in ISCO-88 implies that an occupation is just a bundle of similar jobs. In contrast, Taylor argues that occupation as a sociological concept must be understood as

[...] a patterned set of human relations having to do with specific work experiences. The integration of the patterned work relations precipitates the development of occupational structures and the manifestation of occupational ideologies. Ideology and identity are central to the sociological notion and experience of occupation.

(Taylor 1968: 10)

Thus, it is not only the tasks and their similarities that are important. Also the meaning of the occupation is of interest, both for those that belong to it and for society at large. However, Taylor’s conceptualisation of occupation is – notwithstanding its sociological relevance – a bit too inclusive if the

purpose is to examine the division of labour as it manifests itself through the occupational structure.

To sum up, when studying the division of labour we first need a definition of what activities can properly be called occupations. This means pinpointing the *genus proximum* of occupation, that is, deciding on what traits make an activity into an occupation. We also need to decide the *differentia specifica* of occupations, that is, the attributes that sets occupations apart (e.g. skill level). According to Beckman (1990: 116) definition is ‘[...] a taxonomic procedure in two steps’, which is illustrated here by the first step of defining what objects shall be regarded as occupations, and the second step of defining the traits that make it possible to distinguish between occupations.

In this book the overall definition or *genus proximum* of occupation is stated as follows: *An occupation is a specific activity with a market value for which an individual receives his or her present remuneration.* This definition excludes all unpaid work (except subsistence labour) and all means of obtaining an income via social transfers (e.g. unemployment insurance). It is more or less synonymous with the everyday meaning of occupation, and – more important – it delineates what is to be conceived of as an occupation in the same way as the absolute majority of official occupational classifications (SCB 1998: 7). The *differentia specifica* of occupation is the conceptual frameworks of those occupational classifications that are employed throughout the book, in particular that of ISCO-88. Obviously, the use of official statistics is limiting the range of possibilities when it comes to choosing a definition. It is, however, important to be aware of the conceptual bases for the data which are being employed in all types of research.

CLASSIFICATIONS

Essentially, to classify is a process of dichotomisation. It means that we focus on some specific traits, then we conclude that some of the objects under scrutiny have these traits and that all other objects do not have them, and, finally, we sort the objects into ‘those who have’ and ‘those who have not’. Expressed in a formal language the classification of a phenomenon is achieved in the following manner:

Generally speaking, a classification of the objects in a given domain D (such as numbers, plane figures, chemical compounds, galactic systems, bacteria,

human societies, etc.) is effected by laying down a set of two or more criteria such that every element of D satisfies exactly one of those criteria. Each criterion determines a certain class, namely, the class of all objects in D which satisfy the criterion. And if indeed each object in D satisfies exactly one of the criteria, then the classes thus determined are mutually exclusive, and they are jointly exhaustive of D .

(Hempel 1952: 51)

In other words, a classification should display three properties. First, that it uses consistent, classificatory principles, second, that the categories are mutually exclusive, and, third, that it is complete (i.e. that no objects are left outside it). However, far from all classifications meet these conditions, which is due to the fact that most classifications in practical use are subject to a number of considerations (political, practical, historical, etc.) that make the perfect classification a very rare thing indeed.

It can be argued that classifications are not all of the same type and that many of them should therefore not be compared to the ideal classification. Roughly speaking, it is possible to distinguish three broad groups of classifications. First, the sorting and grouping of the world that everyone of us is involved in can be called *everyday* classifications. They consist of the many different ways in which we distinguish between objects in society, and by constantly being reiterated they might even come to be considered as a kind of natural order. For instance, people characterise other people by the way they dress or behave, and such classifications are often common to social groups. However, the categories in this type of classification are seldom mutually exclusive, the boundaries between categories are often very subjective, and both the number of categories and their internal order tend to change over time. Accordingly, everyday classifications are far from fulfilling the requirements for an ideal classification. Second, *scientific* classifications are those classifications that are created for scientific use and based on scientific theories about the way in which the objects under study are ordered. Since this type of classification is constructed by scientists for specific purposes it is, arguably, one that often comes close to or even fully corresponds with a perfect classification (e.g. the periodic system).

The third and – for the purpose of this chapter – most interesting type of classification can be labelled *official* classifications. Such classifications are abundant in modern society and they can be found wherever there is a bureaucratic organisation. Occupational classifications (e.g. ISCO) are good

examples of this classification type since they mostly are the standards of organisations, nations, regions, or international bodies.¹ Classifications which are also standards automatically become part of a bureaucratic society's self-definition since all official statistics are published in accordance with them. Such a standard classification can also be labelled a classification system, which is defined as '[...] a set of boxes (metaphorical or literal) into which things can be put to then do some kind of work – bureaucratic or knowledge production' (Bowker and Star 1999: 10). Official classifications enter into our lives via the bureaucracies of modern society. Therefore, these classifications have an impact on both everyday life and science:

Around the official classifications are framed movements, organisations, and even personal identities. Thus official categories influence everyday understandings and even scientific thought, since the social sciences commonly draw on official sources for much of their data. To be sure, this officially defined structure of society is not all the structure that might usefully be imputed to a social order. However, the more any state intervenes in economic and social life, the more its classifications leave a real imprint upon it.

(Starr 1992: 154f)

Thus, official classifications are, figuratively speaking, to be found in between everyday and scientific classifications. They are constructed with the purpose of providing the bureaucracies of the modern world with tools that facilitate the exchange of information.

More specifically, the type of official classifications we are interested in are labelled *standard statistical* classifications. Such classifications have '[...] a set of discrete categories, which may be assigned to a specific variable registered in a statistical survey or in an administrative file, and used in the production and presentation of statistics' (Hoffmann and Chamie 1999: 2). Each standard statistical classification has a so-called *custodian*, that is, an organisation which is responsible for updates and/or revisions of the classification. The custodian also supplies the necessary expertise in the subject matter area, and finances work regarding the classification. For national statistical classifications the custodian is the relevant statistical agency (e.g. Statistics Sweden), while for international statistical classifications the custodians are usually international agencies (e.g. the WHO).

The development and maintenance of statistical classifications require a great deal of bureaucratic work, and since many classifications are inter-

connected it is necessary to take a number of aspects into consideration. The connections between different standard statistical classifications can be described by grouping them into three categories: reference, derived, and related classifications. First, *reference* classifications ‘[...] are those that have achieved broad acceptance and official agreement and are approved and recommended as models for the development or revision of corresponding classifications [...]’ (Hoffmann and Chamie 1999: 6). A number of international statistical classifications are reference classifications, which means that they have been approved by the member countries of some intergovernmental board (e.g. the IMF or the WHO). Among these reference classifications we find ISCO, which has the International Labour Organisation (ILO) as its custodian.² Second, a *derived* classification is a statistical classification which is based upon the corresponding reference classification. It is created by re-arranging and/or adding and/or removing some minor items of a reference classification, but keeping its basic structure. For instance, ISCO-88 has been used to develop the derived classification ISCO-88(COM), which is the official statistical occupational classification of the European Union of which EUROSTAT is the custodian. Third, *related* classifications deal with the same variable(s) as the corresponding reference classification, but ‘[...] the categories may only partially refer to those defined in the reference classifications, or [...] may only be associated with the reference classification at specific levels of the structure’ (Hoffmann and Chamie 1999: 7).

Of course, this interconnectedness of statistical classifications means that the custodians of the different classifications must communicate closely with each other whenever some changes are being planned. And even further, many international statistical classifications which deal with wholly different variables are linked to each other. For example, one of the key concepts of ISCO-88 is *skill level*, which has been based on the International Standard Classification of Education (ISCED). Therefore, if ISCED were to undergo a major revision it would most probably mean that also ISCO-88 would have to be revised. So, the development, revision, updating, and maintenance of standard statistical classifications are subject to a number of considerations. This can be exemplified by a statement from the United Nations Expert Group on International Economic and Social Classifications (Box 3.1).

Starr (1992: 166) argues that the process of official classifying can be looked upon as a series of choices: ‘(i) the definition of the domains or underlying principles of classification and (ii) the identification of individual

groupings within a domain. Further choices arise from (iii) the naming and (iv) the arrangement of the domains and groups'. Each choice contains a potential source of conflict, and the resulting classification is most certainly fraught with many compromises. Hence, the image of classification as an orderly and rational activity by which we order 'natural' phenomena according to the logic of some inherent properties needs to be seriously questioned.

One aspect of the series of choices that characterises the development of all official classifications is that there will always be categories that do not fit into any of the boxes that make up the classification. These are the residuals, the 'others' of the world of classification. They are either unclassifiable or their main characteristics transgress the boundaries of several categories. In most classifications they are placed in categories that are labelled 'not elsewhere classified', which are exclusively to be found among the subdivisions of a classification. Also, some activities can be totally excluded from a classification on both practical and/or moral grounds. For instance, the International Standard Industrial Classification of all Economic Activities (ISIC) excludes illegal economic activities such as the manufacture, distribution, and sale of illegal drugs. Of course, the illegality of such activities makes it difficult to include them in an official classification, since they cannot be measured in the same way as legal economic activities. However, their exclusion is not only a practical but also a moral choice. If illegal economic activities are treated in the same way as their legal counterparts, there is a risk that they become regarded as qualitatively similar, something which – in the long run – can make it difficult for authorities to uphold a clear distinction between legal and illegal economic activities.

A classification is always a construction based on some theory or value system. This construction is either implicit or explicit, and regarding most official classifications it is almost never overt. The classifying process can be regarded as an institutionalisation of negotiated orders which are the results of the conflicts involved in the series of choices. During this process of institutionalisation alternative ways of classifying are excluded, which means that classifications '[...] are never innocent, they are imbued with political content' (Brante 1994: 4). However, the series of choices or the institutionalisation process does not take place in an empty social space:

Classification is usually treated as an outcome of an ordering process as if the organisation of thoughts comes first, and a more or less fixed classification follows as its outcome. But the ordering process is itself embedded in prior

**Box 3.1 Obligations for the International Family of
Economic and Social Classifications**

Custodians of the international family of economic and social classifications:

- a. Recognise that they are part of a system that is dynamic, rather than static, between revisions, thus requiring regular information dissemination and co-operation with the other custodians in the system;
- b. Agree to register their classifications into the United Nations Classifications Inventory to be part of the network to exchange information systematically and efficiently among the responsible agencies;
- c. Will identify and specify the location of the persons, offices, or committees responsible for the preparation and maintenance of the classification;
- d. Work to make explicit the formal and structural relationships between reference and derived classifications, which follow from the relevant subject matter interrelationships, in order to keep them consistent;
- e. Officially recognise their dependence on each other. When the reference classification changes, the other members of the family work to line up with the changes made at the international level. When a derived classification at the national or regional level notes difficulty in following the reference classification, changes to the reference classification may be proposed;
- f. Seek to improve the relationship between reference and related classifications;
- g. When setting strategies for making changes to classifications, take note of possibly affected classifications;
- h. Prepare a plan for editing and updating a classification or group of related classifications:
- i. Co-ordinate the timing of updates and revisions with other members of the family;
- j. Announce timings of hearings, updates, and revision meetings so that valuable opportunities available for direct dialogue are not missed. Publicise classifications time-tables for major work on the classifications in the Classifications Website, thus allowing those interested in the updating and revision process, to contribute to the process at appropriate moments;
- k. Collaborate in the preparation of correspondence tables between reference, derived and related classifications;
- l. Collaborate in the preparation of instructions for data collection, coding and analysis, for those using the classification;
- m. Work together to prepare guidelines for interpretations of classifications at the applied level;
- n. Develop guidance and training materials that make explicit the classification's relationship to the Family, as well as provide guidelines for those wanting to use the classifications as a basis for developing derived or related classifications, e.g., for use at the national level.

(Statistical Commission 1999: 3f)

and subsequent social action. It is a middle part of a circle of questions and answers.

(Douglas and Hull 1992: 2)

Hence, an inquiry about classification should primarily deal with this middle part, but, at the same time, not forgetting the other parts.

It should be clear by now that official or standard statistical classifications are constructs that are circumscribed by many constraints and considerations. All the different aspects of classifying make it into a rather 'political' activity, which takes place in bureaucratic settings. It is a practice that has evolved during a long time resulting in certain institutions which are maintained by numerous organisations, both nationally and internationally. When society changes, so must the classifications we make use of to make sense of society. The problem is that the process of classification is not only political, it is also dependent upon prior classificatory work and the interconnectedness of several standard statistical classifications. A number of these aspects will be dealt with in the next section where occupational classifications *per se* are discussed.

OCCUPATIONAL CLASSIFICATIONS

Occupational classifications are, in most cases, official classifications (i.e. standard statistical classifications). The International Standard Classification of Occupations (ISCO) is one of the reference classifications in the international family of economic and social classifications.³ Its custodian is the ILO, and many countries use occupational classifications that are directly derived from it. Being an official classification, it should – following the discussion above – be analysed as such and not be confused with or compared to either everyday classifications or scientific classifications. However, before beginning the analysis a short discussion of the 'nature' of occupational classifications is needed.

What is an occupational classification? To begin with, the concept classification tells us that it is something else than simply an alphabetical list of occupations. Instead, the ordering of occupations into distinct classes is based upon the type of work that characterises an occupation. For instance, occupational classifications commonly distinguish between occupations that

mostly require manual skills and occupations that mostly require mental skills. Also, most classifications single out occupations with tasks and duties that have a high level of responsibility, that is, managerial occupations. So, an occupational classification provides us with a specific picture of society's division of labour, and each time we measure the size of the occupations that make up the classification (i.e. the number of incumbents of each occupation) we get a snapshot of the current division of labour. Conceived of this way, an occupational classification is just a mirror image of society's division of labour.

Further, since an individual's occupation is still the most important factor for his or her position in the stratification order, an occupational classification almost always tells us something about the vertical relations in society. Crompton (1998: 58) notes that the investigation of occupational hierarchies '[...] has been closely associated with models of society which have stressed the importance of the social solidarity and functional interdependence associated with the division of labour in complex societies [...]'. So, following this line of reasoning, an official occupational classification is not simply a neutral mirror image of the division of labour. Instead it is the implicit reflection of a world view that sees the different occupations as small but equally important cogs in the big social wheel. Also, it has been argued that the concept occupation in most research on the occupational structure has been regarded as unproblematic: '[...] as if it could enter explanation as a pre-theoretical entity, its major characteristics known, its facticity unchallenged' (Stewart, Prandy and Blackburn 1980: 1).

Hence, official occupational classifications are attempts to visualise the division of labour, but, knowing this, it is important to be aware that the classification is not the one and only neutral or objective way of describing how society allocates its production of goods and services. In the following ISCO – being the most common official occupational classification in the world today – will be analysed in detail, which will make it possible to discuss many of the definitional and classificatory aspects mentioned above.

The first discussions regarding the need for an international classification of occupations were initiated by the first International Conference of Labour Statisticians (ICLS) in 1923. However, it was not until 1949 that the seventh ICLS adopted a provisional classification consisting of nine major occupational groups. The first edition of the International Standard Classification of Occupations was published by the ILO in 1958 and therefore labelled

ISCO-58. It has been revised twice. The first time in the sixties resulting in ISCO-68, and then in the eighties when the fourteenth ICLS adopted ISCO-88. The revisions have been quite far-reaching, which (of course) to a great extent is due to the fact that the labour market has gone through some significant changes during this period. Many older occupations have become obsolete while a great number of new occupations have come into existence, in particular occupations created by the information technology revolution (e.g. computer systems designers, database administrators, programmers). The disappearance of some and emergence of other occupations are not the only reasons for the revisions though. Especially the revision of ISCO-68 resulting in ISCO-88 was based on both political and practical considerations.

Neither ISCO-58 nor ISCO-68 were particularly successful in being used as '[...] a model for countries developing or revising national classifications' (ILO 1986: 1). This did hamper the ILO's prospects of creating internationally comparable occupational statistics, which is a serious drawback for that type of organisation. For a number of reasons ISCO-88 has been more successful than its predecessors. First, its conceptual basis is more rigorous compared to those of ISCO-58 and ISCO-68. Second, during its development the ILO drew upon the experience of several countries' efforts when revising national classifications (in particular Australia). Third, the European Union decided in 1990 to use ISCO-88 as reference occupational classification, and a derived EU version was developed, known as ISCO-88(COM). Last, the publication of ISCO-88 coincided with the collapse of the communist states in Central and Eastern Europe. And since the Eurostat has been providing the former communist countries with technical assistance for national statistics, they were keen to adopt the statistical practice of the European Union (Elias 1997: 11f). In 1998, 53 out of the 151 member countries of the ILO had developed, or were in the process of developing, occupational classifications based on the model of ISCO-88 (ILO 1998).

So, ISCO's development, revisions, and subsequent adoption in many countries exemplifies a process of institutionalisation, which primarily consists of an almost endless amount of bureaucratic work. The bureaucratic character of ISCO-88 is quite evident when looking at its three main objectives (Box 3.2).

ISCO-88 shall supply 'national statisticians with a tool', it shall make it possible to produce occupational data for 'decision-making and action-

Box 3.2 Main Objectives of ISCO-88

ISCO-88 has three main aims. The first is to facilitate international communication about occupations by supplying national statisticians with a tool to make national occupational data available internationally.

The second is to make it possible for international occupational data to be produced in a form which can be useful for research as well as for specific decision-making and action-oriented activities, such as those connected with international migration or job placement.

The third aim is to serve as a model for countries developing or revising their national occupational classifications. It should be emphasised that, while serving as a model, ISCO-88 is not intended to replace any existing national classifications of occupations, as the occupational classifications of individual countries should fully reflect the structure of the national labour market. However, countries whose occupational classifications are already aligned to ISCO-88 in concept and structure will find it easier to develop necessary procedures for making their occupational statistics internationally comparable.

(ILO 1990: 1)

oriented activities', and also 'serve as a model for countries' in their work with national occupational classifications. The relative success of ISCO-88 indicates that the ILO has partly accomplished its objectives, at least in a number of countries and regions.

A major innovation that has helped to promote the use of ISCO-88 is the sub-major level consisting of 28 occupational groups. As can be seen in Table 3.1, there was a large difference between the major and minor group's number of categories in ISCO-68, which made it difficult to use it together with other variables (e.g. industry or detailed age groups) and also was inhibiting when presenting occupational statistics at a slightly more detailed level than the eight major groups (ILO 1990: 4).

Table 3.1 also gives us some idea of how thoroughgoing the 1988 revision was. Sadly, the result is a rather low comparability between ISCO-68 and

Table 3.1 The structure of ISCO-68 and ISCO-88

ISCO-68		ISCO-88	
Major groups	8	Major groups	10
Minor groups	83	Sub-major groups	28
Unit groups	284	Minor groups	116
Occupational categories	1,506	Unit groups	390

Sources: ILO 1986, ILO 1990

ISCO-88, in particular if we (which is mostly the case) do not have access to data at the lowest levels of aggregation. That many new occupations have come into existence since the sixties is illustrated by the fact that close to 10 per cent of the 390 ISCO-88 unit groups have no reference to any of the ISCO-68 categories whatsoever (Hoffmann 2000: 11).

Above, in the section on concepts and definitions, it was established that ISCO-88 is based on two main concepts: job and skill, that *job* is to be understood as 'a set of tasks and duties executed, or meant to be executed, by one person', and that *skill* is the ability to carry out the tasks and duties of a given job'. Further, an occupation was defined as 'a set of jobs whose main tasks and duties are characterised by a high degree of similarity'. Here, the conceptual framework of ISCO-88 will be considered in greater detail.

To begin with, at its lowest level of aggregation ISCO-88 consists of 390 unit groups, which (in most cases) consist of more than one occupation (ILO 1990: 4). This means, of course, that a unit group can contain a rather large number of specific jobs, since an occupation is 'a set' of similar jobs. The aggregation of the individual jobs and occupations into groups is by no means a trivial undertaking, the main obstacle being which aspect or type of similarity that is to be decisive for the aggregation. ISCO-88 states that it is the 'main tasks and duties' that should be similar for some jobs to be bundled together as an occupation, and not such aspects as if the tasks are performed outdoors or indoors, whether they are manual or non-manual, how much time is needed to perform them, etc. Therefore, such occupations as anthropologist, archaeologist, ethnologist, and sociologist all belong to the same unit group (2442), and also car, taxi, and van drivers constitute one unit group (8322).

The concept skill is used for the aggregation of occupations into similar categories, and it consists of two dimensions: skill level and skill specialisation. First, *skill level* [...] is a function of the complexity and range of the tasks and duties involved (ILO 1990: 2). It is, primarily, operationalised via the International Standard Classification of Education (ISCED). There are four broad skill levels that apply to the major occupational groups (Table 3.2). However, the ILO is cautious to note that the skills can be acquired not only through formal education, but also through informal training and experience (ILO 1990: 2). The decisive factor is the nature of the skills required for the task and not how they have been acquired (Elias and Birch 1993: 2).

Elias (1997: 7) comments that the '[...] four skill levels provide a quasi-

Table 3.2 ISCO-88 skill levels and education/qualifications

Skill level	Corresponding education/qualification
First skill level	Primary education (begun at ages 5-7 and lasting approximately 5 years)
Second skill level	Secondary education (begun at ages 11-12 and lasting 5-7 years)
Third skill level	Tertiary education (begun at ages 17-18 and lasting 3-4 years but not giving equivalent of university degree)
Fourth skill level	Tertiary education (begun at ages 17-18 and lasting 3-6 years and leading to university degree or equivalent)

Source: Elias 1997

hierarchical structure to the organisation of the classification. Although ISCO-88 avoids the terminology, “Elementary Occupations” can be regarded as “Unskilled”, and “Manual” or “Blue-collar” occupations are concentrated within major groups 6 to 9’. ISCO-88 should not, however, be compared with classifications that have been developed with the specific purpose of describing a hierarchical ordering of jobs (e.g. Treiman 1977: 159ff or Wright 1985: 88). And a dichotomization of the categories into a simple blue-collar/white-collar dichotomy is possible but questionable, since the classification has not had that kind of distinctions as a purpose from the outset.⁴

The second dimension of the concept skill is *skill specialisation*, which is ‘[...] defined by reference to the field of knowledge required, the tools and machinery used, the materials worked on or with, as well as the kinds of goods and services produced’ (ILO 1990: 4). Skill specialisation helps us, for instance, to distinguish between wood-processing-plant and chemical-processing-plant operators, or between medical doctors and veterinarians. Hence, while skill level gives us the broad categories, the finer detail of the classification is provided by reference to skill specialisation.

Even though it might be described as ‘quasi-hierarchical’, the structure of ISCO-88 should, in my view, primarily be conceived of as a number of discrete categories that have been compiled by virtue of similarity, and not according to the relations between the categories. Table 3.3 shows the structure of ISCO-88.

This classification structure shows the successive aggregation of unit

Table 3.3 ISCO-88 major groups with number of sub-groups and skill levels

Major groups	Sub-major groups	Minor groups	Unit groups	skill level
1. Legislators, senior officials and managers	3	8	33	--
2. Professionals	4	18	55	4 th
3. Technicians and associate professionals	4	21	73	3 rd
4. Clerks	2	7	23	2 nd
5. Service workers and shop and market sales workers	2	9	23	2 nd
6. Skilled agricultural and fishery workers	2	6	17	2 nd
7. Craft and related trades workers	4	16	70	2 nd
8. Plant and machine operators and assemblers	3	20	70	2 nd
9. Elementary occupations	3	10	25	1 st
0. Armed forces	1	1	1	--
Totals	28	116	390	

Source: ILO 1990

groups into ten major occupational groups. For instance, as a separate occupation lexicographer belongs to the unit group 2444 (philologists, translators and interpreters), which belongs to the minor group 244 (social science and related professionals), which is a part of sub-major group 24 (other professionals), which is one of four groups that together constitute major group 2 (professionals).⁵ Thus, the structure of the classification is one in which some groups are subdivisions of others:

The term *classification structure* refers to the arrangement of the content of a classification. The strategy of the structure is to arrange the content in such a way that aggregations of the most detailed categories in the set are based upon similarity criteria that are meaningful for statistical and analytical comparisons. The classification structure should make it possible to identify relevant individual categories uniquely and separately, yet still be able to present statistics for meaningful broader groupings.

(Hoffmann and Chamie 1999: 18)

The structure of this type of classification makes it relevant to talk about it as a set of classifications instead of a single classification. Each level (e.g. the unit-group level) of the system constitutes a classification in its own right. Accordingly, the above-mentioned criteria for an ideal classification (i.e. that it uses consistent, classificatory principles, that the categories are mutually exclusive, and that no objects are left outside the classification) are applic-

able to each level of aggregation. However, at the unit group level we have a potentially infinite number of occupations that shall be placed in 390 groups, while these 390 groups constitute the sum total of the objects for aggregation to the next level. The hierarchical structure is far from symmetrical, that is, not two major groups have the same number of sub-major, minor, and unit groups. Disregarding the major group armed forces (which is a special case), the number of unit groups that make up a major group are between seventeen (major group 6) and seventy-three (major group 3).⁶

Now, turning to the skill levels, we observe immediately that two of the ten major groups (major group 1 and 0) have not been linked to the skill levels. The reason given for this is that '[...] skills for executing tasks and duties of occupations belonging to each of these two major groups vary to such an extent that it would be impossible to link them with any of the four broad ISCO-88 skill levels' (ILO 1990: 4). Also, out of eight major groups that have been operationalised in terms of skill levels five (major groups 4, 5, 6, 7, and 8) have been considered to be at the same skill level (the second). Only major group 2 (professionals) contains occupations that require skills on the fourth level (i.e. a university degree or equivalent), and only major group 9 (elementary occupations) is considered to be at the lowest skill level. Further, since there are a number of jobs with similar purposes but with different skill requirements, ISCO-88 distinguishes between craft and related trades workers (major group 7) and plant and machine operators and assemblers (major group 8). Craft occupations require a knowledge of materials, tools, and the sequence of tasks performed, while operators primarily need to know how to use automated machinery and take care of problems in the automated sequence (ILO 1990: 9).⁷

A classification that is supposed to be used internationally must be able to reflect country differences regarding some specific occupations. During the fourteenth ICLS it became apparent that there were rather large differences between countries in educational requirements for a number of teaching, health, and social services occupations. Therefore it was decided that it should be possible for countries to classify some occupations either to major group 2 (professionals) or major group 3 (technicians and associate professionals). Hence, primary, pre-primary and special teaching occupations, nursing and midwifery occupations, and social work occupations can be classified either among professionals or among technicians and associate professionals in accordance with the educational requirements of a country (ILO 1990: 8).

After this description of the concepts and the structure of ISCO-88, it is time for a more analytical approach and discuss this classification as an image of the division of labour. At first sight, ISCO-88 gives a very clear, logical, and coherent impression, and it actually seems to possess something of an objective or neutral quality. There are, however, a number of questions that arise when taking a closer look at some of the suppositions behind the classification. First, the conceptual framework for the development of the classification is not unproblematic. That five out of the eight major groups that are linked to the skill levels have been linked to the second skill level clearly reflects the enormous heterogeneity among these groups, and it is hard to see that skill specialisation – however we define it – can account for the differences implied in the classification. It has also been argued that classifications that build upon an inventory of precisely stated job tasks – which is, in essence, what ISCO-88 does – represents a view of the occupational structure as a simplified reflection of the technical demands on the market:

Precise definitions of job content do not necessarily describe socially meaningful occupations; they may not correspond to the work anyone actually does. Thus precise technical definitions may be ill-related to the conceptions of occupations and the work experience, even of those performing the tasks; and in different societies, or even at different locations within the same society, tasks may be gathered in different ways to form occupations.

(Stewart, Prandy and Blackburn 1980: 2)

This type of critique is important to consider since it concerns the way in which the division of labour is presented. It questions the conceptual basis for practically all official occupational classifications, and, implicitly, argues that it is impossible to develop an occupational classification that corresponds to the division of labour in different societies and also to the differing conceptions of the division of labour by people at different locations within the same society. In my view, however, this critique is a bit beside the mark. The precise tasks of an occupation may very well differ between societies, but the ‘main tasks and duties’ of a very large number of occupations must reasonably be of approximately the same character in the advanced economies (e.g. lawyers, nurses, teachers, farmers, welders, truck drivers, cleaners, etc.). Hence, even though people with the same vocation in different parts of the world might not perform exactly the same tasks, the main technical aspect

of an occupation works nonetheless as a quite good approximation for its position in the division of labour. Therefore, this critique is relevant only when classifications such as ISCO-88 is used for other purposes than it was originally developed for.

Maybe the most significant critique that can be levelled at ISCO-88 is that it does not seem to be gender equal in its treatment of occupations, which quite naturally affects the image of the division of labour. ISCO-88 states that it is important that '[...] occupational categories of a given occupational classification be delineated in a way which will not obscure but promote detail and clarity of information on sex composition of jobs' (ILO 1990: 9). However, it is evident that the major occupational groups within which women predominate have considerably fewer sub-major, minor, and unit groups than the major groups that are male dominated. In Table 3.3 we can see that major groups 4 and 5 have less subdivisions than major groups 7 and 8, and in practically all advanced economies the former groups are female dominated and the latter are male dominated (Nermo 1999: 122). Also, sub-major groups within which women predominate tend to contain fewer subdivisions than the corresponding male dominated sub-major groups. For instance, major group 3 consists of four sub-major groups whereof one is clearly male dominated (31, physical and engineering science associate professionals) while two are female dominated (32, life science and health associate professionals, and 33, teaching associate professionals). The male dominated sub-major group 31 is subdivided into five minor groups and twenty-three unit groups, while the female dominated sub-major group 32 consists of 4 minor groups and sixteen unit groups. These observations are in line with the assertion that in most occupational classifications male categories tend to be distinguished in greater detail (Mata Greenwood 1999: 281).

This apparent imbalance in the classification structure could have been justified if the predominantly male occupational groups had been correspondingly larger regarding employment shares than the female dominated occupations. This is not, however, the case. In Sweden, for example, major groups 4 and 5 make up about 11 and 18 per cent of employment respectively, while major groups 7 and 8 stand for 11 per cent of employment each. In contrast, major groups 7 and 8 both have 70 unit groups, while major groups 4 and 5 only have 23 unit groups. The impression we get from this is that women seem to cluster in considerably fewer occupations

than men, something which, actually, might be nothing but the consequence of a structural imbalance in the classification.

One of the most obvious examples of how male dominated occupational groups are accorded a higher degree of diversity is to be found within the major group professionals. Whereas nursing and midwifery professionals all belong to the same unit group, there are six different unit groups of engineers (civil, electrical, electronic, mechanical, chemical, and mining engineers). Obviously, they are distinguished primarily by the kind of material they are working with (i.e. skill specialisation), but why, we must ask, are there no distinctions between equally specialised nurses? In the United States the occupational group registered nurses (which has similar educational requirements as engineers) is the largest health care occupation, with over 2 million jobs, while engineers hold approximately 1.5 million jobs (BLS 2001). Also, there are a number of specialities within nursing that requires additional education or clinical practice beyond the basic nursing education (e.g. midwives, nurse anaesthetist, occupational health nurses, psychiatric nurses). Such specialities could easily have been distinguished between by virtue of their skill specialisation (e.g. by the different fields of knowledge or services produced).

International standard classifications that have been in use for several decades are heavily burdened with tradition. In the case of ISCO it is quite clear – despite its recent revision – that the classification structure holds on to a tradition with numerous distinctions within the male industrial occupations. Actually, as many as 140 of the classification's 390 unit groups (i.e. 36 per cent) are to be found within the two major occupational groups that harbour the traditional industrial male jobs. In contrast, the two major occupational groups with a female dominance only have 46 unit groups (i.e. 12 per cent). It is also possible, however, that this is the result of a clash between a former classificatory practice that distinguished between occupations on the grounds that they belong to different industries (e.g. between wood-products, plastic-products, and paper-products machine operators), and a classificatory practice that focuses exclusively on tasks and duties (e.g. shop salespersons all belong to the same unit group no matter what product they are selling, food, clothes, or cars). It has been argued that skills are linked to products or materials, which are the determinants of industry (Elias and Birch 1993: 2). It is, however, somewhat difficult to understand why skills should be linked to a specific material when operating machines, while the

sale of such different products as cosmetics and electronic equipment entails the same skill specialisation.

ISCO-88 has a number of residual ('not elsewhere classified') categories, which reflects the difficulty of developing a classification that has an unambiguous position for each and every object within its domain. The residual categories appear throughout the classification, but only at the unit group level. For instance, minor group 122 (production and operations department managers) contains eight unit groups distinguished by some aspect of skill specialisation (e.g. production and operations department managers in manufacturing, in construction, or in restaurants and hotels) and one residual unit group (i.e. production and operations department managers not elsewhere classified). All in all, 24 out of 390 unit groups are residuals, which means that approximately one-fifth of the 112 minor groups have a residual occupational category. The 'not elsewhere classified' categories are mostly to be found within minor groups with more 'general' labels than within minor groups with more 'precise' labels. For example, the minor group consisting of business professionals (241) has a residual unit group, while the minor group that is made up of safety and quality inspectors (315) does not have one.

There are also a number of occupations that are conspicuous by their absence. Jobs that are considered to be outside the normal or proper way of making a living are excluded from the classification. You find no robbers, smugglers, pushers, or gamblers in ISCO-88, which, of course, can be explained by the fact that none of these 'jobs' can be found within the 'white' economy. Also, all jobs that are characteristic of the sex industry are excluded (e.g. prostitutes, pimps, strip-tease dancers), notwithstanding that these activities are legal in a number of countries. Obviously, the exclusion of these types of jobs is a moral choice, since it does not reflect the actual situation in many countries. Actually, there is not one single example of what can be regarded as an 'immoral' job among the over 7,000 occupational titles in the alphabetical index of ISCO-88 (ILO 1990). This observation clearly strengthens the notion of international standard classifications as negotiated orders (or perhaps even social constructions) that are the results of a series of choices.

Another somewhat related aspect is that the work by the classification's custodian is monitored by outsiders with an interest in specific occupations. Both the ILO and the ICLS have experienced lobbying by representatives

of international and national occupational federations that have had opinions on the placement of their occupations in ISCO (Hoffmann 2000: 9). Primarily, the lobbying has been conducted by federations that represent occupations that are trying to reach a higher level of professionalisation (e.g. nurses and social workers).

SUMMARY AND CONCLUSION

In order to use the variable occupation to describe society's division of labour it must be defined in two steps. First, in a way that excludes non-occupational work, and, second, in a way that makes it possible to distinguish between occupations. There is not one definite answer to how occupations should be defined, and some specific undertakings certainly require specific definitions. Nonetheless, for most practical purposes we have to be content with the definitions that are attached to the classifications that are used by the agencies that in most cases provide us with occupational data. That is, official occupational classifications, which differ from both everyday understandings of how jobs are distributed in society and classifications developed for specific scientific purposes.

An official occupational classification is a bureaucratic product constructed to do some kind of bureaucratic work, which means that it provides a picture of society's division of labour that is adapted to the objectives of the classification. Hence, it is not simply a mirror image of the 'real' division of labour. Therefore, it is important to be aware of the classification's conceptual framework and the limits that this imposes upon the use of the classification. The development of an occupational classification consists of a series of choices that in many ways are political, and also suffer under the weight of tradition. The classification structure of ISCO-88 is the result of a decision-making process that undoubtedly has had its fair share of conflicts, and the outcome is most certainly fraught with compromises. For instance, it was established above that the traditionally male occupational groups have considerably more subdivisions than occupational groups within which women predominate. Also, certain types of occupations have not been included in the classification because of their immoral character.

Further, it has been argued that ISCO-88 is the reflection of a view of society in which the occupational structure is looked upon as equivalent

with a social structure decided by the technical and social tasks that have to be performed. Occupations are viewed as nothing but functional tasks, and their incumbents become but role players in the social structure. Important social aspects such as power, status, identity, and autonomy become invisible as the sole focus of the classification is the tasks and skill levels. However, if we are aware of the construction and limitations of official classifications this critique is not as relevant as it seemed to be initially. In order to study, for instance, society's power relations we need other types of classifications than ISCO-88.

When they are installed and doing their bureaucratic work, official occupational classifications are the primary creators of our image of society's division of labour. The number of occupational levels and the number of occupational categories on each level provide us with a specific picture of how the production of goods and services is distributed within the working population. As long as an official classification is in use, its structure is the equivalent to the division of labour in the society that uses it. Of course, the number of people in each category differ from time to time, but the categories stay essentially the same until the classification is either discharged or revised.

The development, revisions, and subsequent adoption in many countries of ISCO exemplifies a long process of institutionalisation, that is, of how one specific way of looking at the division of labour is gaining official precedence over other conceptualisations. The primary lesson to be learnt from this inquiry into the nature of occupational classifications is that it is important to be aware of a classification's conceptual bases, the tradition upon which it is built, and whether its structure is biased in one way or another. Such an awareness greatly facilitates the use of a classification and also an assessment of the results the classification provides us with.

NOTES

- 1 Some examples of other standard classifications used at the international level are the following: International Standard Industrial Classification of All Economic Activities (ISIC); Central Product Classification (SPC); Classification of the Functions of Government (COFOG); International Classification of Status in Employment (ICSE); International Standard Classification of Education (ISCED); International Statistical Classification of Diseases and Related Health Problems (ICD); International Classification of Impairments, Disabilities, and Handicaps (ICIDH). The European Commission (1999) lists more than 80 international statistical classifications.

- 2 The International Labour Organisation was founded in 1919 together with the League of Nations. Today it is a specialised agency of the United Nations, and one of its tasks is to help countries improve their labour statistics (Hoffmann 2000: 1).
- 3 The international family of economic and social classifications is (as its name reveals) made up of classifications regarding such matters as economics, demographics, labour, health, education, social welfare, geography, environment and tourism. They have all been registered into the United Nations Inventory of Classifications, and reviewed and approved as guidelines by the United Nations Statistical Commission or other competent intergovernmental board on these matters (Statistical Commission 1999: 1).
- 4 A similar operation has been attempted by the OECD (2000: 85). However, the distinction between white-collar and blue-collar workers is of very limited use when trying understand the nature of today's division of labour, which was illustrated already in the beginning of the seventies by Bain and Price (1972).
- 5 This way of numbering categories is a common practice in classification. It is mostly referred to as 1-, 2-, 3-, and 4-digit levels.
- 6 In Appendix I the structure of ISCO-88 is displayed together with major, sub-major, and minor group titles.
- 7 For a brief description of the ten major groups see Appendix II.

THE POST-INDUSTRIAL EMPLOYMENT STRUCTURE*

INTRODUCTION

Chapter 2 presented some notions about work and employment in post-industrial society. It was concluded that the two most prominent features of the post-industrial world of work are, first, that the absolute majority of jobs will be in the service sector and, second, that the greater part of all employed will consist of highly skilled non-manual workers. That is, the 'ordinary' or archetypal worker of post-industrial society is a well-educated service worker, in contrast to the typical manual manufacturing worker of industrial society.

Now and again it is also argued that a post-industrial development not only involves an increase in the number of highly skilled workers, but also of a concomitant increase in low-skilled and labour intensive service jobs. The result of such a development would be an increasingly polarised labour market with a shrinking middle group (Bluestone and Harrison 1988: 121). Also, in a recent publication, Esping-Andersen (1999: 96) maintains that growth in low-skill service occupations is seemingly necessary to achieve full employment: 'As servicing becomes the life-blood of our existence, privilege is bestowed upon the knowledge strata. Yet, there are huge areas of servicing which are labour intensive and low-skilled. The lower end of

*This chapter is a revised version of the chapter 'The post-industrial division of labour', in Furåker 2001.

servicing society is where we must pin our hopes for mass-employment’.

In Chapter 2, it was further contended that the long-standing notions of an inherent logic in the development of capitalist societies have partly given way to an affirmation of deep-rooted national characteristics which are not easily transformed. While not questioning the basic elements of the coming post-industrial society (i.e. the growth of services, etc.), Esping-Andersen (1990; 1993) argues that the idea of convergent trends in employment is naive since the developments in both technology and the economy are embedded in differing institutional settings. Therefore, he has put forward the idea of three qualitatively distinct ways of organising the nation state, that is, the *liberal*, the *corporatist*, and the *social democratic* welfare-state regime.

So, the classic post-industrial notion of a universal development towards a meritocracy that caters for the immaterial needs of the population has been challenged both by a polarisation thesis and by an institutional perspective that asserts divergence based on deep-rooted differences in nations’ welfare-state systems. However, our societies are constantly changing, and previous observations do not have to be valid today. Rapid technological development, economic globalisation, and a politically triggered institutional homogenisation (e.g. within the European Union) can have rather thoroughgoing consequences for the division of labour in modern societies. On the other hand, there is also the possibility that employment structures are more stable than what is sometimes assumed.

In this chapter the employment structures of Germany, Sweden, and the United States will be studied, each of them representing one of Esping-Andersen’s welfare-state regimes. The principal purpose is to locate similarities and differences in the three countries’ employment structures, and to confront these findings with the ideas of post-industrial universalism, diversification, or polarisation. To this end, the three countries’ industrial and occupational structures will be described and analysed. To begin with, employment by industry will be examined in order to analyse the alleged shift from the production of goods to the production of services. After that, the division of labour will be examined by comparing the countries’ employment by occupation. Several ways of aggregating occupations will be utilised, which should make it possible to compare the three countries’ post-industrial patterns.

THE INDUSTRIAL EMPLOYMENT STRUCTURE

Clearly, the three countries that are to be studied in this chapter differ from each other regarding a number of aspects. The most conspicuous difference is perhaps the sheer size of the countries and their populations. In 2000, Sweden had a population of slightly less than 9 million people, Germany close to 83 million, and the United States over 275 million. Germany and the United States are both federations consisting of a number of states with considerable autonomy regarding a number of matters, while Sweden has a more centralised state apparatus. These countries also differ in such aspects as labour law and legislation, the existence, size, and power of trade unions, unemployment insurance, and retirement schemes. All in all, the differences between these countries make Esping-Andersen (1990: 192) conclude that '[...] they constitute distinct representatives of our respective welfare-state/labour market regimes'.

Hence, in this study, Germany, Sweden, and the United States represent the corporatist, the social democratic, and the liberal welfare-state regime respectively. Not only Esping-Andersen has found these countries to exhibit a number of differences that make it possible to conceive of them as representatives of different systems (see e.g. Krueger and Pischke 1997; Gornick, Meyers, and Ross 1997; Korpi and Palme 1998). Even though some of these researchers present country clusters that differ from that of Esping-Andersen, none of them have placed Germany, Sweden, or the United States in the same category. This clearly strengthens the conception of them as three countries with several qualitative differences, even though they are all highly developed market economies.

Notwithstanding these differences, during the last forty years the employment structures of these countries have gone through a number of similar changes. First, the continuous growth of the educational system has meant that young people's labour force participation has decreased (in particular as year-round full-time workers), which also means that there is a growing supply of workers who have completed higher education. Second, more and more women are economically active, and today over 70 per cent of Swedish and American women are in the labour force while the participation rate for German women is approximately 10 percentage points lower. Third, the employment shares of the traditional sectors of the economy have been steadily decreasing concomitantly with an increase in service

employment. This third aspect will now be dealt with in detail.

To begin with, the evolution of employment within the three main sectors of the economy (i.e. agriculture, industry, and services) will be analysed. Let us – for the sake of the argument – consider 50 per cent employment in services a minimum requirement for a country to be regarded as post-industrial. This would, then, mean that the United States was post-industrial as early as the fifties, while, in contrast, Sweden did not become post-industrial until the early seventies, and Germany not until the beginning of the eighties. Even though the United States has been a forerunner in this development the employment trajectories have been similar in all three countries. In Table 4.1 we can see how employment in agriculture and industry has diminished and employment in services has increased. Only about 3 per cent of the working population in all three countries is nowadays to be found within the agricultural sector. In Sweden and the United States over 70 per cent is working within the service sector, and about one-fourth within the industrial sector.

Germany deviates with a rather large industrial sector employing about 35 per cent of the working population. However, this does not necessarily imply that Germany is – as Esping-Andersen (1993: 203) maintains – post-industrially under-developed, and thus lagging behind Sweden and the United States in its development. For instance, Castells, in an analysis of the G-7 countries, distinguishes two different paths of post-industrial employment:

[...] one, the Anglo-Saxon model, that shifts from manufacturing to advanced services, maintaining employment in the traditional services; the other, the Japanese/German model, that both expands advanced services and preserves a manufacturing basis, while internalising some of the service activities in the industrial sector.

(Castells 1996: 215)

Table 4.1 The distribution of employment by main industrial sector (percentages)

	Germany				Sweden				USA			
	1960	1975	1990	1998	1960	1975	1990	1998	1960	1975	1990	1998
Agriculture	14.0	7.0	3.5	2.8	14.4	6.4	3.4	2.6	8.3	4.1	2.9	2.7
Industry	48.2	45.4	39.8	34.5	42.2	36.5	39.0	25.7	33.6	30.6	26.2	23.6
Services	37.8	47.6	56.7	62.6	43.4	57.1	67.5	71.7	58.1	65.3	70.9	73.7

Sources: OECD *Labour Force Statistics*, various issues

Note: the 1960–1990 data for Germany relate to the former Federal Republic of Germany, while the data for 1998 relate to the unified Germany.

Judging from the figures in Table 4.1 Sweden (not being one of the G-7 countries) seems to be closer to the Anglo-Saxon than the Japanese/German model. Overall, it can nonetheless be maintained (at this level of analysis) that the industrial employment structures of these countries have been converging at least since the beginning of the sixties.

In order to arrive at a fuller understanding of the countries' distinctive features it is, however, necessary to take a more detailed look at the industrial employment structure. In particular, it is clear that a study of the labour force must divide the large service sector into several sub-sectors to be able to evaluate the shift towards services (Singelmann 1978: 27). The reason for this is that the service sector is extremely heterogeneous, and that some services are directed towards private consumers and other towards business organisations or other large bureaucracies. Also, it has in fact been argued that the growth of the service sector is to some extent the result of organisational changes. Obviously, many activities that in the past were a natural part of the agricultural sector have become industrialised (e.g. dairies) or a part of the service sector (e.g. transports from farms to grocery stores). Further, a great number of activities have been out-sourced from manufacturing enterprises and are nowadays labelled services (e.g. marketing and cleaning). Hence, that the industrial sector is still of greater importance for employment than what is sometimes assumed has been argued by several scholars (Cohen and Zysman 1987; Greenhalgh and Gregory 1997).

A typology of industrial sectors developed by Singelmann (1978) is appropriate for a more detailed look at services since it is both theoretically relevant and well established among social scientists. It consists originally of 6 industrial sectors and 37 intermediate industry groups (sub-sectors).¹ Theoretically, it can be related to Bell's notion that a pre-industrial sector is primarily *extractive*, an industrial sector is primarily *fabricating*, and a post-industrial sector is primarily *processing* (Bell 1976: xii).

Accordingly, the Singelmann typology begins with an *extractive* sector, which consists of agriculture, forestry, fishing, and mining (the inclusion of mining into this sector means that it is somewhat larger than the agricultural sector in Table 4.1). The second sector is called *transformative*, and it corresponds quite well to Bell's fabricating sector and the industry category in Table 4.1. Besides manufacturing also construction work and the production of utilities (i.e. electricity, gas, and water) is included in this category. Apart from these 'pre-industrial' and 'industrial' sectors Singelmann distinguishes

four service sectors. *Distributive services* are activities that have to do with transportation and communication, but also with the sale of goods and services (wholesale/retail). These services are the last in the sequence extraction-transformation-distribution and are directed towards the ultimate customer, and, as Singelmann (1978: 30) notes: 'At each stage within this sequence, the use value of the product is increased. The remaining sectors lack this sequential flow, but they do form three distinct groups of industries'.

First, the *producer services* sector consists mainly of industries that supply different types of services to other firms. Among these services we find a variety of supportive activities (e.g. financial and legal services), but also services that are concerned with property (e.g. real estate) and research and development (R&D). The emergence and growth of these types of services are partly the outcome of increasing specialisation, which implies that it has become increasingly difficult for organisations to keep within it specialists whose speciality is not in demand every day. Second, *social services* comprise both government activities and the kind of services that in many ways epitomise the modern welfare state (e.g. health care and education). These services' appearance and expansion are to a great extent the result of collective demand channelled through the political system. Finally, *personal services* are those that individuals purchase on the free market, often for recreational purposes (e.g. lodging, eating and drinking places), but also domestic and repair services, and barber and beauty shops. They cater to individual needs and their effect on employment is decided by supply and demand forces. In Table 4.2 we can see the evolution of employment within these activities from the beginning of the seventies to the end of the nineties.

To begin with, the extractive and transformative sectors' shares of employment have decreased in all countries, which is fully in line with what we observed in Table 4.1. However, it is manufacturing – being the largest category within the transformative sector – that accounts for the largest drop in employment in all three countries, while both construction and utilities have had rather stable proportions of employment throughout the period. Evidently, some industries' shares of employment seem to be relatively fixed over time, implying that the technological development can have different employment effects even in the transformative or fabricating sector. According to Singelmann's (1978: 145ff) long-term data the construction and utilities sub-sectors have actually had approximately the same shares of employment since the twenties in both Germany and the United States.

Table 4.2 The distribution of employment by industrial sector and intermediate industry group (percentages)

Industry	Germany				Sweden			USA		
	1970	1987	1998	1999	1970	1987	1999	1970	1985	1999
I Extractive	8.7	4.1	3.4	2.8	9.0	4.2	2.8	4.6	4.0	3.1
Agriculture, forestry and fishing	7.5	3.2	2.9	2.6	8.6	4.0	2.6	3.7	3.1	2.6
Mining	1.2	0.9	0.5	0.2	0.4	0.2	0.2	0.8	0.9	0.5
II Transformative	47.1	40.3	33.3	24.9	38.6	29.6	24.9	33.0	27.2	23.5
Constructive	7.7	7.1	8.9	5.5	9.9	6.7	5.5	6.0	6.5	6.9
Utilities (electricity, gas, water)	0.8	1.0	0.8	0.8	0.6	0.9	0.8	1.1	1.2	1.1
Manufacturing	38.6	32.2	23.6	18.6	28.1	22.0	18.6	25.7	19.5	15.4
III Distributive services	17.9	17.7	19.7	19.4	19.3	19.9	19.4	22.4	20.9	22.2
Transportation/communication	5.4	5.9	5.4	6.7	6.6	7.1	6.7	5.4	5.0	6.2
Wholesale/retail	12.4	11.8	14.3	12.6	12.7	12.8	12.6	17.0	15.9	16.0
IV Producer services	4.5	7.3	10.7	13.0	6.0	8.2	13.0	8.2	12.7	13.7
Banking, insurance, accounting, etc	2.7	3.4	3.5	2.1	2.0	2.1	2.1	5.0	6.3	6.3
Real estate, engineering, R&D, etc	1.8	3.9	7.2	10.9	4.0	6.1	10.9	3.2	6.4	7.4
V Social services	15.7	24.3	24.2	32.0	18.7	31.4	32.0	22.0	23.6	25.3
Medical, health, social work, etc	5.0	9.9	9.9	19.1	9.7	18.9	19.1	9.0	11.1	12.4
Education	3.0	4.9	5.5	7.8	5.0	7.0	7.8	8.5	7.8	8.4
Government	7.7	9.5	8.8	5.1	4.0	5.5	5.1	4.5	4.7	4.6
VI Personal services	6.1	6.3	8.7	7.9	8.3	6.5	7.9	10.0	11.7	12.2
Hotels and restaurants	2.8	2.7	3.2	2.8	1.7	2.1	2.8	4.2	6.3	6.4
Domestic services	0.4	0.2	0.4	--	1.4	--	--	1.7	1.2	0.7
Miscellaneous personal service	2.9	3.4	5.1	5.1	5.2	4.4	5.1	4.1	4.2	5.1

Sources: for Germany 1970 and 1987, and for the U.S. 1970 and 1985 (Castells 1996: 282ff); for Sweden 1970 and 1987 ILO LABORSTA database; for Germany 1999 *Microcensus*; for Sweden 1999 *Labour Force Survey*; for the U.S. 1999 *Current Population Survey*

The fluctuations within construction are related to business cycles and for Germany its employment has peaked during the efforts to rebuild the country after World War II and the reunification in 1990.

The distributive services sector has approximately one-fifth of employment in the three countries, and this share has been rather constant throughout the years. Today, the United States has a somewhat higher share than the other countries, which is due to its larger proportion of people working within the wholesale/retail sub-sector. Since dealing with customers is an essential part of this kind of work, most tasks performed within wholesale/retail cannot easily gain in productivity by the use of new technology or by increasing the working pace. Therefore, it is not surprising that this sub-sector's share of employment has been stable for so long.

In contrast, the producer services sector has been growing quite considerably. In 1970 it accounted for approximately between 5 and 8 per cent of employment in the three countries, while in 1998 it stood for roughly 11 per cent in Germany, 13 per cent in Sweden, and 14 per cent in the United States. These services are considered to be '[...] the strategic services of the new economy, the providers of information and support for the increase in the productivity and efficiency of firms' (Castells 1996: 211). Hence, their growth rate during this period is not surprising, and it is further interesting that the major part of this growth has taken place within activities such as engineering and R&D. Actually, they have more than doubled their share of employment in all three countries, in 1998 reaching almost 11 per cent in Sweden and about 7 per cent in Germany and the United States. Previous research has often commented on Germany's comparatively low employment share in producer services and attributed it to one of two things: either that these services are internalised within industrial establishments (Castells 1996: 212) or that German post-industrialism is actually 'sluggish' (Esping-Andersen 1990: 201). In fact, the development during the nineties can support both suggestions. Germany can either have been catching up in its post-industrial development, or German firms may simply have been outsourcing large numbers of these activities. Since this change cannot be analysed only by using industrial employment data we will return to it in the next section when discussing occupational employment data.

Besides producer services the second industrial employment category that is supposedly characteristic of the post-industrial society is social services (Castells 1996: 213). This sector has been increasing its share of employment

in all countries since 1970, but its growth has seemingly levelled off during the nineties. It goes almost without saying that the expansion of this sector has been going hand in hand with the development of the modern welfare state, which also explains Sweden's high level of employment in this category. Today, in Sweden almost one-third, and in Germany and the United States roughly one-quarter of employment is within the social services sector. The difference between, on the one hand, Sweden, and, on the other hand, Germany and the United States is almost wholly due to differences in the sub-sector that contains the lion's share of modern welfare state services (i.e. medical, health, social work, etc.). In contrast, educational activities have quite similar employment shares in all three countries, something which supports the impression of education as the social service activity with the most similar cross-national employment share (OECD 2000: 86).

Finally, the personal services sector is the smallest among the four services sectors in all three countries. In the United States it accounts for 12 per cent of employment, while in Germany and Sweden it stands for 9 and 8 per cent respectively. Since 1970 it has increased slightly in Germany and the United States, but remained fairly stable in Sweden. The sub-sector domestic services has almost been eradicated in Sweden, decreased to less than 1 per cent in the United States, and remained at a very low but stable less than 0.5 per cent level in Germany. Obviously, domestic helpers are workers that seem to be vanishing in advanced economies, at least as a measurable category of the 'white' economy. This development can be seen as a consequence of the 'cost-disease' problem, that is, that a low productivity growth in services combined with a general wage increase will eventually have the result that very few people can afford these services. According to Esping-Andersen the cost-disease problem has three possible outcomes:

First, the cost-disease may simply result in mass unemployment; the second possibility is that service jobs can be promoted via government 'subsidized' wages, primarily in the form of welfare state jobs; and the third possibility is that service employment will expand because of low wages that correspond to productivity differentials.

(Esping-Andersen 1993: 10)

Actually, our data seem partly to support the cost-disease notion. Service employment in hotels and restaurants is twice as large in the United States as in Germany and Sweden, which is the logical outcome of the more

compressed wage structure in the European countries.

To sum up, Germany is biased towards the transformative sector, Sweden towards the social service sector, and the United States has comparatively large shares of employment within producer and personal services. These patterns seemingly confirm earlier findings regarding country characteristics (Esping-Andersen 1990: 191ff; Castells 1996: 201ff). However, it is interesting to note that the differences concerning some central aspects of the industrial employment structure are considerably smaller than in the mid-eighties. The observations by Esping-Andersen and Castells (who both used data from the mid-eighties) regarding in particular Germany therefore have to be somewhat modified, since it is quite clear that Germany's large decrease in manufacturing employment since the mid-eighties (-8.6 percentage points) has brought it notably closer to the Swedish and American employment patterns. Actually, in the late nineties also in Germany employment in the two post-industrial service sectors (i.e. producer services and social services) taken together exceeds employment in the transformative sector. True, the difference is very small, but it can still be looked upon as a significant breakpoint in the evolution of German industrial employment. Thus, in Germany the employment rate in post-industrial services is 35 per cent, while the corresponding figures for the United States and Sweden are 39 and 45 per cent respectively. Hence, in this respect the difference between Germany and the United States is smaller than that between the United States and Sweden, which makes Sweden stand out as the exceptional case.

Now, if we examine each country's employment evolution since 1970 it is clear that the industrial employment structure of the United States has been comparatively stable. The transformative sector has lost 9.5 percentage points of total employment and the producer services sector has increased its share by 5.5 percentage points. Otherwise no changes exceed 5 percentage points. In contrast, in both Germany and Sweden four out of six sectors have experienced changes larger than this (extractive, transformative, producer services, and social services). Also, the German and Swedish changes have been of a greater magnitude than those in America. In both countries the transformative sector has decreased its share of employment by 14 percentage points, the social services sector has grown by 8.5 in Germany and 13 in Sweden, and the producer services sector by 6 and 7 percentage points in Germany and Sweden respectively. These observations closely echo those by the OECD (2000: 89) which argues that there is an overall tendency

towards convergence among the OECD member countries' industrial employment structures, but also that this tendency '[...] may be weakest in the social services sector, which is heavily influenced by the size of the welfare state'. Also, it is conceivable that the industrial employment structures have been affected by women's increasing participation rates. That is, the growth of services has pulled women into paid work since many service jobs traditionally have been regarded as women's jobs (Esping-Andersen 1993: 240). As a consequence, there has been an increasing demand for services such as child care, which have created even more jobs that primarily attract women. Further, the relative stability of the American industrial employment structure suggests that we have been witnessing a process during which the structures of Germany and Sweden have become increasingly similar to the American.

The recent developments seem more to be in accord with the thesis of post-industrial universalism than with the idea of institutionally generated qualitative differences in the employment structure. The changes in Germany and Sweden during the nineties testifies to an adaptability that in a way contradicts the idea of deep-rooted institutional differences. Instead, the United States emerges as the forerunner of a more or less universal post-industrial employment evolution.

So, even if the data presented above exhibit some differences between the three countries, their similarities are nonetheless more striking. If we, for instance, compare them with Turkey (with 42 per cent of employment in agriculture, 23 per cent in industry, 35 per cent in services, and a female labour force participation rate of only 30 per cent) their internal differences suddenly look quite modest, and we might indeed want to put Germany, Sweden, and the United States in one and the same category. We should not, however, too hastily discard the ideas of different welfare-state regimes or different post-industrial routes. The differences are there, but the question is rather whether they are sizeable and stable enough to warrant an explanatory institutional theory. This is undoubtedly an important question, and it will be dealt with in greater detail in the final section. Before that, however, we must make a comprehensive analysis of the occupational employment structures of the three countries.

THE OCCUPATIONAL EMPLOYMENT STRUCTURE

The original idea of a post-industrial division of labour posits a distinction between occupations that in some way or the other are based on formal or theoretical knowledge and all other types of occupations. The reason for this distinction is that post-industrial society is essentially defined as a knowledge or information society, and that control over information resources is deemed as the ultimate source of power. Therefore, when analysing an alleged post-industrial division of labour, one must assume a primary distinction between those that create, possess and/or control the knowledge/information and those that are mere receivers.

In Chapter 2 a number of views on what occupations should belong to this 'knowledge-stratum' were presented. It was contended that the professional occupations are those that primarily should constitute this elite, but also that – according to Perkin (1996: 1) – a number of other occupations ought to be included among a top occupational group that can be called the 'professional expertise' (e.g. professional bureaucrats and managers, technicians and administrators). Even though the theoretical distinctions and categories do not correspond exactly to the occupational classifications in use, it is nonetheless possible to empirically identify the rather wide occupational stratum that is supposed to dominate post-industrial society.

The empirical analyses of the three countries' occupational employment structures starts by looking at the employment evolution of the post-industrial 'elite' stratum since the beginning of the seventies. In Table 4.3 the employment shares of the seven major occupational groups of ISCO-68 are displayed. Unfortunately, both cross-nationally and temporally the comparability of these data is quite limited (see Chapter 2).² Therefore, it is wise to be rather cautious when analysing both temporal and cross-national similarities and differences. Arguably, it is, however, possible to look at these data as representing trends since several occupational groups display similar employment trajectories.

Based on the discussion in Chapter 2 it is quite obvious that the only major occupational groups that can be regarded as belonging to the dominant stratum of post-industrial society are those that consist of professionals and technicians, and managers and administrators. Since 1970 these occupations have increased their shares of employment in all four countries, which, of course, strengthens the notion of a universal development towards a post-

Table 4.3 The distribution of employment by occupation (percentages)

ISCO-68 occupations	Germany			Sweden			USA		
	1970	1980	1991	1970	1980	1990	1970	1980	1990
Professionals & technicians	10.7	18.3	17.5	19.4	26.3	29.9	14.2	16.1	16.6
Managers & administrators	2.4	3.2	3.4	2.4	2.3	2.9	10.5	11.2	12.5
Clerical	19.1	14.2	21.6	11.0	12.2	10.8	17.4	18.6	15.8
Sales	9.7	7.6	9.4	8.9	8.1	8.6	6.2	6.3	12.0
Service	10.4	12.5	11.6	12.6	13.5	15.0	12.4	13.3	13.5
Agriculture	8.7	4.8	3.7	8.0	5.6	3.3	4.0	2.8	2.9
Production & transport	39.1	38.1	32.9	37.7	32.0	29.4	35.3	31.7	26.8

Sources: for Sweden 1970 and 1980, and the U.S. all years ILO LABORSTA database; for Sweden 1990 *Population and Housing Census*; for Germany 1970 and 1991 *Year Book of Labour Statistics*; for Germany 1980 Castells (1996: 306)

industrial society *à la* Bell. There are, however, also some rather large differences between the countries. In 1970 the two top post-industrial occupational groups together accounted for only 13 per cent of employment in Germany. In contrast, in the United States these occupations constituted 25 per cent of employment already then, and Sweden was only 3 percentage points behind. If anything, these figures support the idea of Germany as a post-industrial laggard or, at least, a late starter.

In the beginning of the nineties Germany was still rather far behind the other two countries regarding the relative size of a post-industrial dominant group. With 21 per cent of employment within these occupations it had not even reached the Swedish level of 1970. Also, during these twenty years Sweden overtook the United States and reached a level of one-third of employment within the post-industrial top, while the corresponding American employment share stopped at 29 per cent. Consequently, employment within these occupations increased by 5 percentage points in the United States, 8 percentage points in Germany, and as much as 11 percentage points in Sweden. Again, we can observe that the rate of change is smaller in the United States than in the other two countries, which supports the notion of the United States as a post-industrial forerunner even though Sweden actually had a larger share of top post-industrial occupations already in 1980.

Further, agricultural occupations together with production and transport occupations have been diminishing quite considerably. These are the occupations that come closest to representing the pre-industrial and industrial societies respectively. In the beginning of the nineties the employment share of

agricultural occupations had shrunk to less than 4 per cent in all countries, and production and transport occupations to less than one-third. Also regarding these occupations the United States have been leading the way in a post-industrial development with the lowest shares of employment both in 1970 and in 1990. So, notwithstanding the rather poor quality of these data it is quite clear that the development during these twenty years has meant a continuous change from pre-industrial and industrial occupations to post-industrial symbolic analysts, professional experts, or whatever we wish to call them.

Unfortunately, there are no data available from the late nineties that are fully compatible to those in Table 4.3. However, cross-nationally comparable occupational data for 1999 have been collected, and in Table 4.4 the occupational distribution of employment is presented with the help of 9 major and 26 sub-major groups of ISCO-88(COM).

Out of the nine major occupational groups displayed in Table 4.4, groups 1, 2, and 3 can be regarded as belonging to the dominant post-industrial stratum since they contain all managerial, technical, and professional jobs. Taken together they constitute almost 40 per cent of employment in Germany, 41 per cent in Sweden, and 44 per cent in the United States. Even though these figures do not correspond fully to those presented in Table 4.3, it is nonetheless striking that occupations which have been considered by many observers to be the 'good' occupations of post-industrial society seemingly have increased their shares of employment even further during the nineties. It is also interesting that the difference between the countries is considerably smaller in 1999 than in 1990, which above all means that Germany accelerated its post-industrial development during the nineties and nearly closed the gap to the other two countries.

In the previous section it was established that Germany's industrial structure has become more similar to those of Sweden and the United States since the mid-eighties. Therefore, the apparent convergence of the countries' occupational structures does not come as a total surprise. There are also, however, three country specific deviations. The United States is characterised by its large incidence of managers, Sweden by a comparatively large share of service workers, and Germany by its many craft workers. Except for the American managerialism these differences correspond well to the country patterns that we found in Table 4.2 regarding the industrial employment structure. The changes in the German occupational employment structure

Table 4.4 The distribution of employment by occupation*, 1999 (percentages)

ISCO-88(COM) occupations	Germany	Sweden	USA
1 Legislators, senior officials and managers	6.5	4.7	11.0
11 Legislators and senior officials	0.7	0.1	0.5
12 Corporate managers	2.9	2.9	10.5
13 Managers of small enterprises	2.8	1.7	^
2 Professionals	13.0	16.0	17.2
21 Physical and engineering science professionals	4.0	3.3	3.3
22 Life science and health professionals	1.4	2.1	2.8
23 Teaching professionals	3.0	4.6	4.2
24 Other professionals	4.7	5.9	6.9
3 Technicians and associate professionals	20.0	20.0	15.3
31 Physical and engineering science associate prof.	4.4	5.8	2.7
32 Life science and health associate professionals	3.3	2.9	1.3
33 Teaching associate professionals	1.5	2.2	1.1
34 Other associate professionals	10.7	9.1	10.2
4 Clerks	12.9	10.8	13.7
41 Office clerks	11.6	8.5	9.0
42 Customer services clerks	1.3	2.3	4.7
5 Service workers and shop and market sales workers	11.6	18.4	12.8
51 Personal and protective services workers	6.9	14.0	10.2
52 Models, salespersons and demonstrators	4.7	4.4	2.6
6 Skilled agricultural and fishery workers	2.2	2.5	1.9
7 Craft and related trades workers	18.1	11.2	11.2
71 Extraction and building trades workers	7.4	5.8	4.4
72 Metal, machinery and related trades workers	7.0	4.1	5.2
73 Precision, handicraft, and related trades workers	1.1	0.5	0.7
74 Other craft and related trades workers	2.6	0.8	0.9
8 Plant and machine operators and assemblers	7.5	11.2	9.4
81 Stationary-plant and related operators	0.9	1.2	0.4
82 Machine operators and assemblers	2.8	6.1	4.9
83 Drivers and mobile-plant operators	3.8	3.9	4.1
9 Elementary occupations	8.2	5.2	7.5
91 Sales and services elementary occupations	4.1	4.5	3.3
92 Agricultural, fishery and related labourers	0.6	0.1	0.6
93 Labourers in mining, construction, etc	3.4	0.6	3.6
Totals	100.0	100.0	100.0

Sources: For Germany *Microcensus*; for Sweden *Labour Force Survey*; for the U.S. *Current Population Survey*

The ^ signifies that this figure is included in the category immediately above

*The major group Armed forces (0) is excluded from the analyses

during the nineties also supports the notion that it is a 'real' post-industrial development, and not only an outsourcing of activities from large manufacturing firms.

Even though major groups 1, 2 and 3 together account for about 40 per cent or more of occupational employment in all three countries, one must be aware that occupations which require less than tertiary schooling still dominate these countries' occupational employment structures. Clerks and service workers (major groups 4 and 5 plus sub-major group 91) make up 29 per cent of employment in Germany, 34 per cent in Sweden and 30 per cent in the United States. Also, it is definitely premature to argue that the traditional blue-collar jobs are following the agricultural occupations' path into oblivion. In fact, even when using a quite restricted definition of which ISCO-88(COM) groups that constitute blue-collar jobs (i.e. major groups 7 and 8 plus sub-major group 93) they still account for 29 per cent of employment in Germany, 23 per cent in Sweden, and 24 per cent in the United States.

Notwithstanding the overall similarities, the three countries are, however, not identical. Each of them has a specific trait that differentiates it from the other two. The United States has a large share of managers, Germany has more craft (skilled) workers than the other countries, and Sweden has a larger share of service workers. Further, Sweden and the United States have more professionals than Germany, and Germany and Sweden have more technicians and associate professionals than the United States. In order to account for these variations it is necessary to go beneath the major groups and look into the sub-major and – in some cases – the minor occupational groups.

The high incidence of managerial occupations in the United States, to begin with, is rather difficult to fully explain. Esping-Andersen (1993: 41) argues that this managerialism '[...] is partly a function of the United States' unusual reliance on managers in the manufacturing sector and partly associated with the huge consumer service economy which is so heavily characterised by small outlets'. Unfortunately, this category suffers from a very limited cross-national comparability, which is due to the differences between the occupational classification of the United States and ISCO-88(COM).³ It is not unthinkable that the way in which managerial and similar occupations are coded contribute to the United States' high figures. For instance, both ISCO-88(COM) and the American classification distinguish between mana-

gerial and supervising occupations, and supervisors are in most cases supposed to be classified together with the category of workers whose tasks they supervise. It can, however, be rather difficult to determine who is to be regarded as a supervisor or as a manager. The distinction should – according to ISCO-88 (ILO 1990: 10f) – be between jobs that are ‘[...] mainly concerned with the control of the professional or technical quality of the *work* done [and jobs which main tasks and duties] consist of planning, organising, controlling and directing the daily work activities of a group of subordinate workers [...]’. Since many jobs include both supervising and planning, organising, etc, it is not always evident what category a certain job belongs to. If, then, Americans – something which is suggested by Esping-Andersen (1990: 203) – ‘[...] harbour a unique disposition to grant even low-grade supervisors a managerial label’, this might partly explain the managerial bias of the United States. However, when looking at the detailed American occupational data we find – at least partially – some support for the notion of a huge consumer service economy as a generator of managerial positions. In fact, as much as 1.1 per cent of total employment in the United States consists of managers within food serving and lodging establishments.

Esping-Andersen has also proposed a hypothesis that builds on institutional differences between Europe and the United States:

The starting point is that the United States lacks three features common to European economies. First, its welfare state is under-developed and, as a result, fringe benefits come to figure importantly in collective bargaining and employer obligations. This calls for managers. Second, industrial relations tend to be combative, and American unions cannot, as in ‘neo-corporatist’ settings be counted on to police the rank and file. Thus, the American firm is obliged to exercise control with the aid of armies of supervisory staff. And, third, the American labour market is huge, complex, and lack both a system of labour exchanges and worker-training institutions. Hence, the corporations need talent scouts, educators, and very large personnel departments.

(Esping-Andersen 1990: 203)

Thus, we have several explanations as to why the labour market of the United States is so burdened with managers. One group of explanations accept the data and attributes them to some kind of American exceptionalism. The other type of explanation is sceptical of the validity of the data and argues that the differences between Europe and the United States can actually be

nothing but a statistical illusion. As it is, we cannot know for sure whether these data really do reflect a situation where considerably more people have 'true' managerial jobs in the United States than in Germany and Sweden.⁴

Germany's large share of craft workers is somewhat easier to account for. Essentially, it is a result of the highly regulated German system of vocational training, which encourages young people to enrol in vocational education and concomitantly serves the need of the technically advanced German manufacturing industry. This system has four main characteristics:

(1) it normally combines theoretical learning in school with practical experience at the workplace; (2) it provides highly standardised learning conditions for well-defined occupational categories; (3) it leads to a strong differentiation between unskilled and semi-skilled workers on the one hand and the occupationally trained workers on the other; and (4) it gives trained workers the opportunity to climb the job ladder, for example, as master craftsmen, technicians, semi-professionals, skilled administrators, managers, and often as technical college engineers.

(Blossfeld, Giannelli and Mayer 1993: 114)

It is a system that functions as a connection between the educational system and the labour market, thus making the transition from education to employment very smooth compared to the situation in many other countries. Also, the Skilled Worker's Certificate (*Facharbeiterbrief*) gives German craft workers great advantages on the labour market as a whole since it makes them less dependent upon internal labour markets (Lane 1993a: 68). In this respect, the labour market situation of craft workers in Germany is closer to that of professionals than that of unskilled workers. So, the craft workers constitute a comparatively privileged occupational group in Germany with high income, autonomy at work, and good promotional possibilities. In a corporative effort the state, the unions, and the employers are all supporting the system of vocational education, and by virtue of their qualifications and their sheer numbers craft workers have a relatively powerful position in the German society.

Extraction and building trades workers (sub-major group 71) and metal and machinery trades workers (sub-major group 72) dominate among the craft occupations and have approximately the same share (about 7 per cent) of employment. At a more detailed level we can observe that it is occupations such as roofers, floor layers, glaziers, plumbers, and machinery mechanics

and fitters that dominate these groups. The same pattern is discernible in Sweden and the United States, but not at the same relative size. On the other hand, Germany has a lower share of machine operators and assemblers (sub-major group 82), which can be looked upon as the semi-skilled equivalent to metal and machinery trades workers. Again, this testifies to the weight of craft occupations and the importance of vocational education in Germany.

The large share of service workers in Sweden is a direct consequence of the sizeable Swedish welfare-state. Personal and protective services workers (sub-major group 51) constitute 14 per cent of employment, which is 4 percentage points more than in the United States and twice the size of this category in Germany. The uniqueness of Sweden does not, however, become clear until we take a closer look at the occupations that dominate within this category. In Sweden personal care workers (i.e. people who take care of children, the elderly, or the sick either in institutions or at home) make up over 9 per cent of employment, while in the United States these jobs account for only 3 per cent, and in Germany no more than 2 per cent. The most common jobs in the United States within the category personal and protective services workers are housekeeping, restaurant and related personal services with 5.5 per cent of employment, while in Germany and Sweden these jobs make up only 3.5 and 2 per cent respectively.

Service jobs in Sweden are to a great extent concentrated within the social-welfare complex, and are scant outside of it. In the United States comparatively many people have occupations such as cooks, waiters, housekeepers, and hairdressers, that is, jobs that are created by consumer demand on the market. Germany has its own pattern with rather few market oriented personal service workers, and even fewer welfare-state personal service workers. These patterns are intimately connected with women's labour market participation and behaviour, something which will be elaborated at length in Chapter 5.

The professional occupations constitute 16 and 17 per cent of employment in Sweden and the United States respectively, while Germany lags a bit behind with 13 per cent. However, Germany has the largest share of physical, mathematical and engineering science professionals (sub-major group 21), which strengthens the impression of Germany as being somewhat more 'industrial' than the other two countries. Also, within this sub-major group there are two dominant minor occupational groups, which are more or less representative of the old and the new (post-industrial) economies

respectively. On the one hand, architects together with engineers within mechanics, chemistry, mining, etc, and, on the other hand, computing professionals (i.e. computer systems designers, analysts and programmers). Sweden has the largest share of computing professionals, the United States comes second, and Germany has only one-third of the Swedish share. Concerning architects and engineers the country order is reversed with Germany having three times as large a share compared to Sweden, and the United States still in between. Germany's labour market for engineers is biased towards 'traditional' engineering, Sweden's towards computing, and the United States takes a middle position.

Regarding the proportion of employment within the three remaining sub-major professional groups Sweden and the United States are clearly ahead of Germany. Health professionals (i.e. medical doctors, dentists, veterinarians, etc), teachers, and, in particular, business professionals (e.g. accountants) all have larger shares of employment in Sweden and the United States than in Germany. Again, this testifies to the more industrially oriented occupational structure in Germany compared to the Swedish and American more welfare and business oriented structures.

A similar pattern is possible to discern concerning major group 3 (technicians and associate professionals). Germany and Sweden have a considerably larger share of technicians than the United States, but it is within the occupational group other associate professionals (sub-major group 34) the most interesting differences are to be found. The three countries all have between 9 and 11 per cent of employment in this group, but differ quite markedly at a more detailed level. For both Sweden and the United States the largest group of occupations within this category is finance and sales associate professionals (e.g. insurance and sales representatives, estate agents, buyers, and travel consultants). In the United States and Sweden these occupations constitute almost 8 and 5 per cent of employment respectively, while in Germany they represent less than 3 per cent. With 4 per cent of total employment, administrative associate professionals is Germany's largest group of occupations within the category other associate professionals. It consists of occupations which to a great extent are to be found within large bureaucracies (e.g. administrative secretaries⁵ and bookkeepers). These figures further strengthens the picture of Germany as a society that is organised in a more traditional industrial manner than the other two countries.

When summarising the picture of the three countries occupational struc-

tures we can see that – in spite of a general similarity with a majority of non-manual or white-collar jobs and a large proportion of jobs that require some kind of tertiary education – there are some country specificities which can only be accounted for by each country's institutional arrangements. First, the most conspicuous trait is Sweden's extremely large share of care workers, which is more than three times larger than in the other countries. This is the result of an outspoken policy of the Swedish social democratic welfare-state regime, that is, a strong commitment to collective services. This policy is perhaps best illustrated by the ambition to provide public day care for all children between one and six years of age (Gornick, Meyers and Ross 1997: 58).

Second, Germany is characterised by a large share of craft workers (which is the result of the historical cooperation between the state, the unions, and employers concerning vocational education), and another specific trait can be said to be the *lack* of public care services. The corporatist welfare-state regime of Germany encourages families to take care of the caring functions themselves, which, of course, affects women's labour force participation and, consequently, the demand for care services.

Third, at the outset it was noted that the primary characteristic of the United States is its high managerial density (something which already has been discussed and questioned above), but the more detailed analysis has also revealed an equally interesting trait. Within the two sub-major groups other professionals and other associate professionals we found that the United States has large shares of business professionals and finance and sales associate professionals. Together, these occupational groups make up over 11 per cent of employment, while their corresponding shares in Sweden and Germany are about 7 and 4 per cent respectively. The scant commitments of the American liberal welfare-state regime can partly explain this difference. For instance, in the absence of comprehensive public insurance systems of the Swedish or German type, the field is open for private insurance companies that make use of a large cadre of insurance salesmen and representatives.

POST-INDUSTRIAL POLARISATION

In this section, the patterns of the alleged post-industrial occupational polarisation and its national characteristics will be analysed. In order to accomplish

this a classification created by Esping-Andersen will be used. It was constructed with the purpose of comparing the degree and character of post-industrialism, and it consists of two hierarchical orderings of occupations building on what he perceives to be the main differences between an industrial (Fordist) and a post-industrial division of labour:

In one set, we group those [occupations] that represent the traditional industrial division of labour; in the second, we group those that are representative of the 'post-industrial' division of labour. For each set, we can then classify occupations according to their place within the hierarchy that is symptomatic of the kind of division of labour that obtains; that is, we distinguish between a fordist industrial hierarchy and a post-industrial hierarchy.

(Esping-Andersen 1993: 24)

It is important to note that both hierarchies co-exist in today's societies. However, if a society is following the path towards post-industrialism we ought to observe a growth of post-industrial occupations concomitant with a decrease in the occupations of the Fordist hierarchy.

In a six-nation comparison Esping-Andersen, Assimakopoulou, and van Kersbergen (1993) have studied the evolution of the two hierarchies' employment shares from the beginning of the sixties to the mid-eighties. In Table 4.5 their figures for Germany, Sweden, and the United States have been supplemented with occupational data for 1999.⁶

Clearly, the overall pattern of a continued post-industrial development persists. In all three countries the primary and Fordist occupations have decreased their share of employment, while the occupations within the post-industrial hierarchy have been increasing constantly throughout the period. However, it is interesting to note that Fordist occupations still dominate not only in Germany (which was not totally unexpected), but also in the United States. Within the Fordist hierarchy the manual occupations have been the primary employment losers. In Germany they have decreased their share of total employment by 12 percentage points, and in Sweden and the United States by 17 and 11 percentage points respectively. In contrast, the non-manual Fordist occupations (i.e. managers and clerical/sales) have actually increased their employment shares slightly in both Germany and Sweden, and decreased quite marginally in the United States. So, the major changes within the Fordist hierarchy have concerned the manual occupations, and – for Sweden and the United States – in particular the unskilled manual

Table 4.5 The distribution of employment by occupation, 1960-1999 (percentages)

	Germany			Sweden			USA		
	1960	1985	1999	1960	1980	1999	1960	1988	1999
Primary occupations*	14.3	5.2	2.8	13.6	4.4	2.6	6.5	3.1	2.5
Managers	3.3	4.5	6.5	4.7	4.0	4.7	7.8	9.1	11.0
Clerical/sales	22.7	29.6	21.6	16.1	18.6	16.8	23.3	28.3	17.1
Skilled manual	25.3	17.3	18.1	18.6	15.2	11.2	13.2	8.7	11.2
Unskilled manual	16.1	16.5	10.9	21.6	12.4	11.8	21.6	14.4	13.0
Fordist occupations	67.4	67.9	57.1	61.0	50.2	44.5	65.9	60.5	52.3
Professional	2.9	6.6	13.0	2.7	7.3	16.0	5.4	8.8	17.2
Semi-professional	4.9	10.7	16.0	8.9	14.6	18.4	6.2	9.3	14.5
Skilled service	1.7	5.0	3.6	4.3	4.4	4.0	4.2	6.6	4.9
Unskilled service	8.7	4.5	7.5	9.5	16.9	14.5	11.9	11.7	8.6
Post-industrial occupations	18.2	26.8	40.1	25.4	43.2	52.9	27.7	36.4	45.2

Sources: sixties and eighties data for all countries Esping-Andersen, Assimakopoulou and van Kersbergen (1993: 39f); for Germany 1999 *Microcensus*; for Sweden 1999 *Labour Force Survey*; for the U.S. 1999 *Current Population Survey*

*Farmers, fishermen, etc.

jobs which today are only slightly more numerous than the skilled manual occupations. This development has meant that the prototypical industrial worker (i.e. operators and assemblers) at the beginning of the new millennium constitute only about one-tenth of all workers in these countries.

Within the post-industrial hierarchy the growth has almost exclusively taken place among the professional and semi-professional occupational groups. Since 1960 they have (taken together) increased their share of total employment by more than 20 percentage points in all three countries. Thus, today they make up about 29 per cent of employment in Germany, 32 per cent in the United States, and 34 per cent in Sweden. The notion of a post-industrial polarisation caused by equal increases in both the top and the bottom of the post-industrial hierarchy receives little support. Actually, unskilled service jobs have decreased their employment share in both Germany and the United States. Also, the proportion of skilled service jobs has been quite stable, stopping at less than 5 per cent of employment in all three countries in 1999. This echoes the conclusion of Esping-Andersen, Assimakopoulou, and van Kersbergen (1993: 53) that '[...] the trend favours the higher-grade occupations such that the shape of the post-industrial hierarchy

is biased towards the top and the middle, rather than the bottom'. Obviously, the trend that was observed when using data from the sixties and the eighties has continued up till the end of the century, implying that the prophecy of a universal post-industrial occupational polarisation has yet to be warranted.

Overall, when using this classification scheme, Sweden stands out as the most post-industrialised country of the three today, and it is primarily its comparatively large incidence of unskilled service workers that makes the difference. The prime factor behind Sweden's large share of unskilled service workers is a publicly financed and organised care system for children and the elderly. Interestingly, the Swedish case is the only one that shows signs of a post-industrial polarisation. However, since the absolute majority of unskilled service jobs in Sweden are within the public sector, they are not to be confused with the so-called 'MacDonalds proletariat', which – according to some observers – is supposedly growing exponentially today (Lash 1994: 120). Rather, they can be regarded as the actual backbone of the Swedish encompassing welfare state since they provide the basic and central services that are the prerequisite for the existence of the social democratic welfare-state regime (Esping-Andersen 1999: 111). However, temporary and part-time employment are more common within the public than the private sector in Sweden today (Håkansson 2001: 48). Therefore, there are certainly unskilled service workers within the Swedish public sector that are subject to a rather precarious employment situation.

Now, does this classification really reflect the shifting character of work in industrially advanced countries? The question is whether the Fordist and post-industrial hierarchies have been operationalised in a way that is consistent with the most common post-industrial propositions. Obviously, there must be a number of occupations that cannot be said to belong either to a Fordist or to a post-industrial hierarchy. Why, for instance, must an unskilled service worker (e.g. a window cleaner) necessarily be regarded as a part of a post-industrial labour market? And why should occupations like the legal and medical professions that have existed during the whole industrial era suddenly be regarded as post-industrial? Even such a clear-cut Fordist occupation as a tool-maker might be conceived of as post-industrial if the tools that are manufactured are primarily for automation (labour reducing) purposes. These are relevant questions for all occupational classifications, and not only for Esping-Andersen's typology. The problem is that practically all occupational data are collected and organised in accordance with some type

of official or standard occupational classification, and none of these has the distinction between industrial and post-industrial occupations as a basis. Approximations are, however, possible to make, which means that some occupational groups might be considered as being 'more' post-industrial than others (e.g. health care professionals).

A more valid critique of Esping-Andersen's typology is that it considers managers as a part of the Fordist hierarchy. The reason for this is that he sees professionals and managers as more or less antithetical:

The professional is, indeed, the antithesis to hierarchy and a Fordist system of regulation. In sum, if scientific expertise is emerging as a new and dominant source of power, rewards and status identification that stands in contrast to traditional ones, the managers and professionals may be divided by more than 'situs' differences.

(Esping-Andersen 1993: 13)

This is quite contrary to many of the views that were accounted for in Chapter 2. In particular Perkin (1996: 7) who includes managers among the 'professional expertise' and argues that the dominant professions in the new society will be '[...] the corporate managers and state bureaucrats'. If managers were to be included in the post-industrial hierarchy in Table 4.5, the proportion of post-industrial occupations in 1999 would be 47 per cent in Germany, while the United States and Sweden would have 56 and 58 per cent respectively. Obviously, this changes the previous impression and makes Germany stand out as the exceptional case with a dominance of Fordist occupations.

SUMMARY AND CONCLUSION

The observations of this chapter can be summarised quite easily. First, the industrial employment structures of the three countries display a considerable degree of similarity. Even though Germany has a relatively large employment share within the transformative sector, Sweden has more people employed within care services than the other two countries, and the United States has a comparatively large incidence of employment within the producer and personal services, the primary impression is still that these countries have more in common regarding their industrial employment structures than

what sets them apart. Undoubtedly, they have become increasingly similar since the mid-eighties, and the most persistent difference seems to be found within the social services sector where employment to a great extent is decided by the obligations of the welfare-state (e.g. regarding public child care).

Second, it was also observed that the occupational employment structures of Germany, Sweden, and the United States have several basic similarities. In all three countries occupations that can be regarded as the dominant occupations of post-industrial society stand for about 40 per cent or more of total employment. Clerks and service workers make up between 29 and 34 per cent of employment, and traditional blue-collar jobs account for 23 to 29 per cent of employment. With the help of rather detailed occupational data some quite distinct country traits were identified. Germany has a comparatively large share of occupations that mostly are to be found within manufacturing firms and large bureaucracies, Sweden is characterised by a very high proportion care workers, and the United States by many managers and large shares of business, finance, and sales workers. So, even though these countries display rather similar occupational structures, it has nonetheless been possible to find some qualitative differences.

Third, comparing with Esping-Andersen's result from the mid-eighties, the 'upgrading' of the occupational structure seems to have continued throughout the nineties. Depending on whether managers are included in the Fordist or post-industrial hierarchy, different conclusions can be made. If managers are Fordist, it is possible to argue that the transformation into a post-industrial society is still very much under way, and that only Sweden can currently boast a dominance of post-industrial occupations. On the other hand, if managers are post-industrial, also the United States must be regarded as being 'occupationally' post-industrial. In that case, Germany can be considered as either a 'post-industrial laggard' or as following a different post-industrial trajectory. The only sign of a developing polarisation is to be found in Sweden within the post-industrial hierarchy. However, most unskilled service occupations in Sweden are located in the realm of the welfare state, and many among them cannot be regarded as belonging to a secondary or peripheral sector. This is also the only really conspicuous indication of an occupational diversification based on differences in the countries' institutional characteristics.

Now then, what do these observations tell us about the post-industrial division of labour? Do they primarily support notions of universalism,

diversification, or polarisation, or perhaps some combination of these possible scenarios. First of all, it must be concluded that the main findings unequivocally point in the direction of a more or less universal development in the industrial and occupational employment structures of advanced Western economies. The three countries that have been studied constitute distinct representatives of the three welfare-state regimes, and should, accordingly, generate '[...] three qualitatively different employment structures' (Esping-Andersen 1990: 192). Germany, Sweden, and the United States were chosen for this study precisely because their distinct welfare-state traits supposedly should preserve their characteristic employment structures. There are surely some traits that undoubtedly are welfare-state related, for instance Sweden's high share of care workers and Germany's high share of craft workers. On the other hand, the similarities are, in my view, much more persuasive than the differences. Hence, judging from the data presented in this chapter, the employment structures of these countries can hardly be considered as 'qualitatively different' in the late nineties. In my view, the differences are quite simply too small, and regarding a number of the most important post-industrial aspects the trend has been towards greater similarity. In the end, it all comes down to how much weight you are willing to accord to certain similarities or differences. So, there is clearly an element of subjective interpretation involved in whether to argue for or against the welfare-state hypothesis.

Since the most conspicuous employment changes have taken place among the post-industrial industries and occupations, and because women concomitantly have increased their participation in paid work, it is not a far-fetched guess that an evolution towards a post-industrial employment structure to some extent coincides with women's increasing labour force participation. Hence, the gender dimension ought to be a central aspect of a post-industrial division of labour, and this discussion will be the focus of next chapter.

NOTES

- 1 Due to the fact that data from the three countries were not exactly comparable (different ways of classifying and different levels of aggregation) the 37 intermediate groups have been collapsed into 15 groups.

- 2 The main comparability problem is that these countries have not used classifications that are fully compatible with ISCO-68 during the whole period from 1970 to 1990. Different original classifications and several revisions of these classifications have had the result that the figures presented in Table 4.3 are not fully comparable, neither cross-nationally nor over time in a single country.
- 3 On the sub-major group level ISCO-88(COM) distinguishes between three occupational groups: legislators and senior officials (11), corporate managers (12), and managers of small enterprises (13). Corporate managers manage enterprises or organisations with 10 or more employees, while managers of small enterprises manage enterprises or organisations with 0-9 employees (Elias and Birch 1993). The American classification does not single out managers of small enterprises, which render impossible any deeper analysis.
- 4 Historical data from the Bureau of Labor Statistics show that the major occupational group consisting of executives, administrators and managers (which is not the equivalent of the ISCO-88 major group 1) has grown from 11.4 per cent in 1985 to 14.5 per cent in 1998. Maybe this growth can support the notion of a large executive/managerial stratum in the United States.
- 5 Administrative secretaries should not be confused with 'ordinary' secretaries, who belong to sub-major group 41. The tasks of administrative secretaries are wider and most occupations within the public service that are not specialist public service jobs are included in this category (Elias and Birch 1993: 23).
- 6 Again it must be emphasised that there is a limited temporal comparability regarding these data. On the other hand, the comparability between the countries' data for 1999 is quite satisfactory.

The Fordist and post-industrial hierarchies are operationalised by Esping-Andersen (1993: 24f) in the following way:

1 The fordist hierarchy:

- (a) managers and proprietors (includes executive personnel and the 'petit bourgeoisie');
- (b) clerical, administrative (non-managerial) and sales workers engaged in basically routine tasks of control, distribution and administration;
- (c) skilled/crafts manual production workers, including low-level 'technical' workers;
- (d) unskilled and semi-skilled manual production workers, also including transport workers and other manual occupations engaged in manufacture and distribution, such as packers, truck drivers, haulers, and the like.

2 The post-industrial hierarchy:

- (a) professionals and scientists;
- (b) technicians and semi-professionals (school teachers, nurses, social workers, laboratory workers, technical designers, etc.);

- (c) skilled service workers (cooks, hairdressers, policemen, etc.);
- (d) unskilled service workers, or service proletariat (cleaners, waitresses, bartenders, baggage porters, etc.).

The data for 1999 are based on the 1-, 2-, and 3-digit levels of ISCO-88(COM) and transformed into the above classification in the following way:

	<u>ISCO-88(COM) occupational groups</u>
Primary occupations	6 + 92
Managers	1
Clerical/sales	4 + 52 + 343
Skilled manual	7
Unskilled manual	8 + 93
Professionals	2
Semi-professionals	3 – 343
Skilled service	5 – 52 – 512/2 – 513
Unskilled service	91 + 512/2 + 513

THE SEXUAL DIVISION OF LABOUR

INTRODUCTION

One of the most prominent features of all societies is the sexual division of labour. This division has, however, varied over time and around the world (Reskin and Padavic 1994: 15). Consequently, the way in which men and women are allocated to certain tasks is not predetermined by some kind of natural sexual propensities. Nevertheless, the basic pattern of sex segregation is similar across the world (Anker 1998: 47ff). Men are primarily breadwinners while women have the main responsibility for the home and for the care of children, and even though women have become more and more involved in paid work during the last decades this pattern is largely unchanged. This persistence of gender differences regarding unpaid work inside and paid work outside the family is mostly regarded as being the result of individual dispositions and/or structural constraints, and it has also been argued that the way in which women's work has evolved cannot simply be equated with the logic and development of men's work:

The progress of women's work is like none other in the labour market. It cannot be understood as an isolated market responding to economic factors, as most other economic variables can. Rather, it is tied, as is each woman, to the home, the family and the process of socialisation, and is linked by each woman to her past and her future through the life cycle.

(Goldin 1990: vii)

Consequently, also within the sphere of paid work we find specific patterns of a sexual division of labour. One common observation is that the increased incidence of women in paid labour '[...]' means that in modern capitalism the "worker" has two prototypes rather than one: the male, blue-collar worker of industrial capitalism and the post-industrial, female service worker' (Clement and Myles 1994: 243). Hence, the feminisation of the labour force has not meant that women who enter paid work are evenly distributed into a set of pre-existent 'male' occupations. Instead, concomitantly with the growth in women's labour force participation a great number of new service jobs which primarily have attracted women have come into existence. It has thus been argued that the post-industrial labour market is largely feminine since '[...] post-industrial jobs are often natural female jobs (requiring, indeed, many traditional female social skills) that once were performed exclusively within the family' (Esping-Andersen 1993: 240). So, a labour market with a fair share of women differs not only quantitatively but also qualitatively from one that is dominated by men.

That men and women to a great extent have different types of jobs is mostly referred to as horizontal sex segregation. To this, we can add vertical sex segregation, which means that '[...] men are working in higher grade occupations and women in lower grade ones' (Dex 1987: 10). Further, another feature of vertical sex segregation is that men more often than women are to be found in higher positions (i.e. as supervisors and managers) within the same occupation. The overall patterns of horizontal and vertical sex segregation are not new findings, and they have been well documented in empirical research for several decades (Jonung 1984; Rubery and Fagan 1993; Melkas and Anker 1997; Anker 1998; Neramo 1999). However, in cross-national research it has been established that different welfare-state arrangements produce different labour market outcomes for the sexes (Esping-Andersen 1990; Lane 1993b; Clement and Myles 1994; Chang 2000). It is argued that social, economic, and cultural tokens of different countries have considerable effects on the sexual division of labour. So, notwithstanding the overall cross-national similarity regarding sex segregation, some specific country characteristics can also be identified.

But why should we be concerned with occupational sex segregation? Is it not simply the result of all vocational choices working of men and women, thereby reflecting the population's set of occupational preferences? Unquestionable, this is part of the story, but there is certainly more to it than that:

It [occupational sex segregation] is a major source of labour market rigidity and economic inefficiency. Excluding a majority of workers from a majority of occupations, as at present, is wasteful of human resources, increases labour market inflexibility, and reduces an economy's ability to adjust to change. [...] Furthermore, occupational segregation by sex is detrimental to women. It has an important negative effect on how men view women and on how women view themselves.

(Anker 1997: 315)

Thus, occupational sex segregation is not only a question of what people have chosen to do for a living, it also has consequences for the functioning of the labour market, for the economy as a whole, and for women's vocational possibilities and self-image. Arguably, the total eradication of sex differences in the labour market is impossible, and it has been contended that occupational sex segregation actually helps to protect some women from the competition from men in a number of occupations (Anker 1998: 9).

The focus of this chapter is the sexual division of labour in Germany, Sweden, and the United States. More specifically, it is the sex segregation within the occupational structure that will be studied, or, in other words, the number and sex of incumbents in occupational groups will help to outline the extent and patterns of these countries' sexual division of labour. To begin with, the section following this introduction will give an account of the patterns of men and women's labour force participation in the three countries, since it is quite probable – in accordance with the discussion above – that the extent to which women are economically active is affecting the occupational structure. The next and main section of the chapter is an in-depth study of occupational sex segregation. The primary purpose of this chapter can also be phrased as a question: Are the occupational employment patterns of men and women in different countries related to specific welfare-state arrangements?

LABOUR FORCE PARTICIPATION

Above it was noted that women's labour force participation has been increasing during the last decades. However, at the same time the participation rates of men have been declining, and together these two trends have resulted in a convergence of men and women's labour force participation. In Figure

5.1 we can follow the three countries' trajectories of the sexes' participation rates during thirty years.

Since the mid-sixties, the proportion of men who are active on the labour market has decreased quite considerably in Germany and Sweden (over 14 and 13 percentage points respectively), while, in contrast, the participation rate of American men is only about 2 percentage points lower in 1998 than it was thirty years ago. As a result, at the end of the nineties the United States had the highest male participation rate of the three countries with 86 per cent, while Germany and Sweden were a bit behind with 80 and 77 per cent respectively. Concerning women's labour force participation the first thing to notice is of course its considerable growth during this period. In Germany women increased their participation rate by more than 14, in Sweden by about 17, and in the United States by as much as 26 percentage points. The result of this growth is that today a majority of women are in the labour force in all three countries. Sweden has the highest rate with 73 per cent, the United States is rather close with 71 per cent, while Germany lags behind with 63 per cent. A deviation from the continuous female growth pattern is that the participation rate of Swedish women dropped during the nineties. However, this fall took place during a very deep recession, and it started from an all time high level of female labour force participation of over 80 per cent.

Disregarding this anomaly, it is quite clear that a common trend in these countries has been that women to an increasing extent take up paid work. Together with men's decreasing participation rates this means that the gap between the sexes' labour market activity has been closing constantly during the last thirty years. At the end of the nineties, this gap is only 5 percentage points in Sweden. Notwithstanding the impressive growth rates of women in Germany and the United States, the gap between men and women's labour force participation is still quite large with over 15 percentage points in both countries. So, even though the participation rate trajectories have been common to the three countries during the last thirty years, there are still some noticeable differences. However, a thorough analysis of similarities and differences requires that we take some other aspects into account.

Age, to begin with, is something which can be supposed to have a considerable impact upon people's economic activity. For instance, many young people are involved in education instead of work, and since the length of compulsory education has increased and more and more people attend

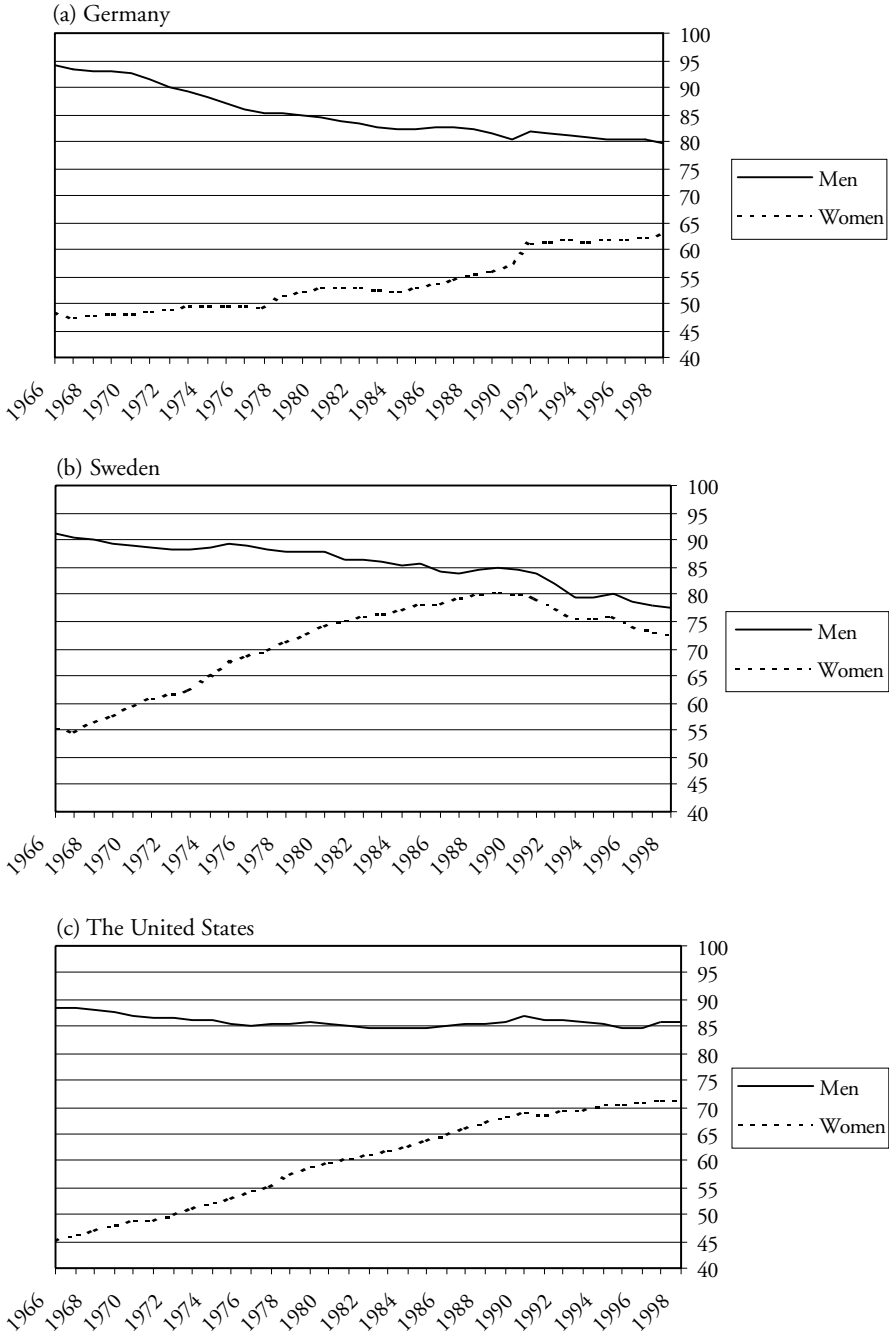


Figure 5.1 Labour force participation for men and women
 Sources: OECD Labour Force Statistics, various issues

tertiary education (college and university level) the participation rate of youngsters should have decreased. Further, quite many people leave the labour market (voluntarily or involuntarily) when they get older, something which ought to increase during a recession or during a period of radical changes in the world of work. Thus, it is conceivable that patterns of labour force entry and exit change quite considerably over time. Therefore, in the following the trajectories of the participation rates of three age-groups will be displayed: sixteen to twenty-four year-olds, twenty-five to fifty-four year-olds, and fifty-five to sixty-four year-olds.

First, among prime-age people (i.e. twenty-five to fifty-four years of age) men have a very high participation rate, and it has changed only marginally during the last thirty years (Figure 5.2). In the mid-sixties, over 95 per cent of all prime-age men in all three countries were in the labour force, and not once during the period up till 1998 the participation rates have gone below 90 per cent. In 1998 they were a few percentage points lower than in the beginning of the period, but, all things considered, this age-group undoubtedly displays a remarkable cross-national similarity and temporal stability. Neither thirty years of rather thoroughgoing changes in the world of work and the labour market, nor the emergence and existence of different welfare-state regimes have obviously had any decisive effects on prime-age men's labour market behaviour.

For prime-age women, on the other hand, the participation rate trajectories are very different from those of prime-age men. In all three countries their participation rates have been increasing quite dramatically. Germany and the United States both display a growth of 30 percentage points, while Sweden is slightly behind with an increase by 28 percentage points. However, from 1966 until the beginning of the recession in 1991 Swedish prime-age women's participation rate grew by more than 33 percentage points. During five years (1987 to 1991) it was actually stable just above 90 per cent, but – as a consequence of the recession of the nineties – it fell back to around 85 per cent in 1998. In Germany, the participation rate for prime-age women made a sudden jump with 8 percentage points between 1990 and 1991. This abrupt change in an otherwise rather constantly increasing participation rate is explained by the reunification of Germany in 1990. Interestingly, German and American prime-age women had exactly the same participation rate in 1966 (46 per cent), and in 1998 the difference is almost negligible with approximately 76 per cent for both Germany and the United States.

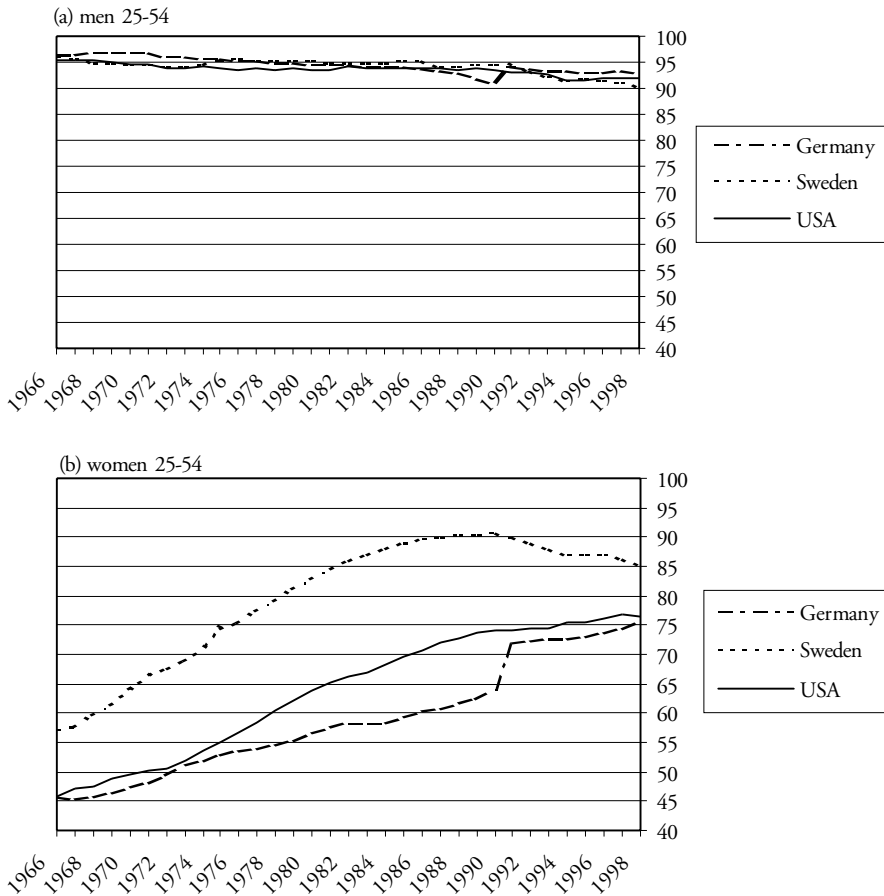


Figure 5.2 Labour force participation for men and women 25-54 years of age
 Sources: OECD *Labour Force Statistics*, various issues

Perhaps the most interesting aspect of prime-age women's participation trajectories is the persistent difference between, on the one hand, Germany and the United States, and, on the other hand, Sweden. Already in 1966 a larger share of Swedish than German and American prime-age women were in the labour force. Back then, the difference was about 12 percentage points, and in 1998 it was nearly 10. Around 1986/1987 the difference was at its largest with a gap of almost 20 percentage points to American and 30 to German women. This means, of course, that the participation rate for prime-age women in Sweden during all these years has been considerably closer to

Swedish prime-age men than what is the case in Germany and the United States. Hence, at the end of the nineties, the difference between Swedish prime-age men and women was only 5 percentage points, while the corresponding differences for Germany and the United States were about 17 and 15 percentage points respectively.

The data that have been presented hitherto seem to be in line with some of the notions that have been mentioned above. If we are already in – or perhaps on the verge of entering – a post-industrial society, then the labour force participation of an absolute majority of women (in particular prime-age women) must undoubtedly be considered as a chief characteristic of this kind of society. Also, when taking into account prime-age men's extremely high and stable participation rate, we might even be tempted to argue that the continuous feminisation of the labour market is actually what a process of post-industrialisation is all about. Esping-Andersen's model of three distinct welfare-state regimes also receives some support. The high participation rate for Swedish women can be interpreted as the result of active interventions by a social-democratic regime type. That is, that a larger proportion of Swedish women have the possibility to stay in the labour force when they have children than what is the case in the other two countries. These are, however, somewhat premature conclusions. Therefore, we will leave this discussion for now and come back to it further below in the text.

The participation trajectories of youngsters give us further information about the three countries' specific characteristics. In Figure 5.3 we can see that young men and young women within each country have fairly similar labour market behaviour, but that there are rather large cross-national differences.

In Germany, to begin with, both young men's and young women's participation rates have been decreasing quite substantially. In 1966 a clear majority (more than two-thirds) of German youngsters were in the labour force, while in 1998 this was true for only about half of them. Further, the two sexes' participation trajectories are almost perfectly parallel throughout the period with women having a constant 6 to 9 percentage points lower participation rate. In Sweden, the story begins in much the same way as in Germany, but the sexes' trajectories converge in the beginning of the eighties and follow an almost identical path until 1998. Until 1990 the participation rate of young men is rather stable at approximately 70 per cent, and for young women it actually increased by 10 percentage points. Again, it is the

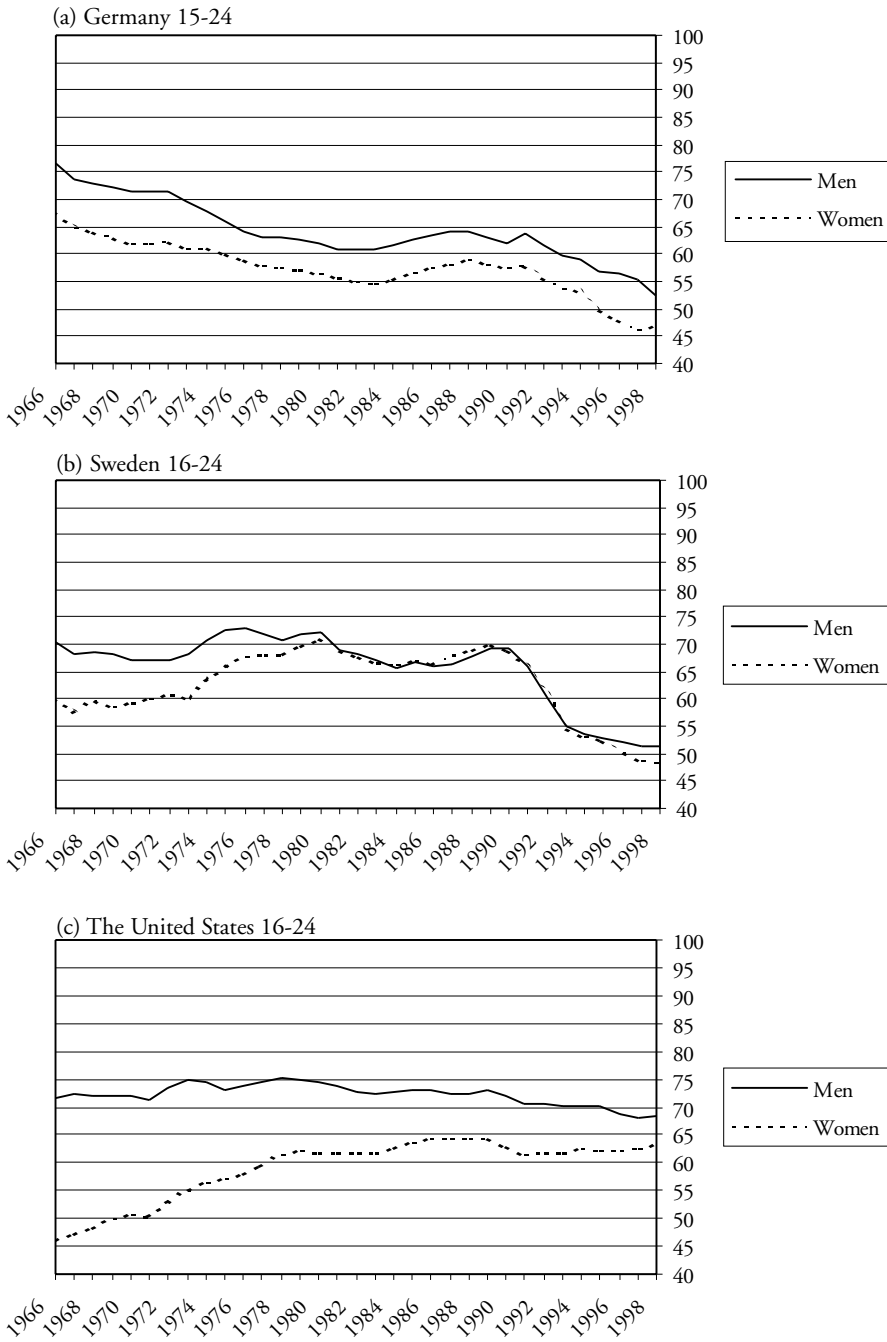


Figure 5.3 Labour force participation for men and women 15/16-24 years of age
Sources: OECD Labour Force Statistics, various issues

recession in the nineties that makes the big difference, resulting in a 20 percentage points drop in labour force participation for both sexes in less than ten years. So, both in Sweden and Germany only about 50 per cent of this age-group were the labour force in 1998. The participation trajectories of young American men and women differ considerably from those of the German and Swedish youngsters. In the United States young women's participation rate has increased by more than 20 percentage points during the period and exceeded 63 per cent in 1998. For young men the participation rate is virtually unchanged throughout the period, ending slightly below 70 per cent in 1998. There is, however, one feature that is common to the three countries, that is, that in 1998 the difference between young men's and young women's labour force participation was quite small.

These different trajectories are not that easy to explain. During this period there has been a strong increase in all three countries regarding the share of the population that have attained either secondary or tertiary education. Actually, in 1996 well over 80 per cent of the population between twenty-five and thirty-four years of age had completed at least upper secondary education (OECD 1996: 15). The rise in the number of years in schooling ought to result in falling labour force participation rates for sixteen to twenty-four year-olds, something which is true only for Germany. The only reasonable explanation of this discrepancy is that many young people combine education with paid work. This is a feature of especially American full-time college students, among whom 53 per cent in 1993 worked, on average, twenty hours per week (Rones, Ilg and Gardner 1997: 5).

For the oldest age-group (i.e. fifty-five to sixty-four year-olds), the development during the last thirty years is rather different compared to the other groups. There are also some quite distinct country patterns (Figure 5.4). The situation for older workers in the three countries was quite similar at the outset of the period. In the mid-sixties more than 80 per cent of the men between fifty-five and sixty-four years of age were in the labour force in all three countries. Swedish and American women in this age group had a participation rate of about 40 per cent, while the rate for German women was roughly 10 percentage points lower. From this point in time and onwards we find a number of different trajectories however. German men, to begin with, decreased their participation rate by 30 percentage points to just 55 per cent in 1998. For German women in the same age-group, the participation rate fluctuates around 30 per cent during the whole period. The parti-

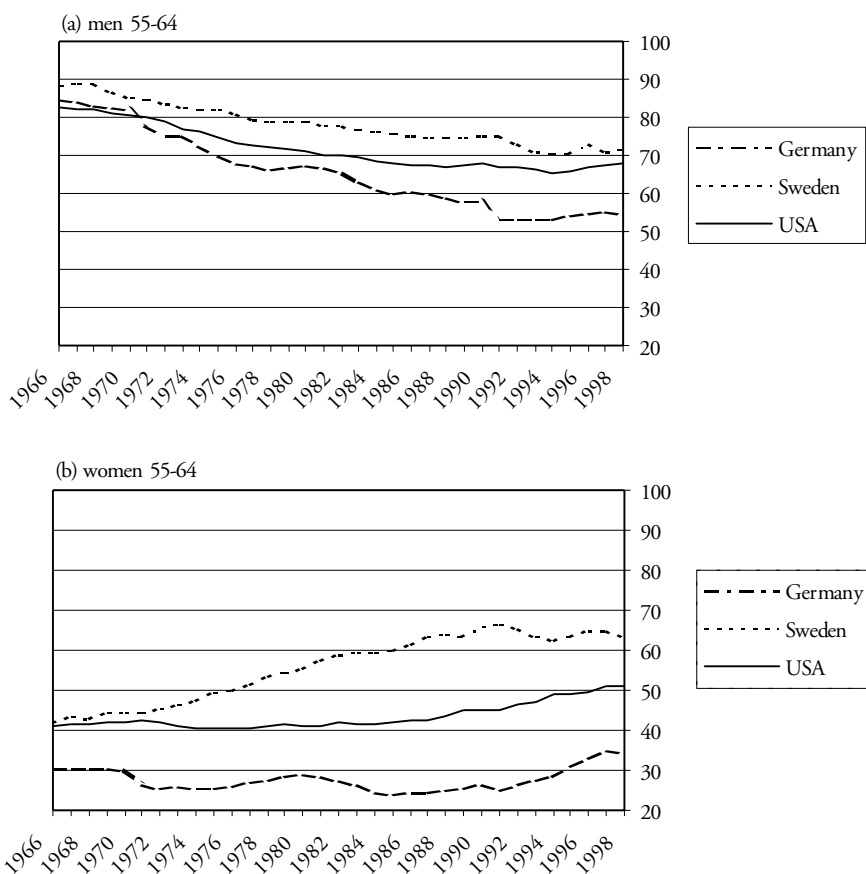


Figure 5.4 Labour force participation for men and women 55-64 years of age
Sources: OECD Labour Force Statistics, various issues

participation trajectories for Swedish and American older male workers are similar, they both display a falling participation rate by approximately 25 percentage points and ends in 1998 at about 70 per cent. American women in this age-group display a rather stable participation rate, even though it grew by 10 percentage points from 1980 to 1998. In Sweden, however, older women workers' participation rate increased by more than 20 percentage points, stopping at close to 65 per cent in 1998.

Obviously, Germany deviates markedly from the other countries regarding the participation rates of older workers of both sexes. The constantly

decreasing incidence of older male workers in the labour force is the consequence of a deliberate government policy: 'Germany has been a leader in the use of early retirement schemes for purposes of reducing labour supply and aiding industrial reorganisation' (Esping-Andersen 1993: 35). An increase in early retirees is also the probable cause for the fall in older men's participation rate in Sweden and the United States, but they are still a far cry from the way in which the German rate has been declining. The rather constant and low participation rate of older women workers in Germany is the combined effect of the early retirement policy and the institutionalised discouragement of women's labour force participation. The increased incidence of older women workers in Sweden is quite simply a result of the fact that the constantly growing female work-force has been getting older, and that they to a great extent – in contrast to older women workers in Germany – stay in the labour force until normal retirement age. The same is true for the older women workers in the United States, but not to the same extent as in Sweden.

Now, having covered a considerable part of what can be said about men and women's labour force participation in connection to age, the next aspect to consider is part-time work. As a consequence of women's increasing labour force participation the dual-earner family has become the norm in many countries, and also maternal employment has increased markedly (Gornick, Meyers and Ross 1997: 46; Hayghe 1997: 42). Nonetheless, the man in the dual-earner family is in most cases the 'primary earner' while the woman 'contributes' to the family economy as a 'secondary earner' (Clement and Myles 1994: 153). This pattern is the combined effect of several features. For instance, men's higher earnings and the traditionally larger domestic responsibilities of women. As a consequence, women are to a greater extent than men employed on part-time contracts, the patterns of which are displayed in Table 5.1.

From 1987 to 1998 the proportion of part-time workers overall has increased by well over 5 percentage points in Germany, while it has decreased in Sweden and the United States by about 3 and 1 percentage points respectively. Even though men have increased their share of part-timers in Germany and Sweden, women still constitute a clear majority within this category with 84 and 78 per cent respectively. American men, on the other hand, make up a respectable 32 per cent of all part-timers. In all three countries part-time jobs constitute only a limited proportion of men's jobs

Table 5.1 Part-time employment* (percentages)

	Germany		Sweden		USA	
	1987	1998	1987	1998	1987	1998
Part-time as % of employment	11.0	16.6	16.9	13.5	14.4	13.4
Male share of part-time employment	9.4	15.9	15.2	21.9	31.7	32.0
Female share of part-time employment	90.6	84.1	84.8	78.1	68.3	68.0
Part-time as % of male employment	1.7	4.6	4.9	5.6	8.6	8.2
Part-time as % of female employment	25.4	32.4	29.8	22.0	21.0	19.1

Sources: OECD *Labour Force Statistics*, 1999 edition

*Part-time employment refers to persons who work less than 30 hours per week in their main job.

(clearly below 10 per cent), while as many as one-third of German and one-fifth of Swedish and American women are part-timers. Further, in Germany the share of women with part-time jobs has increased, while the development in Sweden and the United States has gone in the other direction. Thus, we find a distinct difference between the sexes' work-time patterns, but also marked differences between the countries.

It goes almost without saying that the pattern of part-time work in a society is the result of a complex interplay between social, cultural, economic, and institutional phenomena. It would be going too far trying to account for everything that can affect work-time patterns, so therefore a couple of examples will have to do. It has been argued that the high labour force participation rate of Swedish women is directly correlated to an equally high proportion of female part-time workers (Clement and Myles 1994: 182). The idea is, of course, that in families with children women have the primary responsibility for the reproductive work, which make them more prone to work part time than men. Thus, the choice for many women is not between full-time or part-time work, but between part-time work or no paid work at all. This notion does not, however, fit well with the data presented in Figure 5.2 and Table 5.1. In 1998 German prime-age woman had the lowest participation rate of the three countries, but also the highest proportion of women in part-time jobs. Sweden had 10 percentage points more women in the labour force, but 10 percentage points less were part-timers. On the other hand, in 1987 we actually do find – compared to the other countries – a correspondence between a high rate of part-time employment and a high participation rate for Swedish women.

A possible explanation of these inconclusive findings is that the relation between women's part-time employment and labour force participation is mediated by the status of women in dual-earner families. That is, in a society in which men generally are considered as 'primary earners' and women as 'secondary earners', an increase in women's labour force participation will also mean an increase in the proportion of female part-timers. Consequently, in a dual-earner society in which the distinction between primary and secondary earners no longer has any meaning (at least in connection to a specific sex), we should find no correlation whatsoever between women's participation rate and their part-time work (all else being equal). Actually, in Sweden and the United States it is possible that we might be witnessing a development in which more and more women (in particular the young and well educated) are turning away from the role as secondary earners.

Another possible mediating factor in the relation between women's labour force participation and work-time patterns is the extent to which it is possible to combine full-time work with having children. Gornick, Meyers and Ross (1997: 60ff) have studied employment-supportive policies for women in fourteen OECD countries, and one interesting finding is that Sweden and the United States rank highest regarding policies for mothers with school-aged children, while Germany ranks last. The reason for this is that both Sweden and the United States have long weekly school-hours and continuous and regular school schedules. On the other hand, the United States ranks last regarding policies for mothers with children under six, while Sweden and Germany ranks third and eight respectively. These findings correspond quite well to the participation rates and work-time patterns of women in the three countries, indicating that welfare-state arrangements must be considered when trying to account for people's labour market behaviour.¹

Not only do we find occurrences that affect the patterns of part-time employment. These patterns can, in turn, have a number of consequences. For instance, people who work part time have, all else being equal, not the same opportunity for advancement as their colleagues who are working full time. Consequently, in societies where women dominate part-time employment they should also be comparatively rare as supervisors and managers. However, the effect of such a pattern of part-time work can be partly offset by specific patterns of sex segregation. That is, if women cluster in certain occupations and a rather large proportion of them work part time now and again (e.g. when they have small children), then part-time work as such will

not necessarily be detrimental to their career possibilities. Women who, on the other hand, work in male dominated occupations have better follow the common full-time pattern if they aspire to reach higher positions.

So far, we have seen that one of the major differences between our three countries is whether or not women are active on the labour market. To fully explain why women choose – or possibly are forced – to be active or not is a question that is far beyond the scope of this chapter.² However, a number of researchers have convincingly shown that people's choices on such matters to a considerable extent are directed by the existence and scope of such features as the right to and length of maternity leave, state subsidised child care, and legislated job protection (Esping-Andersen 1990; Gornick, Meyers and Ross 1997; Korpi and Palme 1998). On the other hand, we have also noted that the countries have been converging regarding the sexes' labour force participation, which means that the differences between men and women are much smaller today than what they were in the mid-sixties. Also, some kind of correspondence between women's part-time work and type of welfare-state regime was identified (possibly in connection with the cultural-laden status of women's work in general). So, even if the treatment of men and women's labour force participation patterns has been far from exhaustive, it has nonetheless highlighted a number of similarities and differences that will be helpful in the analyses to come.

If we try to connect the findings hitherto to the notion of a post-industrial development, it is quite obvious that women's economic activity must be considered as a crucial part of this. It can be argued that as more and more women enter the labour force there will be a concurrent rise in the demand for those services that women traditionally have provided for free within the marriage (e.g. child care), which, of course, will increase the number of people performing these services for a salary. On the other hand, it can also be argued that a growth of some services increases female labour force participation simply because a growing demand for labour – all else being equal – will mostly affect those in society that are available and willing to take up work (during the last decades this has primarily been women). Quite possibly, there is a reciprocal relation between women's participation rate and the number of persons who perform certain kinds of jobs, but – no matter what way the relation primarily works – there is one factor that seems to be all important:

The increasing market value of women's time is the primary cause of the growth of both private and state provided household services throughout the world. Rising wages and work opportunities for women have increased the cost of staying home and producing household services oneself, and have decreased demand for it: fertility has declined at the same time that labour force participation of women has increased in most countries.

(Rosen 1996: 734)

Taking Sweden as example, Rosen (1996: 737) argues that the active intervention by the state (e.g. by subsidising child care) results in a situation where women work '[...] for each other for taxable pay needed to help finance the subsidies that induce them to work for each other in the first place'. Agreeing with Rosen that some jobs are the result of a supply creating its own demand (especially concerning child care), Jonung (1997) maintains that the changing patterns of women's economic activities are foremost the outcome of large-scale social changes, and that the majority of tasks performed by women on the labour market are related to the functioning of a technically advanced and modern society, and not simply (as Rosen will have it) a 'monetised' household sector.

OCCUPATIONAL SEX SEGREGATION

In this section the occupational sex segregation of the three countries will be studied at several levels and from different angles in order to arrive at a comprehensive picture of the similarities and/or differences that can be disclosed. This strategy is recommended by Hakim (1992: 132) who argues that given the '[...] multi-faceted nature of occupational segregation arguably a variety of measures is needed to capture its structure, trends, and cross-national differences of interest'. Before this, however, there will be a short presentation of some theoretical notions as to why men and women are to be found within different occupations.

It is possible to classify theories that can explain occupational sex segregation '[...] into three broad categories: neo-classical and human capital theories; institutional and labour market segmentation theories; and non-economic and feminist or gender theories' (Anker 1997: 316). First, the neo-classical/human capital model builds on the assumption that both workers and employers are rational beings who always choose the course of

action that will give them the best possible outcome. However, workers choices are directed not only by the remuneration of the job in question, but also by a number of non-pecuniary factors such as educational attainment, responsibility for children, and preferences for different types of jobs. Accordingly, women are acting rationally when they choose jobs which will make it possible for them to carry out the household work that is still today mainly their responsibility, while it is rational for men to choose jobs that maximise the monetary rewards since they still are the primary breadwinner. Employers also choose men or women for different jobs since they perceive them to differ regarding productivity. The sum total of workers and employers' choices then constitute men and women's occupational structures.

Second, institutional and labour market segmentation theories are based on the assumed premise that institutions such as welfare-state arrangements, unions, and large enterprises have a considerable influence on labour market outcomes. For instance, the public commitment to gender equality and full employment is an institutionalised trait of the Scandinavian social democratic welfare states. This will lead not only to the creation of a number of jobs facilitating women's labour force participation, but also to the clustering of women into certain occupations (Hansen 1997: 85). There is also the notion of the labour market being divided into two or more segments (e.g. a primary segment containing good jobs and a secondary segment harbouring bad jobs) with limited movement between them. According to this theory, the good jobs in the primary segment are first and foremost granted men since they can be supposed to display a more continuous and stable labour market behaviour, something which attracts employers who need qualified personnel that stay with the company for long periods of time.

Third, feminist and gender theories concentrate on factors outside the labour market that are the causes behind the sexual division of labour. The main line of argument is '[...] that women's disadvantaged position in the labour market is caused by, and is a reflection of, patriarchy and women's subordinate position in society and the family' (Anker 1997: 324). The consequence of this is a sex stereotyping of men, women, and occupations, which causes a clustering of men into 'male' occupations and women into 'female' occupations. The resulting occupational structure can be seen as '[...] an important "institutional filter" through which macro-level changes impact upon interpersonal relationships' (Crompton and Harris 1998: 300). That is, the way in which occupations are distributed in society affects

people's views on what occupations are appropriate for men and women respectively. Feminist and gender theories differ from neo-classical/human capital theories and institutional/labour market segmentation theories in that they seek to explain the actual mechanisms behind men and women's labour market behaviour. For instance, the former theories take preferences as given (something that does not need to be explained), while the latter can explain why men and women prefer different types of jobs (i.e. the origin of preferences). Also, gender theories contribute to explain why employers prefer men or women for different jobs even though their physical and mental qualifications for performing the job in question are equal.

All theories have in common that they point to some general patterns of occupational segregation by sex. For example, women ought to outnumber men in caring occupations, while men should dominate in high status and managerial occupations. Also, the institutional arrangements of different welfare-state regimes ought to give rise to different country patterns regarding the extent and occurrence of occupational sex segregation.

In the following these patterns will be studied in detail, which will make it possible to discuss the sexual division of labour from a solid empirical base. However, to disclose the nature of sex segregation it is necessary to have access to rather detailed data: 'The more aggregated the categories across which segregation is measured, the less segregation we will capture' (Reskin 1993: 243).

Thus, to be able to account for the full extent of sex segregation in the labour market it is necessary to perform case studies of specific occupations. Not even the most detailed level of ISCO-88(COM) with its 372 occupational groups is detailed enough for such a venture.³ This does not mean, however, that studies on higher levels of aggregation are uninteresting or meaningless. We just have to be rather cautious with the claims we are making. For instance, it would be misleading to argue that there is no sex segregation in Sweden among professionals just because this major group has an equal sex distribution. This is something we can see in Table 5.2 which shows the proportion of women within major and sub-major ISCO-88(COM) occupational groups.

If we, to begin with, direct our attention to the 9 major groups we find both some similarities and some differences. First, in all countries women constitute the majority in clerical and service occupations, but they are, at the same time, a very small minority in traditional industrial jobs, particularly

Table 5.2 Women's share of occupational employment, 1999 (percentages)*

ISCO-88(COM) occupations	Germany	Sweden	USA
1 Legislators, senior officials and managers	24.0	29.0	40.9
11 Legislators and senior officials	4.0	38.2	51.1
12 Corporate managers	19.5	26.7	40.4
13 Managers of small enterprises	33.7	32.3	^
2 Professionals	36.8	50.7	53.0
21 Physical and engineering science professionals	14.3	24.1	20.1
22 Life science and health professionals	40.9	63.2	66.1
23 Teaching professionals	58.8	61.9	66.8
24 Other professionals	40.9	52.5	55.0
3 Technicians and associate professionals	58.0	47.2	50.9
31 Physical and engineering science associate prof.	24.9	15.6	38.4
32 Life science and health associate professionals	81.6	84.4	83.3
33 Teaching associate professionals	79.4	88.8	92.0
34 Other associate professionals	61.4	45.3	45.6
4 Clerks	68.5	72.0	79.2
41 Office clerks	67.6	68.3	78.2
42 Customer services clerks	76.6	85.7	81.1
5 Service workers and shop and market sales workers	75.4	78.5	61.2
51 Personal and protective services workers	71.3	83.4	64.3
52 Models, salespersons and demonstrators	81.4	63.1	48.8
6 Skilled agricultural and fishery workers	32.4	25.3	18.5
7 Craft and related trades workers	9.7	6.3	8.9
71 Extraction and building trades workers	5.0	2.5	2.5
72 Metal, machinery and related trades workers	4.5	4.5	6.2
73 Precision, handicraft, and related trades workers	32.7	26.2	48.2
74 Other craft and related trades workers	27.1	29.6	32.8
8 Plant and machine operators and assemblers	15.7	18.5	26.1
81 Stationary-plant and related operators	7.4	10.4	4.0
82 Machine operators and assemblers	33.3	28.0	41.0
83 Drivers and mobile-plant operators	4.9	5.9	9.9
9 Elementary occupations	53.9	66.6	34.5
91 Sales and services elementary occupations	67.7	70.7	50.2
92 Agricultural, fishery and related labourers	64.0	25.8	23.5
93 Labourers in mining, construction, etc	35.5	39.5	21.8
Totals	43.6	48.0	41.5

Sources: For Germany *Microcensus*; for Sweden *Labour Force Survey*; for the U.S. *Current Population Survey*

The ^ signifies that this figure is included in the category immediately above

*The major group Armed forces (0) is excluded from the analyses

among craft workers. This overall pattern is well-known and something which these three countries share with most other economically advanced countries (Reskin 1993: 247; Reskin and Padavic 1994: 60; Neramo 1997: 93). Also, women's proportion of occupations that have high status and/or is only attainable via higher education (i.e. major groups 1-3) is about 46 per cent in all three countries. Thus, it is possible to talk about an overall cross-national pattern of occupational sex segregation. Second, in the United States a larger share of women work as managers than in the other countries. Third, among professionals and technicians and associate professionals men and women have approximately equal shares of employment in Sweden and the United States, while in Germany women are under-represented within the former group and over-represented within the latter. Fourth, in Germany and Sweden women are in majority among the elementary occupations, while they constitute a minority in the United States.

These highly aggregated data do not, however, convey especially much information on the nature of sex segregation and its national characteristics. Many of the major occupational groups are simply too heterogeneous to be useful in this kind of analysis, and as a result of the use of highly aggregated data most '[...] cross-national research to date has underestimated the extent of, and perhaps variation in, sex segregation' (Rosenfeld and Kalleberg 1991: 208). In this respect, to use the 26 sub-major occupational groups is considerably more enlightening. To begin with, we can see that the more or less equal sex distribution of some major groups hides a considerable sex segregation among the sub-major groups. For instance, among the professional occupations in Sweden and the United States one group (physical and engineering science professionals) is heavily male dominated (more than 75 per cent), two groups (life science and health professionals and teaching professionals) have a clear female over-representation (more than 60 per cent), and one group (other professionals) is slightly dominated by women. Even though women are less numerous among professionals in Germany overall, we find a pattern similar to the other two countries regarding sex segregation among the four sub-major groups. Hence, our observations of sex segregation among the major groups become considerably modified when using more detailed data.

The same phenomenon is observed within major group 3 (technicians and associate professionals). A rather equal overall sex distribution hides considerable variations among the sub-major groups. Not surprisingly, in

all countries men are in majority within the technical occupations, while women are equally dominating among life science, health, and teaching associate professions. This pattern closely resembles that among the professional occupations, and now we can begin to make out the contours of these countries' occupational sex segregation. Obviously, women not only dominate clerical and service occupations, they also outnumber men in a number of life science, health, and teaching occupations. It is also interesting to note that women constitute a sizeable proportion among handicraft occupations (sub-major groups 73 and 74), machine operators and assemblers (sub-major group 82), and labourers in mining, construction, etc. (sub-major group 93).

Besides this pattern of overall similarity, some specific country characteristics can be found at this level of aggregation. In Germany there are extremely few women among legislators and senior officials (only 4 per cent). In contrast, women in the United States make up a slight majority in this category, and Swedish women are not far behind with a share of almost 40 per cent. German women are also under-represented among corporate managers with a share just below 20 per cent. In this category, Swedish women constitute a slightly higher proportion (about 25 per cent), while the data do not allow for a comparison with the United States. Further, within the major group service workers sub-major group 52 (models, salespersons and demonstrators) is heavily dominated by women in Germany (over 80 per cent). Also Swedish women constitute a majority in this category, while men and women in the United States are very close to being equal in size. The situation is very similar concerning sales and service occupations within the major group elementary occupations. So, judging from what is possible to discern at this level of aggregation, it seems as if American men and women are more evenly distributed across the occupational structure than what is the case in Germany and Sweden. Also, German women constitute a considerably lower share than Swedish and American women among the managerial and professional occupations.

Undoubtedly, the use of sub-major instead of major ISCO-88(COM) occupational groups is a great step forward in the endeavour to disclose the 'true' nature of occupational sex segregation. However, sex segregation is often hidden within occupational groups even at this level of aggregation. Since the data-set also contains data on a number of minor occupational groups it is possible to analyse the sex segregation within the sub-major

level. Here, just a few examples that illustrate the main point of the argument will be presented.

First, in Sweden and the United States women are in majority among the life science and health occupations. A closer look reveals that it is the massive domination of women among the nursing professionals that explains this dominance. Among the high status health professionals (i.e. medical doctors, dentists, and veterinarians) men are still more numerous than women. Second, women dominate among the teaching professionals in all countries, a dominance which is, however, most pronounced among primary and pre-primary teachers. Among the secondary teachers there is only a slight female majority, while men dominate the college and university teacher category. Third, the sub-major group other professionals displays a rather equal sex distribution, particularly in Sweden and the United States. Within this category we find both legal professionals and social science professionals, and – maybe not surprising by now – considerably more men than women work as lawyers or judges while women are more numerous among social scientists. These examples are very illustrative. Not only do highly aggregated occupational groups hide sex segregation, they also hide the fact that men are more likely than women to be found within high status occupations. Hence, the extent and degree of both horizontal and vertical occupational segregation by sex seemingly increase with the use of more detailed data.

Another way of illustrating this phenomenon is to rank order men and women's occupations (Table 5.3).⁴ A close look at Table 5.3 reveals two interesting features. First, the notion of a cross-national structure of occupational sex segregation is further strengthened since the sexes' occupational top lists are quite similar in all three countries. Men have four and women five occupations out of ten common to their top lists. For men, building, technical, financial, and driving occupations are the common denominator, while for women it is clerical, caring, nursing, and serving occupations. These differences also confirm the observation of the prototypical male blue-collar worker and female service worker. Second, in Germany and Sweden men and women have only one occupation in common (other office clerks in Germany and finance and sales workers in Sweden), while in the United States three out of men and women's ten most frequent occupations are common to the sexes. American men and women both have finance and sales workers as their top occupational group, and the other two occupations they have in common are both among the top six. A third interesting feature

Table 5.3 Top 10 occupations (minor groups) for each sex (percentages)

Germany			
Men		Women	
Building workers	10.0	Salespersons and demonstrators	8.7
Motor vehicle drivers	6.0	Other office clerks	8.5
Architects and engineers	4.7	Administrative workers	6.6
Machinery mechanics and fitters	4.6	Cleaners and launderers	5.6
Technicians	4.2	Care workers	4.6
Metal workers	3.3	Secretaries	4.4
Finance and sales workers	2.8	Nurses	4.4
Other office clerks	2.6	Restaurant workers	4.2
Manufacturing labourers	2.1	Customs, tax and related workers	2.9
Material-recording clerks	2.1	Numerical clerks	2.9
Sweden			
Men		Women	
Building workers	9.4	Care workers	17.7
Technicians	6.9	Primary, pre-primary teachers	6.8
Motor vehicle drivers	6.7	Cleaners and launderers	6.2
Finance and sales workers	5.8	Other office clerks	5.3
Machinery mechanics and fitters	3.4	Nurses	4.5
Computing professionals	3.0	Finance and sales workers	3.5
Assemblers	2.3	Secretaries	2.8
Business professionals	2.1	Administrative workers	2.2
Architects and engineers	1.6	Numerical clerks	2.2
Metal workers	1.6	Restaurant workers	2.2
USA			
Men		Women	
Finance and sales workers	7.9	Finance and sales workers	7.5
Building workers	6.9	Secretaries	7.1
Motor vehicle drivers	6.7	Restaurant workers	5.8
Restaurant workers	3.8	Care workers	5.7
Architects and engineers	2.9	Cashiers	4.9
Business professionals	2.5	Business professionals	4.4
Salespersons and demonstrators	2.5	Nurses	4.1
Electricians	2.3	Numerical clerks	3.4
Building caretakers and cleaners	2.3	Client information clerks	3.3
Computing professionals	1.7	Primary, pre-primary teachers	2.8

Sources: For Germany *Microcensus*; for Sweden *Labour Force Survey*; for the U.S. *Current Population Survey*

is the quite extreme share of Swedish women who are working as care workers, almost 18 per cent. In sum, occupational sex segregation follows roughly the same pattern in all three countries even though it seems to be more pronounced in Germany and Sweden than in the United States. In order to follow up this line of reasoning we will now examine the sexes' occupational structures separately.

In order not to blur things it is necessary to introduce a distinction between segregation and concentration. Sex segregation denotes the share of men and women respectively in an occupation, while concentration denotes the share of the total male/female workforce in an occupation (Rubery and Fagan 1993: 21). Hence, the figures on women's shares of occupational groups presented in Table 5.2 exemplify occupational sex segregation, while the figures in Table 5.3 are examples of men and women's occupational concentration. So, the occupational structures of men and women that are displayed in Figure 5.5 show the occupational concentration of men and women respectively. Of course, when comparing them one also gets a notion of the patterns of sex segregation, but primarily it illustrates the occupational concentration of the sexes.

Figure 5.5 is based on each sex' distribution of employment among the twenty-six sub-major ISCO-88(COM) occupational groups. It is quite clear that the male workers of these countries display rather similar patterns of occupational concentration, and even though there are some quite large cross-national differences regarding women's occupational concentration the similarities are nonetheless more striking. In all three countries women are heavily concentrated to the white-collar occupations (sub-major groups 11-52+91). Of all employed women, 88 per cent in Germany, 93 per cent in Sweden, and 90 per cent in the United States have white-collar occupations. Men, on the other hand, are more evenly distributed. In Germany 44 per cent of the male working population have blue-collar occupations (sub-major groups 71-83+93), while the corresponding figures for Sweden and the United States are 39 and 37 per cent respectively. This, then, is the big picture. But there are, to be sure, some deviations well worthy a comment or two.

First, the managerial occupations in the United States constitute a large share of both sexes occupational structures. Even though the high overall proportion of managers can be questioned, it is still interesting to note that managerial occupations make up close to 10 per cent of all female jobs. In

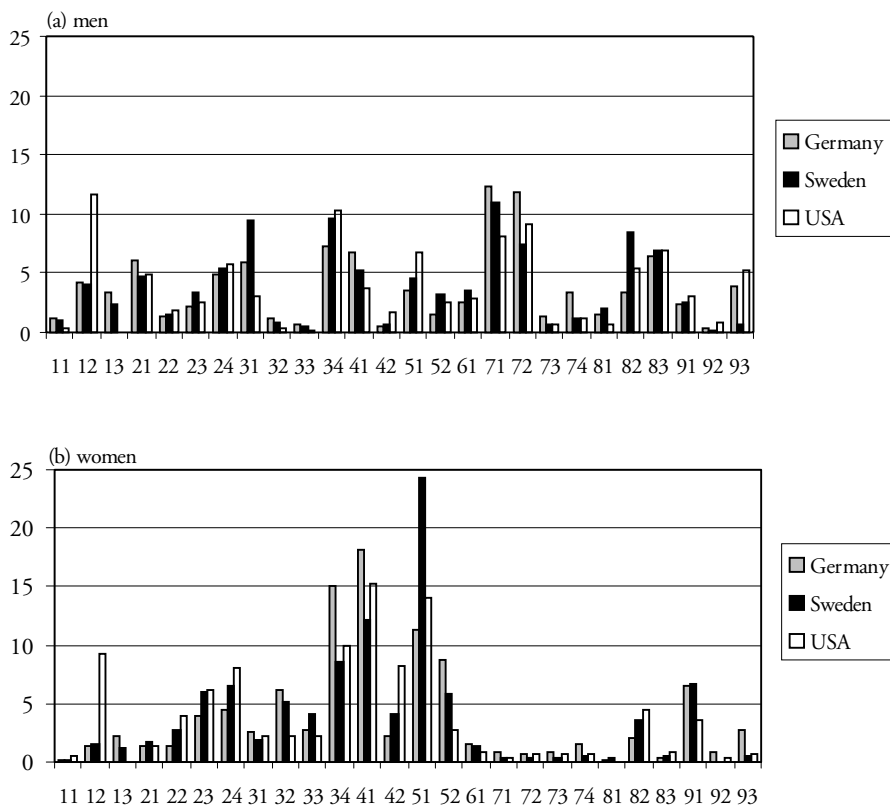


Figure 5.5 Men and women's occupational structures

Sources: For Germany *Microcensus*; for Sweden *Labour Force Survey*; for the U.S. *Current Population Survey*

this respect, both Germany and Sweden are far behind the United States. Second, in Sweden and the United States men and women have equal shares of employment among other associate professionals (sub-major group 34), and in the United States among sales and services elementary occupations (sub-major group 91). Thus, once more it seems possible to conclude that the sexual division of labour is somewhat less salient in the United States than in Sweden and Germany.

Further, there are some country and gender specific characteristics to be observed. First, in Germany men have a very strong position in the craft occupations, which is the combined effect of the German industrial structure,

the specificities of the corporatist welfare state, and the system of vocational education. Second, German women are to a great extent to be found within administrative, secretarial, and clerical occupations. This pattern is partly due to the comparatively low labour force participation rate of German women, which is a consequence of the corporatist welfare-state regime type. Third, in contrast to the German pattern, almost one-fourth of all working women in Sweden are working with personal services, in particular as care workers. This is, of course, wholly due to the policies of the social democratic welfare-state regime.

So far, the analyses have primarily revealed two features. First, an overall cross-national similarity of both sex segregation and concentration, and, second, some indications of somewhat less segregation and concentration in the United States compared to the other two countries. However, the measures we have been using hitherto do not capture the overall levels of occupational sex segregation and concentration, something which can only be done with the help of some kind of summary measures. The obvious advantage of using summary measures is that they can sum up the situation in just a few figures, while the equally apparent disadvantage is that they are totally void of detail. Therefore, such measures should preferably be used in conjunction with detailed data of the type that have been presented above.

There exists a number of more or less elaborated summary measures which all have their pros and cons (different measures are presented and discussed by Jonung 1984: 45ff; Hakim 1992: 130ff; Charles and Grusky 1995; Anker 1998: 68ff; Neramo 1999: 18ff). Here some rather straightforward and easily interpreted measures that highlight the country differences will be used. The first one (S) measures the proportion of segregated occupations, that is, the share of occupations that consists of more than two-thirds of either men or women. The second measure (D) is the index of dissimilarity, which is the most commonly used summary measure of sex segregation. It measures the distribution of two groups within a set of categories, and represents the proportion of men or women that must change occupations to achieve a perfectly sex integrated labour market. If D equals zero we have a perfectly equal distribution of men and women in every occupational group, while a D that equals 100 tells us that each occupational group consists of only men or women. Since highly aggregated occupational data obviously hide aspects of sex segregation, D has been calculated for both nine (D1) and twenty-five (D2) occupational groups. The third measure shows the

concentration of men (CM) and women (CW) in the occupational structure. Jonung (1984: 47) calls this a concentration index ‘[...] since it measures the degree to which women [or men] are concentrated and segmented from the rest of the labour force rather than the degree of segregation of men and women to different occupations’. Its interpretation is similar to that of the dissimilarity index, that is, that it gives us the proportion of men or women that must change occupation in order to make men or women’s occupational structure correspond to that of the total labour force. All three measures are similar in that high numbers indicate high levels of sex segregation or concentration.

In Table 5.4 the aforementioned impression of a less sex segregated American labour market is corroborated since the United States scores lowest on all segregation measures. The proportion of sex segregated occupations in the United States is 20 and 16 percentage points lower than in Germany and Sweden respectively. Also, the scores on both the 1-digit and 2-digit dissimilarity index are markedly lower in The United States than in the other two countries. Further, both American men and women have lower concentration rates than their German and Swedish counterparts. Table 5.4 does, however, contain more information than the observation of a distinct difference between the United States on the one hand, and Germany and Sweden on the other hand.

First, the difference between D1 and D2 clearly illustrates the importance of data’s level of detail. By increasing the number of occupational groups from nine to twenty-five, the index of dissimilarity increases by approximately 10 percentage points, and if we had access to even more detailed occupational

Table 5.4 Occupational sex segregation and concentration (percentages)

	S	D1	D2	CM	CW
Germany	76.0	41.8	49.6	21.6	28.0
Sweden	72.0	38.5	49.9	23.9	25.9
United States	56.0	32.9	40.6	18.2	21.8

S = the proportion of sex segregated occupations; D1 = 1-digit dissimilarity index; D2 = 2-digit dissimilarity index; CM = concentration index for men; CW = concentration index for women.

Note: D1 is based on calculations using 9 major ISCO-88(COM) occupational groups, while S, D2, and C are based on 25 sub-major ISCO-88(COM) groups. D is defined as $D = \frac{1}{2} \sum m_{it} - f_{it}$ where m_{it} and f_{it} refer to the male and female proportion employed in occupation i in year t respectively. CM is defined as $C = \frac{1}{2} \sum m_{it} - t_{it}$ where m_{it} refers to the male proportion employed in occupation i in year t , and t_{it} refers to the proportion of all workers in occupation i year t . CW is calculated in the same way as CM, but with female instead of male workers.

data the labour markets of these countries would very likely appear to be even more segregated.⁵ It is also interesting to observe that the difference of 3 percentage points between Germany and Sweden on the 1-digit level is totally eradicated on the 2-digit level. Thus, focussing on the 2-digit level, these figures show that in Germany and Sweden approximately 50 per cent of either all men or all women would need to change occupations in order to attain gender equality in the occupational structure, while in the United States the same result can be accomplished if 'only' 40 per cent of either men or women change occupations.

Second, women display higher concentration rates than men in all countries, which suggests that women generally cluster in fewer occupational groups than men. In Germany 28 per cent of women must change occupations if women's occupational distribution is to be the same as that of the total labour force, while in Sweden and the United States the proportion of women who need to change occupations is 26 and 22 per cent respectively. However, this difference between the sexes may (fully or partly) be the result of a bias in the occupational classification since most '[...] national classifications tend to bulk in a few occupational groups the jobs in which women predominate, whereas jobs where men are numerous tend to be distinguished in greater detail' (Mata Greenwood 1999: 281). Thus, the high occupational concentration of women might be nothing but an illusion created by a classificatory bias (see the discussion on this topic in Chapter 3).

So, the one conclusion that seems to be clearly justifiable from the analysis of the summary measures is that American men and women are both less segregated and less concentrated than men and women in Germany and Sweden. The similarity between Germany and Sweden is somewhat surprising since it has often been argued that Sweden and the other Nordic countries are characterised by relatively high levels of segregation, something which is considered to be a result of high rates of female labour force participation (Rosenfeld and Kalleberg 1991: 215; Melkas and Anker 1997: 348). There were, however, two incidences in the early nineties that might explain this finding. Previous cross-national research on occupational sex segregation has used data from the eighties or very early nineties, that is, data from before the recession that hit Sweden in 1991 and from before the German reunification. From 1990 to 1999 Swedish women decreased their labour force participation rate by more than 7 percentage points, which – if there is a relation between women's labour force participation and occupational

sex segregation – ought to result in a lower level of segregation. Conversely, the reunification of Germany has resulted in an increase in women's labour force participation rate by almost 6 percentage points, which – following the same argument – should result in an increasing segregation level. Even though the data used in this chapter are not fully comparable to those used in previous research, it is nonetheless possible that our findings point to a convergence between Germany and Sweden regarding occupational sex segregation during the nineties.

All in all, despite some country differences the figures presented in this section indicate the existence of a common cross-national pattern of occupational sex segregation. This observation is very much in line with the conclusions by Anker (1998: 418) and Neramo (1999: 140) who both argue that most countries produce quite similar patterns and levels of occupational sex segregation in spite of rather differing socio-economic or labour market conditions. The differences we have found are to some extent possible to explain by the notion of welfare-state regimes' different institutional arrangements. However, the predominant cross-national gender similarity makes it reasonable to speak about a gender regime that is similar across different welfare-state regimes. The existence of such a gender regime across nation borders testifies to '[...] the worldwide diffusion of a family structure in which women have a primary responsibility for childrearing, cooking, and maintaining the home' (Charles and Grusky 1995: 940).

SUMMARY AND CONCLUSION

This inquiry into the sexual division of labour started out by establishing that the gender gap concerning labour force participation has been decreasing continuously during the last decades. Today, in Germany, Sweden, and the United States more than three-quarters of prime-age women are in the labour force, which means that the dual-earner family has become the norm in these countries. Sweden has been the forerunner in this development and in 1998 the difference between prime-age men and women's labour force participation rate was only 5 percentage points, while in Germany and the United States it was approximately 10 percentage points larger. The high participation rate of Swedish women is undoubtedly the result of certain welfare-state arrangements (in particular public and comprehensive child

care), which makes it possible to question whether German and American prime-age women (due to the scant commitments of the liberal and the corporatist welfare-state regimes) will – at least in the foreseeable future – attain participation rates above 80 per cent. Another aspect of the high participation rates for prime-age women is that these countries have now come very close to exhausting their primary labour reserve, that is, that there is no longer a standing reserve army of women (housewives) available for paid work.

The analyses of the three countries' occupational sex segregation revealed a cross-national pattern of segregation that can be regarded as an international gender regime. In all three countries men dominate in technical and blue-collar occupations, while women are more numerous in health and caring occupations. At lower levels of aggregation we find conspicuous differences between the sexes' occupational concentration. Men are concentrated in building, technical, and driving occupations, while women cluster in clerical, caring, nursing, and serving occupations. Germany and Sweden are quite extreme in this respect, while men and women in the United States seem to be spread out more equally in the occupational structure, something which is corroborated by a number of summary measures of occupational sex segregation and concentration.

Further, it was contended that the differences – especially those regarding sex segregation – are reinforced by the use of detailed data. Both horizontal and vertical sex segregation increase at lower levels of aggregation, which means that our impression of the existence and extent of occupational sex segregation is dependent on the level of detail of our data. So, it is possible that the findings in this chapter would be somewhat different if more detailed data had been used.

However, it seems as if a correlation between welfare-state regime and the occupational structure to some degree is a question about women's economic activity. Here Sweden stands out as the most conspicuous example with its high female participation rate and equally high female concentration in a rather few care occupations. It is also interesting to note that the liberal welfare-state of the United States seems to produce somewhat less sex segregation and female occupational concentration than the other two welfare-state regimes. Thus, in line with previous research (e.g. Esping-Andersen 1990: 216; Neramo 1999: 133) it is possible to argue that a less regulated labour market allocates men and women more evenly in the occupational

structure than the political egalitarian project of the Swedish social democratic welfare-state regime.

While it might be an exaggeration to equate post-industrialism with the increased female participation in public and economic life in general, it is undoubtedly the most significant change in the labour market during the recent decades. Thus, the dual-earner family must be considered as a chief component of the type of society we are already in or on the verge of entering. However, it is conceivable that we are witnessing the emergence of two distinct forms of dual-earner families, and that a society to a great extent will be characterised by its dominant family type. On the one hand, we have the dual-earner family with a male primary and a female secondary earner, and, on the other hand, the dual-earner family without a clear distinction between a primary and a secondary earner. The data seem to suggest that the former family type dominates in Germany with its high level of female part-time employment, and high rates of sex segregation and female occupational concentration. The latter family type should – following the same line of reasoning – be more common in Sweden and the United States, even though it need not be the dominating family type. Thus, the sexual division of labour is to a great extent decided by the family's decisions on economic matters, which, in turn, are guided by social, cultural, and institutional conditions.

Accordingly, there is not one simple explanation of the existence of occupational sex segregation. Although neo-classical/human capital and institutional/labour market segmentation theories provide us with some possible answers, it is primarily gender theories that help us explain the existence and persistence of common sex stereotypes that guide men and women in their educational/occupational choices and employers in their choice of employees. Choices '[...] of occupation and of domestic life-style are made according to a very deep sense of who we are and who we should be. The outcomes of the choices become part of the environment that effects identities and desires' (Katz 1994: 57). So, finally, the sexual division of labour is a cross-national phenomenon that primarily emanates from deep-rooted images of what men and women are and what are their primary responsibilities.

NOTES

- 1 For the United States Hayghe (1997: 42) has shown that there is a large difference between the labour force participation of women with children under the age of six (62 per cent) and that of women with children between six and seventeen years of age (77 per cent).
- 2 Reskin (1993) provides a review of supply and demand side factors that can affect the quantitative and qualitative aspects of women's economic activity.
- 3 One example of such a case study is provided by Einarsdottir (1997). She has studied the job-segregation between male and female medical doctors in Sweden, and shows that men are over-represented in high-status specialities (e.g. surgery), while most women are to be found in low-status specialities (e.g. geriatrics).
- 4 Unfortunately, all managerial occupations have been excluded from this analysis because of the poor comparability regarding managers between ISCO-88(COM) and the American occupational classification. However, neither in Germany nor in Sweden do any managerial category qualify among men and women's top ten occupations. And even though the proportion of managers in the United States is considerably larger than in the other two countries, none of the managerial occupations at most detailed level of the CPS's classification make up a large enough share among neither men nor women to qualify for the top ten list. For both men and women managers within food serving and lodging establishments constitute 1.1 per cent of employment.
- 5 For Sweden, Jonung (1993: 68f) has shown that the index of dissimilarity was as high as 64.5 per cent in 1990 when using 3-digit occupational data. She has also shown that there is a larger increase in the index when moving from the 1-digit to the 2-digit level than when moving from the 2-digit to the 3-digit level.

6

OCCUPATIONAL CHANGES AND EDUCATION*

INTRODUCTION

In this chapter the occupational structures and overall levels of educational attainment in Canada, Denmark, Sweden, and the United States will be examined. These four countries differ primarily in that the two North American countries have been regarded as unregulated or liberal welfare states, while the two Scandinavian countries belong to a so-called social democratic welfare-state regime that is characterised by more regulations and encompassing social security systems (Esping-Andersen 1990). However, neither the North American nor the Scandinavian countries are to be looked upon as 'pure' representatives of two different systems. For instance, Canada is in some respects closer to the Scandinavian countries than to the United States, and Denmark is not quite as typical for the social democratic type of state as Sweden (Boje and Furåker, forthcoming). Nonetheless, it is still possible to use the two welfare-state types and analyse to what extent the four countries in this study are close to or departs from either of the models.

That occupations based on theoretical knowledge will be dominating post-industrial society is maybe the most frequent prediction by the post-industrial theorists. A comprehensive system for higher formal education is a prerequisite for a continual growth of occupations based on theoretical knowledge, and a large number of today's occupations are only accessible

*A revised version of this chapter will be published in Boje and Furåker, forthcoming.

via the possession of specific types of diplomas, something which has been labelled professionalism or credentialism (Collins 1979; Abbott 1988; Brint 1993). However, this growth is not necessarily merely the result of an increasing demand for highly educated people. Partly, it is the consequence of a prolongation of the required length of schooling for some occupations (e.g. primary school teachers and nurses), and, also, a result of the growth of the educational system itself, that is, that an increased output of people with higher education is expected to generate a high growth rate of businesses that primarily employ people with higher education (Sohlman 1996: 28ff).

At the other side of the coin we find the projected growth of service occupations that do not require any specific education. Of course, this is a very extensive group of occupations that covers a wide array of different activities. Restaurants, hotels, shops, gas-stations, and cinemas are all establishments within which we find these kinds of job, but also such tasks as cleaning and childminding belong to the category. Many of these services are undoubtedly low-pay and low-status without possibilities for advancement. Part-time work is also a common denominator and women are over-represented in many of these occupations. It is, however, too simplistic to equate these services with bad jobs. Child care, for instance, can be organised in many ways, either by using unskilled (e.g. private childminders) or skilled personnel (e.g. public pre-primary school teachers). Also, many jobs in this category are performed by people who are self-employed (e.g. hairdressers and shop salespersons), something which – for many people – is rather desirable.

According to Esping-Andersen's country clustering, the occupational structures of Canada and the United States should differ from those of the Scandinavian countries. The North American countries are expected to have large proportions of managers and low-skill private sector service workers, while Denmark and Sweden's occupational structures should be biased towards public sector professionals and service workers. Consequently, the notion of a polarisation of the occupational structure is especially applicable to the American case. In order to try out these propositions this chapter will present an in-depth picture of the four countries' occupational structures. Since two of the main features of a post-industrial development are women's increased labour force participation and the growth of higher education, special attention will be given to the way in which women are distributed in the occupational structure and the levels of educational attainment.

THE OCCUPATIONAL STRUCTURE

If one adopts the more optimistic picture of the post-industrial change process, that is, that repetitive manual labour is becoming more and more rare and is gradually being replaced by a whole set of highly skilled occupations based on theoretical knowledge, this ought to be reflected in both the development of the occupational structure and in the level of educational attainment. In this section, to begin with, the occupational structures of the four countries will be described, compared, analysed, and discussed.

Table 6.1 shows the development of the distribution of employment among seven major occupational groups from the mid-eighties to the mid-nineties. Overall, the development in the four countries during this period seems to confirm the proposition of a continual growth in the professional and technical occupations together with a concomitant decrease in agricultural and manual occupations.

Manual jobs in the traditional high-volume enterprises have been decreasing in most OECD countries since the sixties, and our four countries do not deviate from that pattern. Production and transport occupations have a downward tendency in all four countries, and in the mid-nineties they constitute approximately one-fourth of all occupations. Also, agricultural occupations have continued to diminish their share of employment. In Canada, Denmark, and the United States clerical occupations have had approximately the same proportion of employment during the period in question (the Swedish data are not fully comparable to those of the other countries). Also sales occupations display a rather stable proportion of employment – about 10 per cent in all countries – in the mid-nineties. The difference between

Table 6.1 The distribution of employment by occupation (percentages)

ISCO-68 occupations	Canada		USA		Denmark		Sweden	
	1983	1993	1983	1995	1984	1993	1983	1995
Professionals & technicians	17	19	16	18	22	25	28	36
Managers & administrators	6	14	11	14	4	5	2	--
Clerical	17	16	16	15	18	18	12	17 ^a
Sales	11	10	12	12	7	8	8	10
Service	14	14	14	14	12	12	14	9
Agriculture	6	4	4	3	6	5	6	3
Production & transport	27	24	28	25	31	26	30	26

Source: ILO LABORSTA database

a: Includes managers & administrators

Denmark, which has the lowest share, and the United States, with the highest share, is only 4 percentage points. Furthermore, in Canada, Denmark, and the United States service occupations are of almost equal size and have not changed at all since the mid-eighties. Here, Sweden is clearly a deviant case with a reduction in service occupations' share of employment by 5 percentage points, which has led to a somewhat lower proportion of service occupations than in the other three countries. Part of this change can quite possibly be explained by a significant shift in public sector employment where low-skill personnel (e.g. assistant nurses and child-care workers) have been replaced by employees with considerably higher education (e.g. registered nurses and pre-primary school teachers) (SCB 1996).

So far, what we have found is more a pattern of in-country stability and cross-country similarity than a pattern of divergence between different welfare-state regimes and rapid changes in the occupational structure.¹ In the mid-nineties, non-managerial and non-professional occupations account for roughly 65 to 70 per cent of employment, figures which have been decreasing by about 5 percentage points since the mid-eighties. The significant differences are to be found among the managerial and professional categories. First, we find a conspicuous difference between, on the one hand, Canada and the United States and, on the other hand, Denmark and Sweden regarding managerial occupations. Judging from these data, it seems as if the two North American economies are considerably more 'managed' than their Scandinavian counterparts. Also, both Canada and the United States have experienced a marked growth in managerial occupations since the mid-eighties, while we can only observe a minor increase in Denmark (no data on managerial occupations were available for Sweden in 1995). Second, Sweden experienced a quite remarkable growth (almost 10 percentage points) in professional and technical occupations during the period, while the other countries saw a rather modest increase. So, in the mid-nineties these occupations account for more than one-third of employment in Sweden, a quarter in Denmark, and approximately one-fifth in the North American countries. Again, the extraordinary growth in Sweden might partly be explained by an upward shift in skill levels in the Swedish public sector. Also, during the recession in the beginning of the nineties a great many manual jobs within manufacturing were lost, while the number of technicians were not affected to the same extent.

However, it must be noted that clerical, sales, and service workers are

still more numerous than those in the upper part of the job hierarchy. Consequently, even if these data give some support to the notion of a post-industrial process of professionalisation, non-professional non-manual jobs constitute roughly 40 per cent of employment in all countries.

So, these data (crude as they admittedly are) seem to fit the welfare-state regime hypothesis quite well regarding professional/technical and managerial/administrative occupations. Also, the post-industrialists' notion of a growth in the highly educated occupations receive some support. On the other hand, the data for the other major occupational groups do not fit especially well with any propositions at all. Except, of course, the general tendency of a decrease in agricultural and manufacturing occupations.

This, then, is the big picture. It has provided us with an initial overview of the overall trends in the occupational development during the last decade. However, a comprehensive understanding requires a considerably more detailed examination, which can be accomplished only with the use of less aggregated occupational data. Therefore, instead of seven major occupational groups we will use a selection of the 27 sub-major occupational groups of ISCO-88(COM). Lack of data make it practically impossible to construct comparable cross-national time-series at this level of detail. Hence, we will have to content ourselves with a snapshot of the four countries' occupational structures from the latter half of the nineties (Sweden and the United States 1999, Denmark 1998, and Canada 1996). Figure 6.1 presents a graphic representation of the proportion of people employed in 20 occupational groups.²

On a first inspection the occupational structures of the four countries seem fairly alike in their overall patterns. Of course, there are a number of noticeable differences regarding each occupational group's share of employment in the four countries, but this does not, however, take away the overall impression of similarity. In the following the most interesting aspects and differences of these patterns will be commented upon and analysed.

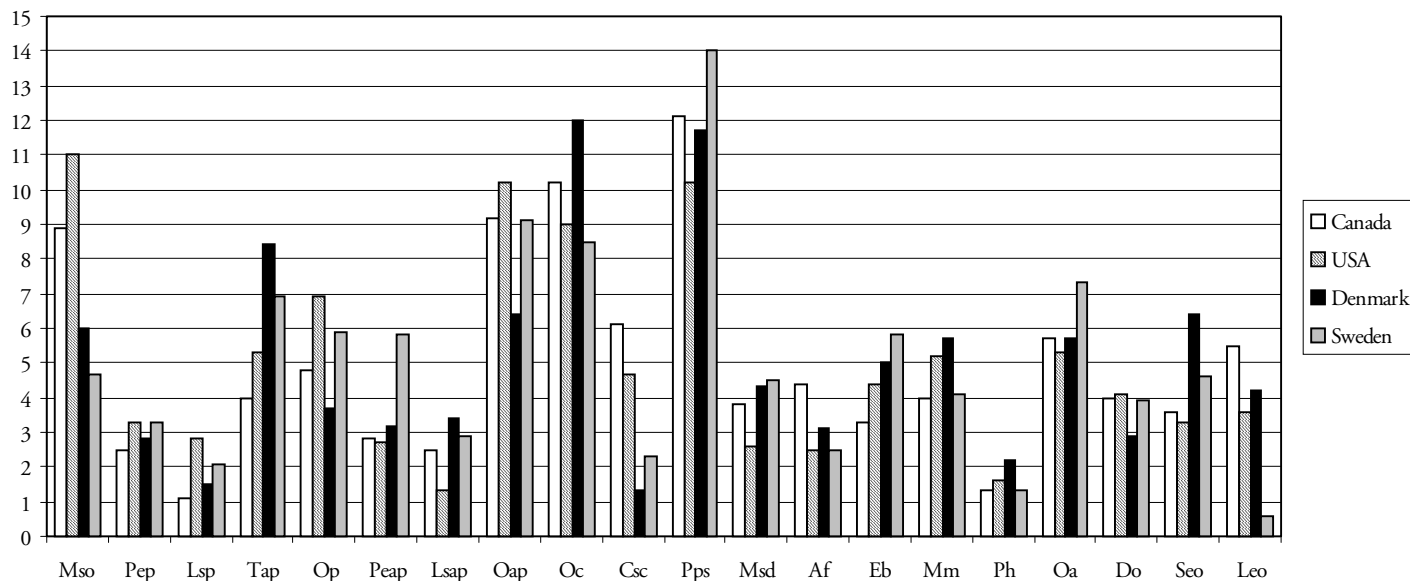
To begin with, as was noted above, it seems that Canada and the United States have significantly more people employed in managerial occupations (Mso) than Denmark and Sweden. The 'overmanaged' character of the United States labour market was discussed in the previous chapter, and a number of possible explanations were forwarded. One of the explanations provided by Esping-Andersen (1990: 202f) is that the United States lacks certain features (e.g. comprehensive collective bargaining and agreements),

which increase the need for managers. This type of institutional explanation receives some support from the fact that the country with the most regulated labour market and the most powerful unions is also the one with the smallest proportion of managers. Sweden has less than 5 per cent managers, which is more than 6 percentage points less than the United States. Actually, Sweden and the United States constitute two terminal points on a scale of unionisation. In Sweden, the absolute majority of the workforce is unionised while the workers in the United States for the most part are unorganised (OECD 1997: 71). The proportion of managers in Canada and Denmark fits quite well with the notion of an institutional basis for the management situation in an economy. The Danish labour market is somewhat less regulated than the Swedish, and the level of unionisation is a bit lower, which, consequently, results in a higher proportion of managers. Canada follows the pattern of the other countries with a proportion of managers that reflects the Canadian institutional labour market arrangements.

However, another differentiating aspect of the Scandinavian and North American labour markets might also help to explain the large proportion of managers in Canada and the United States. Denmark and Sweden have a considerably larger share of people working in the public sector (Boje and Furåker, forthcoming), which can affect the occupational structure since it is probable that those employed in the public sector are classified as professionals or technical workers while their privately employed counterparts tend to be classified as managerial or clerical workers (van den Berg, Furåker and Johansson 1997: 66).

To be sure, the way in which organisations arrange their control structures is one of the most interesting objects of study in today's quickly changing economy. For instance, will managers become fewer when the number of professionals increases? On the other hand, is it conceivable that some management occupations will begin a process of professionalisation, and thereby secure a position in tomorrow's organisations? Such questions are very difficult to answer at this point in time. Esping-Andersen's idea that the control structure of organisations is partly determined by a country's way of arranging its labour relations is intriguing, and would certainly be worth more in-depth studies. However, suffice it here to conclude that there seems to be a correspondence between institutional arrangements and the proportion of managers in a country.

Occupations based on theoretical knowledge are gathered under the



Mso = Managers and senior officials; Pep = Physical, mathematical and engineering science professionals; Lsp = Life science and health professionals; Tap = Teaching and associate teaching professionals; Op = Other professionals; Peap = Physical and engineering science associate professionals; Lsap = Life science and health associate professionals; Oap = Other associate professionals; Oc = Office clerks; Csc = Customer services clerks; Pps = Personal and protective services workers; Msd = Models, salespersons and demonstrators; Af = Agricultural and fishery workers; Eb = Extraction and building trades workers; Mm = Metal, machinery and related trades workers; Ph = Precision and handicraft workers; Oa = Operators and assemblers; Do = Drivers and mobile-plant operators; Seo = Sales and services elementary occupations; Leo = Labourers in mining, construction, manufacturing and transport.

Figure 6.1 The distribution of employment by occupation (percentages)

Sources: for Canada *1996 Census*; for Denmark *Labour Force Survey 1998*; for Sweden *Labour Force Survey 1999*; for the U.S. *Current Population Survey 1999*

labels professionals and associate professionals, which in Figure 6.1 are split into seven occupational groups. Even if the majority of jobs in these occupational groups have their basis in theoretical knowledge, they are nevertheless a very diverse category regarding what tasks are actually performed.

First, there are two occupational groups that above all consist of jobs that have to do with a theoretical understanding of the material world. That is, physical, mathematical and engineering science professionals (Pep), and physical and engineering associate professionals (Peap). The former is made up of occupations which require a university education that lasts at least three years (e.g. physicists, chemists, architects, and engineers), while the latter group comprises occupations that require somewhat less theoretical schooling (e.g. technicians, pilots, air traffic controllers, ships' engineers, and quality inspectors). While the proportion of employment in the first group is rather similar across the four countries, Sweden stands out in the second group with almost 6 per cent of employment. This is nearly twice as many as in Denmark and Canada, and close to four times the proportion in the United States. These figures are to some extent correlated to the industrial employment structures of the countries. Denmark and Sweden both have about 19 per cent employment in manufacturing, while the rates for Canada and the United States are approximately 4 percentage points lower (ILO 2001). Sweden's extraordinarily high rate is probably explained by its many large high-tech trans-national corporations (e.g. Astra-Zeneca, Ericsson, Asea Brown Boveri, Volvo, Electrolux) with a large focus on R&D, while Denmark is characterised by many small primarily production oriented manufacturing firms (OECD 1996a). If we take both groups together we find that Sweden clearly deviates with a proportion of employment of over 9 per cent, while the other countries all have about 6 per cent.

Second, life science and health professionals (Lsp), life science and health associate professionals (Lsap), together with teaching and teaching associate professionals (Tap) are occupational groups intimately connected to the workings of the modern welfare state. Incumbents of these occupations are responsible for most of those tasks that are the epitome of the very concept welfare state itself. Examples of occupations in the first group are medical doctors, dentists, biologists, and veterinarians, while the second group comprise such occupations as hygienists, dieticians, opticians, dental assistants, physiotherapists, pharmaceutical assistants, and, above all, nurses. Taken together, these occupations have approximately the same proportion of em-

ployment (about 5 per cent) in Denmark, Sweden, and the United States, while Canada has roughly 1 percentage point less. Denmark and Sweden have significantly more teachers than Canada and the United States. This difference is almost completely due to the high incidence of pre-primary school teachers in Denmark and Sweden, which is a consequence of a legislation in these countries that has established child care as a right for all children up to the age of six (Gornick, Meyers and Ross 1997: 58).

Third, there are two – what can be called – ‘residual’ groups among the ‘theoretical knowledge occupations’, which both consist of a large number of very diverse jobs. The group other professionals (Op) is made up of such jobs as accountants, lawyers, judges, economists, sociologists, psychologists, writers, and priests, while other associate professionals (Oap) comprise jobs such as police inspectors, social workers, trade brokers, insurance representatives, musicians, and clowns. Among the four countries the United States has the highest and Denmark the lowest proportion of employment in both groups. One reason for the high incidence of many of these occupations in the United States is probably its high proportion of producer services (see Chapter 4). It is also conceivable that the American economy (being the dominating media producer in the world) harbours a larger proportion of creative artists with associated occupations than do other countries. All in all, these residual occupational groups make up as much as 17 per cent of employment in the United States, 15 per cent in Sweden, 14 per cent in Canada, and only 10 per cent in Denmark.

One important thing to note regarding all the ‘theoretical knowledge occupations’ is their extremely heterogeneous character (their only common trait is the considerable length of education that prospective incumbents have to go through). Therefore, it is quite difficult to analyse and discuss cross-country similarities and differences. It seems, however, possible to argue that there are rather few country specificities that are attributable to the Scandinavian or the North American way of organising society.

Clerical occupations are to be found within all sorts of industries, and their relative size in the occupational structure seem to be rather stable over time (see Table 6.1). ISCO-88(COM) distinguishes between office clerks (Oc) and customer services clerks (Csc), and the main difference between them is that the latter category deals directly with customers. This distinction is not all that clear-cut and it is quite possible that the same type of job can be regarded as either one of the two categories depending on classificatory

practices. So, taken together clerical occupations make up 11 per cent of employment in Sweden, 13 per cent in Denmark, 14 per cent in the United States and 16 per cent in Canada. The two North American countries have a larger share of customer services clerks, which quite possibly reflects these countries relatively large share of employment within consumer-oriented services (i.e. retail trade, restaurants and hotels). The rather large difference between Denmark and Sweden regarding office clerks can possibly be accounted for by differences in establishment size. It is conceivable that large organisations need proportionally fewer office clerks since they can rationalise by centralising certain administrative tasks and invest in expensive data processing equipment. Establishment size data seem to support this notion. Denmark has the highest proportion of office clerks but the lowest proportion of large establishments, while for Sweden it is the other way around (OECD 1996a).

Personal and protective services workers (Pps) exceed 10 per cent of employment in all countries, and particularly so in Sweden where they stand for as much as 14 per cent. This group of occupations provide personal and protective services (e.g. hairdressers, cooks, waiters, child-care workers, and fire-fighters), and – considering the notion of a post-industrial labour market consisting to a great extent of non-professional service workers – it definitely constitutes one of the most interesting occupational categories. The reason why Sweden has such a large proportion of workers in this category is its very high incidence of care workers, which, of course, is a consequence of Sweden's comprehensive welfare system. It is interesting to note that the United States has the smallest proportion of employment in both this and the other group of service workers (Msd). This certainly does not correspond especially well with the idea of the United States as leading the way in a development towards a service society.

Above it was shown that the proportion of those occupational groups that – using a traditional terminology – can be called manual or blue-collar occupations have been decreasing, but, at the same time, that they still constitute approximately one-fourth of employment in all four countries. Therefore, it is indeed too early to write them off as the last and quickly vanishing remnants of a soon to be foregone industrial era. Actually, it is possible to identify a number of manual occupations that – by virtue of their specific characteristics – do not run the risk of imminent extinction.

First, the two occupational groups extraction and building trades workers

(Eb), and metal, machinery and related trades workers (Mm) are to a large extent made up of jobs that require quite extensive vocational schooling and/or long periods of apprenticeship (in a few cases the time required to be regarded as a fully trained worker can in fact be equivalent to the time spent to receive a college diploma). Carpenters, electricians, welders plumbers, painters, tool-makers, and machinery mechanics are but a few examples of such occupations. Second, precision and handicraft workers (Ph) is a category that in many cases can be compared to artistic jobs, sharing with them all the rather specific problems that come from belonging to the artistic labour markets (Menger 1999). Potters, glass engravers, musical-instrument makers, cabinetmakers, and tailors are examples of occupations that belong to this somewhat special category. However, common to all these manual occupations is that they are relatively safeguarded from threats of automation or competition from cheap labour abroad. Taken together, they constitute 13 per cent of employment in Denmark and the United States, 11 per cent in Sweden, and close to 9 per cent in Canada. These differences – which are almost wholly to be found within the first two categories (Eb and Mm) – are probably explained by differences in the countries' industrial structures and shifts in the business cycle. Another rather 'secure' occupational group is drivers and mobile-plant operators (Do). It consists of drivers of taxis, vans, motorcycles, buses, lifting-trucks, heavy trucks, etc., but also of ships' deck crews. Thus, all occupations in this group are connected to the activity of transporting either people or goods. In Canada, Sweden, and the United States these kinds of jobs account for 4 per cent of employment, while in Denmark they make up one percentage point less. The specific features of today's economy (e.g. networking firms and just-in-time production) make a large reduction in transport jobs quite unlikely.

A group of manual occupations that holds a much more precarious position in the more advanced economies than the above occupations is operators and assemblers (Oa). Even though much work in this category calls for a fair amount of on-the-job training, no specific education is normally needed (ILO 1990). These occupations are almost exclusively to be found within the manufacturing sector, and in many respects they can be regarded as the archetypal occupations of the industrial era (e.g. assembly-line workers). With slightly above 7 per cent of employment Sweden has clearly the largest share of these occupations among the four countries. The United States deviates in the other direction with approximately 4 per cent, while Denmark

and Canada both have roughly 5 per cent of their labour force engaged in this type of work. If the cost for this type of manual labour increases there is a risk that employers might either automate the production process or move the establishment to a low-wage country. The rather low incidence of operators and assemblers in the United States can possibly reflect a more advanced state in the restructuring of manufacturing than in the other countries.

Before concluding this first analysis it is necessary to consider two more occupational groups: sales and services elementary occupations (Seo) and labourers in mining, construction, manufacturing and transport (Leo). Both groups are made up of jobs that do not require any schooling above the primary level and, at the most, a few weeks on-the-job training. Examples of jobs in the first group are cleaners, hand-laundrers, porters, messengers, and garbage collectors. Among the four countries, Denmark has the highest proportion of employment in this group with about 6 per cent, which is roughly 2 percentage points more than Canada and Sweden, and 3 percentage points more than the United States. The second group is composed of such jobs as building construction labourers, freight handlers, packers, and movers. The countries differ quite considerably regarding these occupations' share of employment. Sweden has less than 1 per cent, the United States about 2 per cent, Denmark 4 per cent, and Canada close to 6 per cent.

The rather large differences between the countries regarding these elementary occupations' share of employment is difficult to account for. Since no comparable data on a more detailed level have been available, it is only possible to make some tentative suggestions. First, it is quite probable that different classifying practices place the same jobs in different categories. For instance, it seems a bit odd that Sweden (with a total of 23 per cent in manual occupations) has less than 1 per cent labourers, something which might indicate that manual labour in Sweden generally is regarded as being more skilled than in some other countries. If we, on the other hand, accept these data as good approximations of the real world of work, there must exist some real world facts that can account for the differences. Then the extremely low incidence of labourers in Sweden could be an effect of the massive lay-offs by manufacturing firms during the crisis in the beginning of the nineties. More than 20 per cent of the blue-collar workforce (mostly unskilled) was dismissed between 1990 and 1995 (SCB 1996). Also, the demands by the powerful Swedish metal workers union for better working

conditions, more on-the-job training, job rotation, and extended responsibilities for their members may have been beneficial in reducing the number of unskilled jobs. Canada's larger share of labourers – compared to the United States – can possibly be attributed to the fact that the United States has a considerably larger share of high-tech companies, and Denmark's high proportion might be a consequence of employment practices among its many small firms.

So, what can be concluded after this in-depth study of the four countries' occupational structures? First, high-skill occupations seem to be growing more rapidly than other occupations, thereby confirming one of the most important propositions by the post-industrial theorists. On the other hand, it has not been possible to discern an occupational polarisation as proposed by some scholars. Second, among the managerial, professional, and personal service occupations there is some support for the impact of welfare regimes on the occupational structure, but there is no clear overall pattern that distinguishes the liberal from the social-democratic welfare-state regime.

Many have argued that the major difference between the labour markets of twenty years ago and today is the massive incorporation of women into paid work (e.g. Esping-Andersen 1990; Block 1990; Castells 1996). In the next section it will therefore be examined how women are distributed in the occupational structure of the four countries.

OCCUPATIONAL SEX SEGREGATION

Whether or not women engage in paid labour is essential for the occupational structure. If they choose paid labour instead of unpaid labour at home, the demand for services will increase, which, in turn, will increase the share of service workers in the occupational structure (Esping-Andersen 1999: 57ff). The existence of and easy access to services will induce more women to take up paid labour, thus creating a virtuous circle for women's employment. This virtuous circle can, however, have the side effect of locking women into certain occupations, especially in the Scandinavian countries with their large public service sectors (Esping-Andersen 1993: 237). Or, as Rosen (1996: 734f) puts it: 'In Sweden a large fraction of women take care of the children of women who work in the public sector to care for the parents of the women who are looking after their children'. In the North American welfare

states, on the other hand, another process might be at work, namely that the '[...] elite corps of professional and managerial women, whose ranks have expanded so dramatically in recent years, can now purchase on the market much of the labour of social reproduction traditionally relegated to them as wives and mothers' (Milkman, Reese and Roth 1998: 485). Women's employment has been converging in the four countries, so that today women's employment rates are roughly between 66 and 70 per cent (Boje, forthcoming). Therefore, following the line of argument above, a convergence in the countries' occupational structures is to be expected, but, at the same time, quite distinct differences between Denmark and Sweden on the one hand and Canada and the United States on the other hand. Danish and Swedish women ought to be more concentrated in social service jobs than women in North America.

To begin with, the same major occupational groups that were analysed in the previous section will be utilised in order to get a first view of women's position in the occupational structure. Table 6.2 shows that the proportion of women has increased in most major occupational groups in all four countries since the mid-eighties. Actually, in the mid-nineties women dominate in three out of seven occupational groups, that is, professional/technical, clerical, and service occupations. However, there is also a clear male dominance in agricultural and production/transport occupations. In all four countries women constitute less than one-fifth of those in production/transport occupations, and (especially in Denmark) their share has been in decline during the period.

Table 6.2 Women's share of occupational employment (percentages)

ISCO-68 occupations	Canada		USA		Denmark		Sweden	
	1983	1993	1983	1995	1984	1993	1983	1995
Professionals & technicians	51	56	48	53	60	63	54	64
Managers & administrators	30	42	32	43	17	20	20	--
Clerical	78	80	80	80	63	63	81	61 ^a
Sales	41	45	48	50	50	52	47	48
Service	54	56	60	60	74	71	75	61
Agriculture	21	24	16	20	7	19	24	24
Production & transport	14	13	19	18	23	17	18	17
Total labour force	42	45	44	46	45	46	47	48

Source: ILO LABORSTA database

a: Includes managers & administrators

Again, the most interesting changes are among the professional and managerial occupations. In both Denmark and Sweden the female proportion among professional/technical occupations has increased to almost two-thirds. The North American countries have considerably lower female shares among the professionals, which undoubtedly is due to the high incidence of female dominated welfare occupations in the Nordic countries. On the other hand, Canada and the United States have experienced a remarkable growth (more than 10 percentage points) of women in managerial/administrative occupations during the period. This can simply be an effect of the increase in the proportion of managers generally, but it is also possible that the opportunities for women to advance hierarchically are greater in North America than in Scandinavia.³ However, the cross-national similarities are greater than the differences regarding sex segregation, which implies the existence of a rather general pattern of occupational sex segregation.

In order to get a more comprehensive picture of women's occupational patterns it is, again, necessary to move on to a more detailed level. Figure 6.2 shows the proportion of women in the 20 ISCO-88(COM) occupational groups.

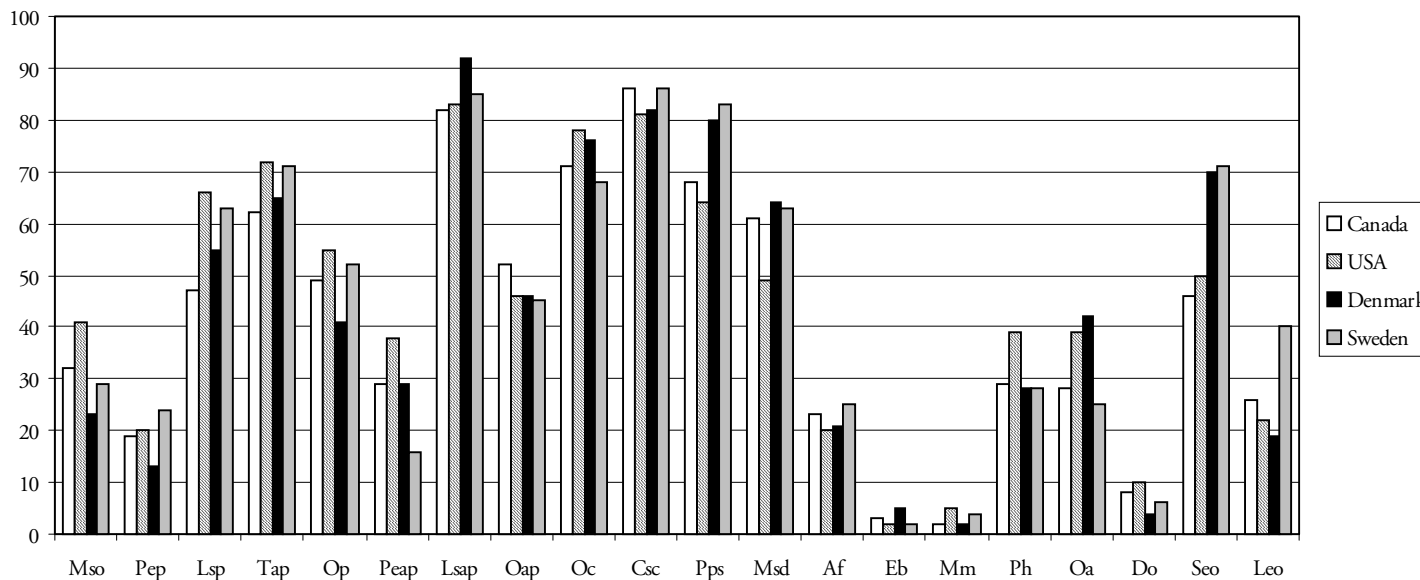
Of course, the first thing to notice is the conspicuous agreement between the four countries' proportion of men and women in different occupational groups. It is also easy to observe that the more aggregated categories in Table 6.2 did hide a considerable sex segregation. The physical, mathematical and engineering occupations (Pep/Peap) are male dominated, while the teaching occupations (Tap) are dominated by women. Also, the life science and health associate occupations (Lsap) are to a large extent a female group of occupations, which is not especially surprising since nursing is one of the jobs included in this category. The incidence of women is almost negligible in the extraction and building (Eb) and metal and machinery occupations (Mm), and also very low among drivers and mobile-plant operators (Do). However, we find a fair amount of women within the precision and handcraft occupations (Ph), among operators and assemblers (Oa), and within the labouring occupations (Leo), even though men are in a clear majority in most countries. Concerning the sales and services elementary occupations (Seo) the picture is twofold with a female dominance in the Scandinavian countries and close to equality in the North American countries. This striking similarity in cross-national segregation profiles has been observed before and for other countries (e.g. Neramo 1999), and it seems as if the differences

between the North American and the Scandinavian welfare-state types do not produce any clear-cut differences in patterns of occupational sex segregation.

Notwithstanding the overall impression of similarity, it is nonetheless possible to notice some minor differences between the countries. The two most interesting occupational groups in this respect are personal and protective services workers (Pps) together with sales and services elementary occupations (Seo). In Denmark and Sweden women has a clear dominance in both categories, and particularly so in the first one which has more than 80 per cent women in both countries. In Canada and the United States the jobs within the elementary services category are equally distributed between men and women, and the personal and protective services occupations have a considerably lower female proportion than the Scandinavian countries, even though women still account for two-thirds of that category. Actually, these are the only occupational groups that seem to follow the countries' institutional differences. As noted above, personal and protective services occupations include those care jobs that in many ways exemplify the social democratic welfare-state regime (i.e. personal care workers). It is therefore not surprising that this group is so heavily female biased in the Scandinavian countries (in Sweden close to one-fourth of all women in paid work have jobs within this group of occupations, while the corresponding figure for the United States is less than 15 per cent). Also the elementary sales and services occupations are heavily female dominated in the Nordic countries, which can be taken as a sign of a more gendered opportunity structure.

Thus, these patterns clearly confirm the impression of national labour markets in which one of the most important divisions is that between male and female jobs. As in the previous chapter, a couple of summary measures of occupational sex segregation will be presented in order to evaluate the extent of overall sex segregation in the four countries.

Table 6.3 shows that the proportion of sex segregated occupations (S) is larger in the Scandinavian than the North American countries. With more than 70 per cent segregated occupations, Sweden and Denmark seem to be considerably more segregated than Canada and the United States that both have about 60 per cent segregated occupations. The dissimilarity index (D) tells a similar story. In the Scandinavian countries half of all women or men would have to change occupations to bring about a perfectly sex integrated labour market, while in the North American countries a sex integrated labour



Mso = Managers and senior officials; Pep = Physical, mathematical and engineering science professionals; Lsp = Life science and health professionals; Tap = Teaching and associate teaching professionals; Op = Other professionals; Peap = Physical and engineering science associate professionals; Lsap = Life science and health associate professionals; Oap = Other associate professionals; Oc = Office clerks; Csc = Customer services clerks; Pps = Personal and protective services workers; Msd = Models, salespersons and demonstrators; Af = Agricultural and fishery workers; Eb = Extraction and building trades workers; Mm = Metal, machinery and related trades workers; Ph = Precision and handicraft workers; Oa = Operators and assemblers; Do = Drivers and mobile-plant operators; Seo = Sales and services elementary occupations; Leo = Labourers in mining, construction, manufacturing and transport.

Figure 6.2 Women's share of occupational employment (percentages)

Sources: for Canada 1996 Census; for Denmark Labour Force Survey 1998; for Sweden Labour Force Survey 1999; for the U.S. Current Population Survey 1999

Table 6.3 Occupational sex segregation (percentages)

	S	D
Canada	62	41
USA	58	41
Denmark	71	50
Sweden	75	51

S = the proportion of sex segregated occupations

D = the index of dissimilarity

Note: Both S and D are based on calculations using 24 occupational groups. It is to be noted that the level of sex segregation tends to increase with the number of occupations used in the calculations, i.e., the labour market appear to be more segregated on more detailed levels of analysis (Jonung 1993: 69). D is defined as $D = \frac{1}{2} \sum m_{it} - f_{it}$ where m_{it} and f_{it} refer to the male and female proportion employed in occupation i in year t respectively.

market would be achieved if only 41 per cent would change occupations. These figures seem to suggest that the Scandinavian type of welfare state gives rise to a higher level of sex segregation than the ones in North America. However, it is possible that these differences are highly concentrated to a limited number of occupations, which, consequently, would imply that the overall pattern of occupational sex segregation is almost identical. Figure 6.2 is partly a confirmation of this notion, since the largest differences between the North American and Scandinavian countries can be found in two occupational groups that comprise many of those care jobs that are publicly provided for by the Danish and Swedish welfare states.

EDUCATIONAL ATTAINMENT

Above it was noted that the proportion of occupations that require some kind of higher education has been growing in all our countries. All post-industrialists are in agreement that higher education is a significant aspect of the 'new' society. Bell (1976: 232), for instance, argues that the '[...] major problem for the post-industrial society will be adequate numbers of trained persons of professional and technical caliber'. Further, it has been claimed that a nation's or region's ability to attract employers will depend increasingly upon the skills and educational level of its population (Reich 1991, OECD 1994). The argument is that in an open economy firms can easily move to those regions where they have a good supply of well-educated and highly productive workers. Thus, in a post-industrial society the primary

asset for both individuals and nations is the ‘human capital’. Consequently, education is a key variable when trying to understand differences or similarities between countries in their post-industrial change process. A high proportion of well-educated people in the labour force can be thought to accelerate the shift towards a post-industrial labour market, while a dominance of low-educated people can have the opposite effect.

Table 6.4 shows the level of educational attainment for twenty-five to sixty-four year-olds, that is, those among the population that have supposedly finished their education and are economically active. Before proceeding it must be noted that the educational systems vary considerably between the four countries, which means that the figures in the following tables need to be treated with some caution.⁴ The tripartite division of educational levels in Table 6.4 is relevant in that the three levels correspond quite well with the dominant need of schooling in different time periods. Until the seventies lower secondary education (i.e. up till 10 to 11 years in school) or lower education was all that was required for the great majority of jobs. During the seventies and eighties upper secondary education (i.e. 12 to 14 years of schooling) became the norm for access to more and more jobs, and the development through the nineties has meant that post-secondary or tertiary education (i.e. college and university levels) has become more and more of a standard requirement for a great many occupations.

According to Table 6.4 the proportion of the population that has attained less than upper secondary education is less than one-fourth in all countries, and at least one-fourth has attained tertiary education. There is, however, a higher overall level of educational attainment in the North American countries. This difference can be due to a number of factors. For example, strong incentives for education (higher wages for higher educated people), differences in the educational systems, and a high demand for well-educated

Table 6.4 Distribution of the population 25 to 64 years of age by level of educational attainment, 1998 (percentages)

	Below upper secondary education	Upper secondary education	tertiary education	Total
Canada	20	41	39	100
USA	14	51	35	100
Denmark	22	53	25	100
Sweden	24	48	28	100

Source: OECD database

labour generated by an earlier shift towards post-industrial activities in North America.

By comparing age-groups and their level of educational attainment we get an indication of whether the population is becoming more or less educated, which is displayed in Table 6.5. Most young people have attained at least upper secondary education, and the figures are almost identical for all four countries. This clearly strengthens the conception of upper secondary education as having become the 'normal' educational level in economically advanced countries. Differences are appearing in the older age-groups, and it is clear that the United States has been a forerunner in the development towards a more or less compulsory upper secondary educational level. The proportion that has attained tertiary education shows some interesting differences between both age groups and countries. In all countries tertiary education has become more common, but there is a conspicuous difference between the Scandinavian and the North American countries. This concerns especially the youngest age-group within which almost half of the Canadian and more than one-third of the American population has completed tertiary education. In contrast, in Denmark only slightly more than one-fourth of this age-group has moved beyond upper secondary education, and in Sweden the proportion is still below one-third.

Above it was shown that the labour markets of the four countries are heavily gendered and that all display a similar pattern of occupational sex segregation, but, at the same time, with a somewhat higher segregation rate in the Scandinavian countries. It is a more or less common feature among the OECD countries that women have increased their educational activity, and in many countries young women in fact spend more years in education than do young men (OECD 1996b: 38f). It seems as if these countries are in the middle of a process of a 'feminisation' of higher education, which can

Table 6.5 Percentage of the population that have attained a specific level of education, by age group, 1998 (percentages)

	At least upper secondary education				At least tertiary education			
	25-34	35-44	45-54	55-64	25-34	35-44	45-54	55-64
Canada	87	83	77	65	46	39	37	28
USA	88	88	87	80	36	36	37	27
Denmark	85	80	78	67	27	27	27	19
Sweden	87	80	73	60	31	31	29	20

Source: OECD database

partly be the result of an upgrading of the educational requirements for a number of jobs in the health and personal services sectors. Also, today it appears as if many (maybe most) young women finish their education before marrying and settling down. Further, it might be that the equal level of educational attainment between young men and women marks the end of a long process of convergence, and that the sexes from now on will exhibit similar educational trajectories, at least regarding the length of education.

The gender differences are illuminated in Table 6.6 where the labour force participation of groups with differing levels of educational attainment is displayed. Two distinct patterns of labour force participation emerges: one Scandinavian and one North American. Labour force participation rates rises with higher education in all countries, but in particular among women in Canada and the United States. The differences between the countries are most striking within the lowest educational strata, where the participation rates of women in the North American countries are below 50 per cent. Sweden has the highest participation rate for both men and women in the lowest educational strata, and Denmark falls somewhere in between. In the Scandinavian countries there are very small differences between men and women in the higher educational groups, while in both Canada and the United States women have approximately 10 percentage points lower participation rates. In this respect, the more extensive scope of the Scandinavian countries' welfare systems seems to be beneficiary for women's labour force

Table 6.6 Labour force participation by level of educational attainment and gender for the population 25 to 64 years of age, 1996 (percentages)

		Below upper secondary education	Upper secondary education	Non-university tertiary education	University-level education	All levels of education
Canada	Men	74	89	90	92	86
	Women	47	72	79	85	70
USA	Men	74	88	93	93	88
	Women	46	72	81	82	72
Denmark	Men	77	89	93	94	87
	Women	64	83	91	91	78
Sweden	Men	82	90	90	94	88
	Women	71	85	89	92	83

Source: OECD database

participation, especially for those with low education.

The figures presented above show that educational attainment and labour market position are closely connected. To anyone interested in such matters this is no novelty. Of considerably greater interest is an interpretation of these figures. Generally, the labour force has a higher level of educational attainment than the population at large. This overall picture is not surprising since labour force participation to an increasing extent is based on education in post-industrial societies. Further, since a growing proportion of the work force has attained at least secondary education, the labour market possibilities for those with less schooling will undoubtedly deteriorate.

The divergences between the four countries have also to be commented upon. The figures show that a higher proportion of the low-educated stratum is economically active in the two Scandinavian countries (especially Sweden). A plausible interpretation for this is that the more regulated labour markets in the Scandinavian countries have 'sheltered' those with a low education. Thus, it is the institutional arrangements of two different welfare-state regimes that these differences emanate from. Another explanation is that it has to do with the level of unemployment. In a situation with high unemployment it can be expected that individuals with low education exit the labour force (e.g. by early retirement) to a greater extent than those with higher education. When people with low education experience unemployment they are not as likely as those with higher education to find new jobs in connection with a growth period in the economy. The difference between Denmark and Sweden – where Sweden has a higher proportion of low-educated in the labour force than Denmark – can be attributed to the fact that it is quite recently that Sweden has experienced high levels of unemployment and a decreasing demand for labour.

The higher level of educational attainment in the two North American countries can be interpreted in several ways. It is possible that a less regulated and more market driven economy gives incentive for people to invest in higher education. Also, a high education is, in these countries, more connected to the actual welfare of individuals, since the state does not have the same overarching responsibility for the individuals as in the Scandinavian countries. Another aspect is that the restructuring of the labour market towards a domination of service jobs took place earlier in the North American countries, thereby creating a demand for a higher educated labour force. The convergence in labour market structure will quite possibly also mean a convergence in educational attainment between the four countries. Today

we can observe that the absolute majority of young people completes upper secondary education, and that a sizeable proportion also obtains some kind of tertiary education.

SUMMARY AND CONCLUSION

Overall, the findings in this chapter confirm the proposition of a movement towards a labour market with a large incidence of professional and managerial occupations. Together, managerial and professional occupations account for between 35 and 43 per cent of employment in the four countries. 43 per cent in The United States, 41 in Sweden, and 36 and 35 per cent in Canada and Denmark respectively. On the other hand, it has not been possible to identify a concomitant growth of low-skill service occupations in any of these countries. Further, manual or blue-collar occupations still constitute one fourth of employment in all our countries. So, the picture of a post-industrial labour market consisting primarily of, on the one hand, a large group of high-skill occupations and, on the other hand, an equally large group of unskilled service workers is not consistent with the data presented in this chapter. Despite rather far-reaching changes in these countries' economic structural conditions, their occupational structures do not display changes of a similar magnitude.

The four countries in this study are different in a number of ways. The two Scandinavian and the two North American countries represent in many respects two different types of welfare states. In spite of these differences the occupational structures of the four countries do not deviate that much from each other, and, clearly, the similarities are much greater than the differences. There does not seem to exist distinctly different occupational structures that can be connected to different welfare-state types. Even more similar are the patterns of occupational sex segregation. Women and men dominate in the same jobs in all four countries, even though they display a higher concentration in some occupations in the Scandinavian countries.

A rising educational level is a significant indicator of a movement towards a labour market where formal education is the prime factor concerning the possibility of both getting a job and for upward mobility. The level of educational attainment has been rising in all four countries. Today, most young people have completed at least upper secondary education, which can be considered as the lowest level for getting access to qualified jobs. In Canada

and the United States a larger share of the population has attained tertiary education compared to Denmark and Sweden. That education is an important factor for labour market possibilities can be seen by the fact that those with lower education also have a lower labour force participation rate.

So, occupation and education are two features of society that are intimately connected to each other. And, judging from the data presented in this chapter, it seems quite safe to conclude that occupations which are accessible only via the acquisition of certain educational credentials have indeed – in concord with many predictions – become central to today’s labour markets. However, in my view it is premature to argue that what we have been witnessing during the last decades signals the advent of a post-industrial era in which the occupations of the industrial epoch quickly are becoming obsolete. That four of the arguably most economically and technologically advanced countries in the world still harbour a respectable 25 per cent of employment in occupations which can be called ‘industrial’ is indicating that society does not change at the pace that is sometimes presumed.

NOTES

- 1 The observation of stability is confirmed for the United States by Gullason (2000) who – in spite of dramatic structural changes in the U.S. economy during the nineties – finds remarkably small changes in the occupational structure.
- 2 The reduction in the number of sub-major occupational groups from 27 to 20 has several reasons. First, all military occupations were excluded since it was not possible to acquire comparable data for all countries. Second, all managerial occupations have been collapsed into one group since the managerial categories in the Canadian and the U.S. occupational classifications did not allow for a transformation to the managerial sub-major groups of ISCO-88(COM). Third, all teaching occupations have been assigned to one category because of similar mapping problems as with the managerial occupations. Fourth, because of their relatively small size all agricultural and fishery occupations have been put in one and the same category. Fifth, for the same reason all handicraft occupations were put in the same category, and the same goes for all operators and assemblers.
- 4 Unfortunately, the highly aggregated level of these data make it impossible to determine whether the rising incidence of women is in the higher or lower echelons among the managerial/administrative occupations.
- 5 For a comprehensive overview of differences between countries’ educational systems see OECD 1996b.

A POST-INDUSTRIAL DIVISION OF LABOUR?

The title of this book, *The Division of Labour in Post-Industrial Societies*, is – I must admit – a bit misleading. Implicitly, it seems to assume that there actually exist societies that can be denoted post-industrial, something which, it should be clear by now, I remain rather sceptical about. However, having been assigned to study the occupational structure in a research project called *The Post-Industrial Labour Market*, it became more or less impossible not to make the allusion to Émile Durkheim's classic *The Division of Labour in Society* from 1893 (all other comparisons should better be avoided). In the introduction it was stated that the book's primary purpose should be 'to describe and analyse the division of labour in so-called post-industrial societies'. This, however, implies a problem since one of the central variables that indicates whether a society can be defined as post-industrial or not is the actual way in which labour is divided. So, it is a specific division of labour that makes a country post-industrial in the first place. Therefore, to study the division of labour in post-industrial societies becomes almost an exercise in tautology: a post-industrial society is a society that has a post-industrial division of labour, and a post-industrial division of labour is the division of labour that is to be found in post-industrial societies...

This is a kind of discussion that can be seen as rather irrelevant in this type of study, which primarily has been directed towards description with the help of empirical data. In my view, it is, however, to a certain extent justified, since the way in which we define and make use of concepts is an

important part of all scientific work. I will return to this discussion below, but first the empirical results will be summarised and compared to the propositions that were formulated initially.

SUMMARY OF FINDINGS

In this book the division of labour in altogether five economically advanced Western countries has been studied. In accordance with Esping-Andersen's typology of different types of welfare states, Canada and the United States belong to the liberal welfare-state regime, Denmark and Sweden to the social democratic regime type, and Germany to the corporatist type. To begin with, a short summary of the empirical results will be presented.

In Chapter 4, to begin with, it was concluded that the industrial employment structures of Germany, Sweden, and the United States display a considerable degree of similarity, even though some minor differences set them apart. Also, they have been converging for the last fifteen years, with the exception of the difference within the social services sector that seems to persist. Here Sweden stands out with a relatively high employment rate in this sector, which can be attributed to the vast obligations of the encompassing social democratic welfare-state regime.

The countries' occupational employment structures were analysed in all three empirical chapters, and, overall, the findings in these chapters confirm the proposition of a movement towards a division of labour with a large incidence of professional and managerial occupations. In all five countries occupations that can be regarded as the dominant occupations of post-industrial society (i.e. managers and professionals) stand for about 35 per cent or more of total employment. Occupations that traditionally have been denoted blue-collar constitute approximately one-quarter of employment, which tells us that it is definitely too early to start considering them as relicts of the industrial society.

When using more detailed data, some country specificities were identified. Germany, for instance, has a comparatively large share of craft workers, Sweden has a high proportion of care workers, and Canada and the United States are characterised by a large share of managers. These differences are, however, fairly minor compared to the overall similarities regarding many occupational groups, and the trend is mostly towards an increasing similarity.

Some country traits are undeniably the direct consequences of different welfare-state regimes, in particular those concerning care jobs.

The cross-national patterns of occupational sex segregation studied in Chapters 5 and 6 are even more similar than those regarding the overall occupational structure. In all five countries men dominate in technical and blue-collar occupations, while women are more numerous in health and caring occupations. This pattern makes it relevant to talk about an international gender regime. However, men and women in Canada and the United States seem to be spread out somewhat more evenly in the occupational structure. It was also contended that the differences in men and women's occupational structures are reinforced by the use of detailed data, which means that the findings in this study might have been somewhat different had more detailed data been used.

Now then, what do these results tell us about the initial propositions? The primary proposition stated that 'the post-industrial development implies that complex societies should become increasingly similar regarding their division of labour'. This proposition was complemented by one proposition arguing that 'a constantly increasing share of highly educated workers' is to be expected, and another that asserts that there will be a 'simultaneous increase in the share of professional workers and unskilled service workers'. All three propositions are universalistic since they assume that all societies develop in the same way (i.e. provided that they are capitalist economies), and they also argue for convergence, even though one country (in most cases the United States) may be leading the way. The second proposition has been called the upgrading hypothesis, while the third is called the polarisation hypothesis. As a challenge to the universalistic proposition, a fourth proposition was formulated, which argued that 'the division of labour in post-industrial societies ought to differ if they belong to different welfare-state regimes'. This is the so-called diversification hypothesis.

First, the empirical results primarily support the proposition of a universal upgrading of the occupational structure. It is quite clear that the development in these countries is towards more jobs with higher educational requirements, which, of course, is connected to the increase in the overall educational attainment of the countries' populations. Since this development to a great extent is a question of an increasing share of professionals, Bell's forecast of the dominance of the professional stratum in the coming post-industrial society seems partly to have been confirmed. On the other hand, professionals

do not seem to have replaced society's top decision-makers. Corporate managers and state bureaucrats still constitute a fair share of the occupational structure, especially in the North American countries. This result is more an affirmation of Burnham's hypothesis of the managerial society, or of Perkin's notion of a managerial elite among the professional expertise.

Second, a growth of low-skill service occupations has not been identified in any of these countries. Thus, the pessimistic polarisation image does not receive any support in this study. It is particularly interesting to note that there are no signs of a quickly growing 'MacDonalds proletariat' in these countries, not even in the United States. The only country (i.e. among Germany, Sweden, and the United States) that has a sizeable share of unskilled service occupations is Sweden. These occupations are, however, primarily care jobs within the Swedish comprehensive public service sector, and should therefore not be confused with a 'MacDonaldisation' of the occupational employment structure.

Third, the diversification hypothesis does not receive especially much support. Countries that have been declared to represent the liberal, the corporatist, or the social democratic welfare-state regimes do not differ especially much either regarding their industrial or occupational employment structures. The most conspicuous trait that can be clearly connected to a specific welfare-state regime is Sweden's high share of care workers. Also Germany's high proportion of craft workers can to some degree be regarded as welfare-state related. Hence, the diversification hypothesis cannot be totally rejected, but there are actually not that many results that speak in favour of it, at least not if countries belonging to different welfare-state regimes should display qualitatively different employment structures, and not just differences of some percentage points.

Two propositions were formulated concerning the gendered dimension of the division of labour. The first stated that a post-industrial development ought to imply 'a levelling out of sex differences in society's division of labour', and the second that 'the sexual division of labour is dependent on the character of the welfare state'.

It is quite clear that – if there actually is a development towards a post-industrial division of labour – it coincides to a great extent with women's increasing labour force participation. That is, the shifts that have been observed in the occupational structures of these countries have occurred concomitantly with women's increased participation in paid work. Also, the results

show that women have increased their share of both managerial and professional occupations, an increase that becomes even more noteworthy since these occupational groups at the same time have increased their share of the overall occupational structure. However, women have not increased their proportion in traditional blue-collar jobs, and they are extremely dominant in all types of care jobs. Also, when looking at more detailed data it becomes clear that there are distinct gender patterns also within the managerial and professional occupations. In all countries women dominate the L- or welfare professions and men dominate the T- or capital professions, but men tend to dominate even among the higher positions within the L-professions. Hence, the levelling out of sex differences is mostly a phenomenon at rather high levels of aggregation, and the most conspicuous aspect of these countries' occupational sex segregation is the very strong cross-national similarity.

Regarding the impact of the welfare state, it seems as if a correlation between welfare-state regime and the occupational structure to some degree is a question about women's economic activity. In this respect, Sweden in particular stands out with its high female concentration in a rather few care occupations. That Canada and the United States seemingly produce somewhat less sex segregation than the other three countries in spite of rather high female participation rates is an interesting finding. That the corporatist welfare state of Germany with its focus on traditional family patterns generates a rather high degree of sex segregation is not especially surprising. The equally high segregation rates of the egalitarian Scandinavian countries were more unexpected, but they can probably be explained by the comprehensive obligations of the Scandinavian public sector that also creates jobs that primarily attracts women.

The last proposition stated that 'the way in which we comprehend society's division of labour is a consequence of the definitions and classifications we make use of'. This proposition was dealt with in Chapter 4, and it is quite easy to conclude that this is actually the case. An occupational classification is a social construction and not a mirror image of society's 'real' or 'actual' division of labour. Since practically all occupational classifications in use are so-called official or standard statistical classifications they are designed with the purpose of doing some kind of bureaucratic work, and not primarily to be used in scientific endeavours. As social scientists it is therefore extremely important to be aware of their inherent limitations and not use them for purposes they are not suitable for.

POST-INDUSTRIAL OR NOT?

So, when all is said and done, is there a specific post-industrial division of labour or not? There are primarily two possible answers to this question, and both of them provide us with different aspects of the debate on post-industrialism. First, we can of course argue that there is a post-industrial division of labour. This answer is purely theoretical and conjures up an image of a division of labour that is qualitatively different from that of industrial society. Here, the post-industrial division of labour is an ideal type that is contrasted to the – likewise ideal typical – industrial division of labour. Hence, it is wrong to suppose that any ‘real-world’ society can have a division of labour that is identical to either the industrial or the post-industrial type. We find this type of reasoning with Bell who contrasts industrial society to post-industrial society by arguing that the former is ‘fabricating’ while the latter is ‘processing’, and that life is a ‘game against fabricated nature’ in industrial society while it is a ‘game between persons’ in post-industrial society. On the other hand, Bell is also arguing that post-industrial society does not do away with all the aspects that are characteristic of industrial society. So, the question presents itself: If the post-industrial division of labour is qualitatively different from that of industrial society, is it possible to retain even the slightest trace of the industrial way of dividing labour and still define the new division of labour as post-industrial? This might seem to be just a play on words, but the question is actually whether those who are forecasting radical or revolutionary changes in the world of work are really providing us with an idea of something new and not only with a variation on an old theme.

The second way of answering the question of whether there is a post-industrial division of labour or not is mostly empirical. Here it is primarily by measuring the incidence, level, or degree of a number of social indicators that we decide what type of society we are dealing with. If we, for instance, assert that a society can be considered to be post-industrial if the majority of jobs are performed by professionals, we can quickly conclude whether the division of labour is post-industrial or not. Obviously, this is a theoretically rather uninformed and pragmatic standpoint where the label post-industrial is used more as a catchword than as a well-defined social scientific concept. Clearly, this opens up for a downright abuse of the concept, making it equally possible to argue that either all or none of the economically ad-

vanced countries are post-industrial.

Further, as exemplified in Chapter 2, there is no agreed upon definition of the concept post-industrial, and it is quite easy to identify a number of different 'post-industrial scenarios'. To be sure, there are some traits that are common to all these scenarios (e.g. the notion of scientific knowledge as the prime mover of the new social state), but otherwise they range from more or less utopian to outright dystopian visions. Several of the post-industrialists' common traits are also common to the notion of industrial society that was formulated already in the fifties. Maybe the most original notion that seems to be common to most post-industrialists is the idea of a clear divide between the professional service stratum and the more or less unskilled service workers. The argument is that the top stratum of post-industrial society is made up of highly educated service workers, but this is primarily a served and not a serving class. In essence, it is an image of a new post-capitalist class structure, where society's primary conflict is not between the capitalist and the worker but between the '[...] professional and the populace' (Bell 1976: 129). This dual perspective comes in many different shapes, and it is often hidden within a more complex image of the new division of labour (e.g. Castells 1996: 244). Again, the notion of an emerging class of knowledge workers or professionals is not really that novel. Consider, for instance, Burnham's (1941) notion of the 'managerial revolution', or the industrialists' idea of professional managers, '[...] technically trained and carefully selected for their tasks' (Kerr *et al.* 1960: 291).

It is, however, clear that the notion of a post-industrial dual class structure is not buttressed by the data presented in this book. In the same way as it has been difficult to uphold the idea of a society with a basic conflict between capitalists and workers (e.g. Wright 1985), it is equally hard to inflict a dual conflict structure onto the heterogeneous world of work in today's societies.

CONCLUDING REMARKS

Personally, I have great difficulties in identifying the revolutionary aspects of the current social transformation, whatever we wish to call it. Rather, I would side with those – for instance Lacroix and Tremblay (1997: 5f) – who argue that the new socio-economic mode and the new technological paradigm is '[...] more a shift to a higher level and more complex form of

the industrialisation and commodification process within social totality'. So, the post-industrial society is in essence a continuation and amplification of the patterns that were institutionalised when industrial society took form. The most important of these are that labour is a commodity on a market, that the workplace is separated from the family, and that the production process is based on theoretical scientific knowledge attained at educational institutions. In all its fundamentals society can still to be considered as industrial, and an idea of a major qualitative shift in the way a society organises its production of goods and services must be considerably more radical than just the extrapolation of some trends from industrial society.

If anything, what is called post-industrialism seems mostly to be connected to women's increased participation in public and economic life in general. Obviously, this implies that the dual-earner family is a fundamental feature of the future society (whatever we choose to call it). The sexual division of labour is a cross-national phenomenon that displays a high degree of temporal stability, and it is quite probable that changing family patterns are a prerequisite for any major changes regarding sex segregation. So, finally, if industrial society is predominantly male, the primary distinguishing feature of post-industrial society might not be its service, information, or knowledge character, but instead that women are on an equal footing with men regarding their working lives and careers.

APPENDIX I

The hierarchical structure of ISCO-88, major, sub-major, and minor group titles

1 Legislators, senior officials and managers

- 11 Legislators and senior officials
 - 111 Legislators
 - 112 Senior government officials
 - 113 Traditional chiefs and head of villages
 - 114 Senior officials of special-interest organisations
- 12 Corporate managers
 - 121 Directors and chief executives
 - 122 Production and operations department managers
 - 123 Other department managers
- 13 General managers
 - 131 General managers

2 Professionals

- 21 Physical, mathematical and engineering science professionals
 - 211 Physicists, chemists and related professionals
 - 212 Mathematicians, statisticians and related professionals
 - 213 Computing professionals
 - 214 Architects, engineers and related professionals
- 22 Life science and related professionals
 - 221 Life science professionals
 - 222 Health professionals (except nursing)
 - 223 Nursing and midwifery professionals
- 23 Teaching professionals
 - 231 College, university and higher education teaching professionals
 - 232 Secondary education teaching professionals
 - 233 Primary and pre-primary education teaching professionals
 - 234 Special education teaching professionals
 - 235 Other teaching professionals
- 24 Other professionals
 - 241 Business professionals
 - 242 Legal professionals
 - 243 Archivists, librarians and related information professionals
 - 244 Social science and related professionals
 - 245 Writers and creative performing artists
 - 246 Religious professionals

3 Technicians and associate professionals

- 31 Physical and engineering science associate professionals
 - 311 Physical and engineering science professionals
 - 312 Computer associate professionals
 - 313 Optical and electronic equipment operators
 - 314 Ship and aircraft controllers and technicians
 - 315 Safety and quality inspectors
- 32 Life science technicians and health associated professionals
 - 321 Life science technicians and related associate professionals
 - 322 Modern health associate professionals (except nursing)
 - 323 Nursing and midwifery associate professionals
 - 324 Traditional medicine practitioners and faith healers
- 33 Teaching associate professionals
 - 331 Primary education teaching associate professionals
 - 332 Pre-primary education teaching associate professionals
 - 333 Special education teaching associate professionals
 - 334 Other teaching associate professionals
- 34 Other associate professionals
 - 341 Finance and sales associate professionals
 - 342 Business services agents and trade brokers
 - 343 Administrative associate professionals
 - 344 Customs, tax and related government associate professionals
 - 345 Police inspectors and detectives
 - 346 Social work associate professionals
 - 347 Artistic, entertainment and sports associate professionals
 - 348 Religious associate professionals

4 Clerks

- 41 Office clerks
 - 411 Secretaries and keyboard-operating clerks
 - 412 Numerical clerks
 - 413 Material-recording and transport clerks
 - 414 Library, mail and related clerks
 - 419 Other office clerks
- 42 Customer services clerks
 - 421 Cashiers, tellers and related clerks
 - 422 Client information clerks

5 Service workers and shop and market sales workers

- 51 Personal and protective services workers
 - 511 Travel attendants and related workers
 - 512 Housekeeping and restaurant services workers
 - 513 Personal care and related workers

- 515 Astrologers, fortune-tellers and related workers
- 516 Protective services workers
- 52 Models, salespersons and demonstrators
 - 521 Fashion and other models
 - 522 Shop salespersons and demonstrators
 - 523 Stall and market salespersons
- 6 Skilled agricultural and fishery workers**
 - 61 Market-oriented skilled agricultural and fishery workers
 - 611 Market gardeners and crop growers
 - 612 Market-oriented animal producers and related workers
 - 613 Market-oriented crop and animal producers
 - 614 Forestry and related workers
 - 615 Fishery workers, hunters and trappers
 - 62 Subsistence agricultural and fishery workers
 - 621 Subsistence agricultural and fishery workers
- 7 Craft and related trades workers**
 - 71 Extraction and building trades workers
 - 711 Miners, shotfirers, stone cutters and carvers
 - 712 Building frame and related trades workers
 - 713 Building finishers and related trades workers
 - 714 Painters, building structure cleaners and related trades workers
 - 72 Metal, machinery and related trades workers
 - 721 Metal moulders, welders, sheet-metal and related trades workers
 - 722 Blacksmiths, tool-makers and related trades workers
 - 723 Machinery mechanics and fitters
 - 724 Electrical and electronic equipment mechanics and fitters
 - 73 Precision, handicraft and related trades workers
 - 731 Precision workers in metal and related materials
 - 732 Potters, glass-makers and related trades workers
 - 733 Handicraft workers in wood, textile, leather and related materials
 - 734 Printing and related trades workers
 - 74 Other craft and related trades workers
 - 741 Food processing and related trades workers
 - 742 Wood treaters, cabinet-makers and related trades workers
 - 743 Textile, garment and related trades workers
 - 744 Pelt, leather and shoemaking trades workers

8 Plant and machine operators and assemblers

- 81 Stationary-plant and related operators
 - 811 Mining- and mineral-processing-plant operators
 - 812 Metal-processing-plant operators
 - 813 Glass, ceramics and related plant operators
 - 814 Wood-processing- and papermaking-plant operators
 - 815 Chemical-processing-plant operators
 - 816 Power-production and related plant operators
 - 817 Automated-assembly-line and industrial-robot operators
- 82 Machine operators and assemblers
 - 821 Metal- and mineral-products machine operators
 - 822 Chemical-products machine operators
 - 823 Rubber- and plastic-products machine operators
 - 824 Wood-products machine operators
 - 825 Printing-, binding- and paper-products machine operators
 - 826 Textile-, fur- and leather-products machine operators
 - 827 Food and related products machine operators
 - 828 Assemblers
 - 829 Other machine operators and assemblers
- 83 Drivers and mobile-plant operators
 - 831 Locomotive-engine drivers and related workers
 - 832 Motor-vehicle drivers
 - 833 Agricultural and other mobile-plant operators
 - 834 Ships' deck crews and related workers

9 Elementary occupations

- 91 Sales and services elementary occupations
 - 911 Street workers and related workers
 - 912 Shoe cleaning and other street services elementary occupations
 - 913 Domestic and related helpers, cleaners and launderers
 - 914 Building caretakers, window and related cleaners
 - 915 Messengers, porters, doorkeepers and related workers
 - 916 Garbage collectors and related labourers
- 92 Agricultural, fishery and related labourers
 - 921 Agricultural, fishery and related labourers
- 93 Labourers in mining, construction, manufacturing and transport
 - 931 Mining and construction labourers
 - 932 Manufacturing labourers
 - 933 Transport labourers and freight handlers

0 Armed forces

- 011 Armed forces
 - 0110 Armed forces

APPENDIX II

An outline of ISCO-88 major groups

1. Legislators, senior officials and managers

This major group includes occupations whose main tasks consist of determining and formulating government policies, as well as laws and public regulations, overseeing their implementation, representing governments and acting on their behalf, or planning, directing and co-ordinating the policies and activities of enterprises and organisations, or departments. Reference to skill level has not been made in defining the scope of this major group, which has been divided into three sub-major groups, reflecting differences in tasks associated with different areas of authority and different types of enterprises and organisations.

2. Professionals

This major group includes occupations whose main tasks require a high level of professional knowledge and experience in the fields of physical and life sciences, or social sciences and humanities. The main tasks consist of increasing the existing stock of knowledge, applying scientific and artistic concepts and theories to the solution of problems, and teaching about the foregoing in a systematic manner. Most occupations in this major group require skills at the fourth ISCO skill level. This major group has been divided into four sub-major groups, 18 minor groups and 55 unit groups, reflecting differences in tasks associated with different fields of knowledge and specialisation.

3. Technicians and associate professionals

This major group includes occupations whose main tasks require technical knowledge and experience in one or more fields of physical and life sciences, or social sciences and humanities. The main tasks consist of carrying out *technical work* connected with the application of concepts and operational methods in the above-mentioned fields, and in teaching at certain educational levels. Most occupations in this major group require skills at the third ISCO level. This major group has been divided into four sub-major groups, 21 minor groups and 73 unit groups, reflecting differences in tasks associated with different fields of knowledge and specialisation.

4. Clerks

This major group includes occupations whose main tasks require the knowledge and experience necessary to organise, store, compute and retrieve information. The main tasks consist of performing secretarial duties, operating word processors and other office machines, recording and computing numerical data, and performing a number of customer-oriented clerical duties, mostly in connection with mail services, money-handling operations and appointments. Most occupations in this major group require skills at the second ISCO skill level. This major group has been divided into two sub-major groups, seven minor groups and 23 unit groups, reflecting differences in tasks associated with different areas of specialisation.

5. Service workers and shop and market sales workers

This major group includes occupations whose main tasks require the knowledge and experience necessary to provide personal and protective services, and to sell goods in shops or at markets. The main tasks consist of providing services related to travel, housekeeping, catering, personal care, protection of individuals and property, and to maintaining law and order, or selling goods in shops or at markets. Most occupations in this major group require skills at the second ISCO skill level. This major group has been divided into two sub-major groups, nine minor groups and 23 unit groups, reflecting differences in tasks associated with different areas of specialisation.

6. Skilled agricultural and fishery workers

This major group includes occupations whose main tasks require the knowledge and experience necessary to produce farm, forestry and fishery products. The main tasks consist of growing crops, breeding or hunting animals, catching or cultivating fish, conserving and exploiting forests and, especially in the case of market-oriented agricultural and fishery workers, selling products to purchasers, marketing organisations or at markets. Most occupations in this major group require skills at the second ISCO skill level. This major group has been divided into two sub-major groups, six minor groups and 17 unit groups, reflecting differences in tasks associated with different areas of specialisation, and differences between market-oriented and subsistence agricultural and fishery workers.

7. Craft and related trades workers

This major group includes occupations whose main tasks require the knowledge and experience of skilled trades or handicrafts which, among other things, involves an understanding of materials and tools to be used, as well as all stages of the production process, including the characteristics of the final product. The main tasks consist of extracting raw materials, constructing buildings and other structures and making various products as well as handicraft goods. Most occupations in this major group require skills at the second ISCO skill level. This major group has been divided into four sub-major groups, 16 minor groups and 70 unit groups, reflecting differences in tasks associated with different areas of specialisation.

8. Plant and machine operators and assemblers

This major group includes occupations whose main tasks require the knowledge and experience necessary to operate and monitor large scale, and often highly automated, industrial machinery and equipment. The main tasks consist of operating and monitoring mining, processing and production machinery and equipment, as well as driving vehicles and operating mobile plant, or assembling products from component parts. Most occupations in this major group require skills at the second ISCO skill level. This major group has been divided into three sub-major groups, 20 minor groups and 70 unit groups, reflecting differences in tasks associated with different areas of work.

9. Elementary occupations

This major group covers occupations which require the knowledge and experience necessary to perform mostly simple and routine tasks, involving the use of hand-held tools and in some cases considerable physical effort, and, with few exceptions, only limited personal initiative or judgement. The main tasks consist of selling goods in streets, doorkeeping and property watching, as well as cleaning, washing, pressing, and working as labourers in the fields of mining, agriculture and fishing, construction and manufacturing. Most occupations in this major group require skills at the first ISCO skill level. This major group has been divided into three sub-major groups, ten minor groups and 25 unit groups, reflecting differences in tasks associated with different areas of work.

0. Armed forces

Members of the armed forces are those personnel who are currently serving in the armed forces, including auxiliary services, whether on a voluntary or compulsory basis, and who are not free to accept civilian employment. Included are regular members of the army, navy, air force or other military services, as well as conscripts enrolled for military training or other service for a specified period, depending on national requirements. Excluded are persons in civilian employment of government establishments concerned with defence issues; police (other than military police); customs inspectors and members of border or other armed civilian services; persons who have been temporarily withdrawn from civilian life for a short period of military training or retraining, according to national requirements and members of military reserves not currently on active service. Reference to a skill level has not been used in defining the scope of this major group.

(ILO 1990: 5ff)

REFERENCES

- Abbott, A. (1988) *The System of Professions. An Essay on the Division of Expert Labor*, Chicago: The University of Chicago Press.
- Anker, R. (1997) 'Theories of occupational segregation by sex: an overview', *International Labour Review* 136: 315-339.
- (1998) *Gender and jobs. Sex Segregation of Occupations in the World*, Geneva: International Labour Office.
- Anderson, M. (1994) '(Only) white men have class. Reflections on early 19th-century occupational classification systems', *Work and Occupations* 21: 5-32.
- Andersson, Å.E. and Sylwan, P. (1997) *Framtidens arbete och liv*, Stockholm: Natur och Kultur.
- Aron, R. (1967) *18 Lectures on Industrial Society*, London: Weidenfeld and Nicolson.
- Aronowitz, S. and DiFazio, W. (1994) *The Jobless Future. Sci-Tech and the Dogma of Work*, Minneapolis: University of Minnesota Press.
- Atkinson, J. (1984) *Flexibility, Uncertainty and Manpower Management*, Brighton: Institute of Manpower Studies, report No. 89.
- Bain, G.S. and Price, R. (1972) 'Who is a white-collar employee?', *British Journal of Industrial Relations* 10: 326-339.
- Barton, A.H. (1955) 'The concept of property-space in social research', in P.F. Lazarsfeld and M. Rosenberg (eds) *The Language of Social Research. A Reader in the Methodology of Social Research*, Clencoe: The Free Press.
- Beck, U. (1992) *Risk Society. Towards a New Modernity*, London: SAGE Publications.
- Beck, U., Giddens, A. and Lash, S. (1994) *Reflexive Modernization. Politics, Tradition and Aesthetics in the Modern Social Order*, Stanford: Stanford University Press.
- Beckman, S. (1990) 'Professionalisation: borderline authority and autonomy in work', in M. Burrage and R. Torstendahl (eds) *Professions in Theory and History. Rethinking the Study of the Professions*, London: SAGE Publications.
- Bell, D. (1976) *The Coming of Post-Industrial Society. A Venture in Social Forecasting*, New York: Basic Books.
- Benson, L. (1979) 'Marx's general and middle-range theories of social conflict', in R.K. Merton, J.S. Coleman and P.H. Rossi (eds) *Qualitative and Quantitative Social Research*, New York: The Free Press.
- Berglund, T. (2001) *Attityder till arbete i Västeuropa och USA. Teoretiska perspektiv och analyser av data från sex länder*, Göteborg: Department of Sociology, Göteborg University.
- Block, F. (1990) *Postindustrial Possibilities. A Critique of Economic Discourse*, Berkeley: University of California Press.

- Blossfeld, H-P., Giannelli, G. and Mayer, K.U. (1993) 'Is there a new service proletariat? The tertiary sector and social inequality in Germany', in G. Esping-Andersen (ed.) *Changing Classes. Stratification and Mobility in Post-industrial Societies*, London: SAGE Publications.
- BLS (2001) *Occupational Outlook Handbook, 2000-01 Edition*, <http://stats.bls.gov/ocohome.htm?LNav> (13 July 2001).
- Bluestone, B. and Harrison, B. (1988) *The Great U-Turn. Corporate Restructuring and the Polarizing of America*, New York: Basic Books.
- Boje, T.P. (forthcoming) 'Towards a post-industrial service society. Changes in the industrial structure', in T.P. Boje and B. Furåker (eds) *Post-Industrial Profiles. On North American and Scandinavian Labour Markets*, London: Routledge.
- Boje, T.P. and Furåker, B. (forthcoming) (eds) *Post-Industrial Profiles. On North American and Scandinavian Labour Markets*, London: Routledge.
- Bowker, G.C. and Star, S.L. (1999) *Sorting Things Out. Classification and its Consequences*, London: The MIT Press.
- Brante, T. (1990) 'Professional types as a strategy of analysis', in M. Burrage and R. Torstendahl (eds) *Professions in Theory and History. Rethinking the Study of the Professions*, London: SAGE Publications.
- (1994) 'Teori och typologi: om förhållandet mellan makrosociologi, institutionella sfärer och social handling', *Sociologisk Forskning* 31: 3-25.
- Braverman, H. (1974) *Labor and Monopoly Capital. The Degradation of Work in the Twentieth Century*. New York: Monthly Review Press.
- Brint, S. (1994) *In an Age of Experts. The Changing Role of Professionals in Politics and Public Life*, Princeton: Princeton University Press.
- Burnham, J. (1941) *The Managerial Revolution. What is Happening in the World*, New York: The John Day Company, Inc.
- Burrage, M. and Torstendahl, R. (1990) (eds) *Professions in Theory and History. Rethinking the Study of the Professions*, London: SAGE Publications.
- Carnoy, M., Castells, M. and Benner, C. (1997) 'Labour markets and employment practices in the age of flexibility: a case study of Silicon Valley', *International Labour Review* 136: 27-48).
- Castells, M. (1996) *The Rise of the Network Society*, Malden: Blackwell Publishers.
- (1997) *The Power of Identity*, Malden: Blackwell Publishers.
- Chang, M.L. (2000) 'The evolution of sex segregation regimes', *American Journal of Sociology*, 105: 1658-1701.
- Charles, M. and Grusky, D.B. (1995) 'Models for describing the underlying structure of sex segregation', *American Journal of Sociology*, 100: 931-971.
- Clement, W. and Myles, J. (1994) *Relations of Ruling. Class and Gender in Post-industrial Societies*, Montreal & Kingston: McGill-Queen's University Press.
- Cohen, S.S. and Zysman, J. (1987) *Manufacturing Matters. The Myth of the Post-Industrial Economy*, New York: Basic Books.

- Collins, R. (1979) *The Credential Society. An Historical Sociology of Education and Stratification*, Orlando: Academic Press, Inc.
- Crompton, R. (1998) *Class and Stratification. An Introduction to Current Debates*, Cambridge: Polity Press.
- Crompton, R. and Harris, F. (1998) 'Gender relations and employment: the impact of occupation', *Employment & Society*, 12: 297-315.
- Dex, S. (1987) *Women's Occupational Mobility. A Lifetime Perspective*, Houndmills: The MacMillan Press Ltd.
- Dicken, P. (1992) *Global Shift. The Internationalisation of Economic Activity*, London: Paul Chapman Publishing Ltd.
- Doeringer, P.B. and Piore, M.J. (1971) *Internal Labor Markets and Manpower Analysis*, Lexington: Heath Lexington Books.
- Dosi, G. (1982) 'Technological paradigms and technological trajectories. A suggested interpretation of the determinants and directions of technical change', *Research Policy* 11: 147-162.
- Douglas, M. and Hull, D. (eds) (1992) *How Classification Works. Nelson Goodman among the Social Sciences*, Edinburgh: Edinburgh University Press.
- Durkheim, É. (1933) *The Division of Labor in Society*, New York: The Free Press.
- Einarsdottir, T. (1997) *Läkaryrket i förändring. En studie av den medicinska professionens heterogenisering och könsdifferentiering*, Göteborg: Department of Sociology, Göteborg University.
- Elias, P. (1997) *Occupational Classification (ISCO-88): Concepts, Methods, Reliability, Validity and Cross-National Comparability*, Paris: OECD.
- Elias, P. and Birch, M. (1993) *ISCO 88 (COM). Definition of the Version of the 1988 International Standard Classification for use within the European Community*, Warwick: Institute for Employment Research.
- Erikson, R. and Goldthorpe, J.H. (1993) *The Constant Flux. A Study of Class Mobility in Industrial Society*, Oxford: Clarendon Press.
- Esping-Andersen, G. (1990) *The Three Worlds of Welfare Capitalism*, Cambridge: Polity Press.
- (ed.) (1993) *Changing Classes. Stratification and Mobility in Post-industrial Societies*, London: SAGE Publications.
- (1999) *Social Foundations of Postindustrial Economies*, Oxford: Oxford University Press.
- Esping-Andersen, G., Assimakopoulou, Z. and van Kersbergen (1993) 'Trends in contemporary class structuration: a six-nation comparison', in G. Esping-Andersen (ed.) *Changing Classes. Stratification and Mobility in Post-industrial Societies*, London: SAGE Publications.
- European Commission (1999) *Inventory of International Statistical Classifications – 1999 Edition*, Luxembourg: Office for Official Publications of the European Communities.

- Ganzeboom, H.B.G. and Treiman, D.J. (1996) 'Internationally comparable measures of occupational status for the 1988 International Standard Classification of Occupations', *Social Science Research* 25: 201-239.
- Gershuny, J. (1978) *After Industrial Society. The Emerging Self-service Economy*, London: The MacMillan Press Ltd.
- Goldin, C. (1990) *Understanding the Gender Gap. An Economic History of American Women*, Oxford: Oxford University Press.
- Gornick, J.C., Meyers, M.K. and Ross, K.E. (1997) 'Supporting the employment of mothers: policy variation across fourteen welfare states', *Journal of European Social Policy* 7: 45-70.
- Gornick, J.C. (1999) 'Gender inequality in the labour market', in D. Sainsbury (ed.) *Gender and Welfare State Regimes*, Oxford: Oxford University Press.
- Greenhalgh, C. And Gregory, G. (1997) 'Why manufacturing still matters', in J. Philpott (ed.) *Working for Full Employment*, London: Routledge.
- Gullason, E.T. (2000) 'The dynamics of the U.S. occupational structure during the 1990s', *Journal of Labor Research* 21: 363-375.
- Hakim, C. (1992) 'Explaining trends in occupational segregation: The measurement, causes, and consequences of the sexual division of labour', *European Sociological Review* 8: 127-152.
- Halal, W.E. and Taylor, K.B. (1999) (eds) *Twenty-First Century Economics. Perspectives of Socioeconomics for a Changing World*, Houndmills: MacMillan Press Ltd.
- Hall, R.H. (1969) *Occupations and the Social Structure*, Englewood Cliffs: Prentice-Hall.
- Hansen, M.N. (1997) 'The Scandinavian welfare state model: The impact of the public sector on segregation and gender equality', *Work, Employment & Society*, 11: 83-93.
- Hayghe, H.V. (1997), 'Developments in women's labor force participation', *Monthly Labor Review* 120: 41-46.
- Hellberg, I. (1978) *Studier i professionell organisation. En professionsteori med tillämpning på veterinäryrket*, Göteborg: Department of Sociology, Göteborg University.
- (1999) 'Altruism and utility. Two logics of professional action', in I. Hellberg, M. Saks and C. Benoit (eds) *Professional Identities in Transition. Cross-Cultural Dimensions*, Södertälje: Almqvist & Wiksell International.
- Hellberg, I., Saks, M. and Benoit, C. (1999) (eds) *Professional Identities in Transition. Cross-Cultural Dimensions*, Södertälje: Almqvist & Wiksell International.
- Hempel, C.G. (1952) *Fundamentals of Concept Formation in Empirical Science*, Chicago: The University of Chicago Press.
- Hoffmann, E. (2000) *International Statistical comparisons of Occupational and Social Structures: Problems, Possibilities and the Role of ISCO-88*, Geneva: International Labour Office.

- Hoffmann, E. and Chamie, M. (1999) *Standard Statistical Classifications: Basic Principles*, New York: United Nations Statistical Commission.
- Håkansson, K. (2001) *Språngbräda eller segmentering? En longitudinell studie av tidsbegränsat anställda*, Uppsala: IFAU.
- ILO (1986) *International Standard Classification of Occupations. Revised Edition 1968*, Geneva: International Labour Office.
- ILO (1990) *ISCO-88. International Standard Classification of Occupations*, Geneva: International Labour Office.
- (1998) *General Report. Sixteenth International Conference of Labour Statisticians*, Geneva: International Labour Office.
- ILO (2001) *LABORSTA*, <http://laborsta.ilo.org/cgi-bin/brokerv8.exe> (15 July 2001).
- Jonung, C. (1984) 'Patterns of occupational segregation by sex in the labor market', in G. Schmid and R. Weitzel (eds) *Sex Discrimination and Equal Opportunity. The Labor Market and Employment Policy*, New York: St. Martin's Press.
- (1993) 'Yrkessegregeringen på arbetsmarknaden', in *Kvinnors arbetsmarknad. 1990-talet – återtågets årtionde*. Ds 1993:8. Stockholm: Arbetsmarknadsdepartementet.
- (1997) 'Yrkessegregeringen mellan män och kvinnor', in I. Persson and E. Wadensjö (eds) *Glastak och glasväggar. Den könssegregerade arbetsmarknaden*, Stockholm: SOU 1997: 137.
- Katz, K. (1994) *Gender Differentiation and Discrimination. A study of Soviet Wages*, Göteborg: Department of Economics, Göteborg University.
- Kerr, C. et al. (1960) *Industrialism and Industrial Man. The Problems of Labor and Management in Economic Growth*, Cambridge, Massachusetts: Harvard University Press.
- Kolberg, J.E. (ed.) (1991) *The Welfare State as Employer*, London: M.E. Sharpe, Inc.
- Kolberg, J.E. and Esping-Andersen, G. (1991) 'Welfare state and employment regimes', in J.E. Kolberg (ed.) *The Welfare State as Employer*, London: M.E. Sharpe, Inc.
- Kohn, M.L. (1989) 'Cross-national research as an analytic strategy', in M.L. Kohn (ed.) *Cross-National Research in Sociology*, London: SAGE Publications.
- Kohn, M.L. (ed.) (1989) *Cross-National Research in Sociology*, London: SAGE Publications.
- Korpi, W. and Palme, J. (1998) 'The paradox of redistribution and strategies of equality: welfare state institutions, inequality, and poverty in the western countries', *American Sociological Review* 63: 661-687.
- Krueger, A.B. and Pischke, J-S. (1997) *Observations and Conjectures on the U.S. Employment Miracle*, Cambridge: National Bureau of Economic Research.
- Kumar, K. (1991) *Utopianism*, Buckingham: Open University Press.

- (1995) *From Post-Industrial to Post-Modern Society. New Theories of the Contemporary World*, Cambridge: Blackwell Publishers Inc.
- Kvinnors arbetsmarknad. 1990-talet – återtågets årtionde*. Ds 1993:8. Stockholm: Arbetsmarknadsdepartementet.
- Lacroix, J-G. and Tremblay, G. (1997) 'The "information society" and cultural industries theory', *Current Sociology* Vol. 45.
- Lane, C. (1993a) *Management and Labour in Europe. The Industrial Enterprise in Germany, Britain and France*, Aldershot: Edward Elgar Publishing Limited.
- (1993b) 'Gender and the labour market in Europe', *The Sociological Review* 41: 275-301.
- Lash, S. (1994) 'Reflexivity and its doubles', in U. Beck, A. Giddens and S. Lash *Reflexive Modernization. Politics, Tradition and Aesthetics in the Modern Social Order*, Stanford: Stanford University Press.
- Lazarsfeld, P.F. and Barton, A.H. (1955) 'Some general principles of questionnaire classification', in P.F. Lazarsfeld and M. Rosenberg *The Language of Social Research. A Reader in the Methodology of Social Research*, Clencoe: The Free Press.
- Lazarsfeld, P.F. and Rosenberg, M. (1955) (eds) *The Language of Social Research. A Reader in the Methodology of Social Research*, Clencoe: The Free Press.
- Marx, K. and Engels, F. (1970) *The German Ideology*, London: Lawrence & Wishart.
- Mata Greenwood, A. (1999) 'Gender issues in labour statistics', *International Labour Review* 138: 273-286.
- Melkas, H. and Anker, R. (1997) 'Occupational segregation by sex in Nordic countries: An empirical investigation', *International Labour Review* 136: 341-363.
- Menger, P-M. (1999) 'Artistic labor markets and careers', *Annual Review of Sociology* 25: 541-74.
- Merton, R.K., Coleman, J.S. and Rossi, P.H. (1979) (eds) *Qualitative and Quantitative Social Research*, New York: The Free Press.
- Milkman, R., Reese, E. and Roth, B. (1998) 'The macrosociology of paid domestic labor', *Work and Occupations* 25: 483-510.
- Myles, J. (1997) 'The expanding middle: some Canadian evidence on the deskilling debate', in A. Van den Berg and J. Smucker (eds) *The Sociology of Labour Markets. Efficiency, Equity, Security*, Scarborough: Prentice Hall Allyn and Bacon Canada.
- Nermo, M. (1997) 'Yrkesssegregering efter kön – ett internationellt perspektiv', in I. Persson and E. Wadensjö (eds), *Glastak och glasväggar. Den könssegrerade arbetsmarknaden*, Stockholm: SOU 1997: 137.
- (1999) *Structured by Gender. Patterns of Sex Segregation in the Swedish Labour Market. Historical and Cross-National Comparisons*, Stockholm: Swedish Institute for Social Research.
- OECD (1994) *The OECD Jobs Study. Facts, Analysis, Strategies*, Paris: OECD.
- (1996a) *SMEs: Employment, Innovation and Growth – the Washington Workshop*, Paris: OECD.

- (1996b) *Education at a Glance. OECD Indicators*, Paris: OECD.
- (1996c) *Education at a Glance. Analysis*, Paris: OECD.
- (1997) *Employment Outlook*, Paris: OECD.
- (2000) *Employment Outlook*, Paris: OECD.
- Perkin, H. (1996) *The Third Revolution. Professional Elites in the Modern World*, London and New York: Routledge.
- Persson, I. and Wadensjö, E. (1997) (eds) *Glastak och glasväggar. Den könssegregerade arbetsmarknaden*, Stockholm: SOU 1997: 137.
- Philpott, J. (1997) (ed.) *Working for Full Employment*, London: Routledge.
- Reich, R.B. (1991) *The Work of Nations. Preparing Ourselves for 21st-Century Capitalism*, London: Simon & Schuster.
- Reskin, B. (1993) 'Sex segregation in the workplace', *Annual Review of Sociology* 19: 241-70.
- Reskin, B. and Padavic, I. (1994) *Women and Men at Work*, Thousand Oaks: Pine Forge Press.
- Rifkin, J. (1995) *The End of Work. The Decline of the Global Labor Force and the Dawn of the Post-Market Era*, New York: A Jeremy P. Tarcher/Putnam Book.
- Rones, P.L., Ilg, R.E. and Gardner, J.M. (1997) 'Trends in hours of work since the mid-1970s', *Monthly Labor Review* 120: 3-14.
- Rosen, S. (1996) 'Public employment and the welfare state in Sweden', *Journal of Economic Literature* 34: 729-740.
- Rosenfeld, R.A. and Kalleberg, A.L. (1991) 'Gender inequality in the labor market. A cross-national perspective', *Acta Sociologica* 34: 207-225.
- Rubery, J. and Fagan, C. (1993) 'Occupational segregation of women and men in the European Community', in *Social Europe*, Luxembourg: Supplement No. 3.
- Sainsbury, D. (1999) (ed.) *Gender and Welfare State Regimes*, Oxford: Oxford University Press.
- SCB (1996) *Nu och då. Dagens arbetsmarknadsläge jämfört med situationen före krisen*, Stockholm: Statistics Sweden.
- (1998) *SSYK 96. Standard för svensk yrkesklassificering*, Stockholm: Statistics Sweden.
- Schmid, G. and Weitzel, R. (1984) (eds) *Sex Discrimination and Equal Opportunity. The Labor Market and Employment Policy*, New York: St. Martin's Press.
- Sengenberger, W. (1987) *Struktur und Funktionsweise von Arbeitsmärkten. Die Bundesrepublik Deutschland im internationalen Vergleich*, Frankfurt: Campus Verlag.
- Sheldon, E.B. and Moore, W.E. (1968) *Indicators of Social Change. Concepts and Measurements*, New York: Russell Sage Foundation.
- Singelmann, J. (1978) *From Agriculture to Services. The Transformation of Industrial Employment*, London: SAGE Publications.
- Smith, A. (1976) *An Inquiry into the Nature and Causes of the Wealth of Nations*, Indianapolis: Liberty Classics.

- Sohlman, Å. (1996) *Framtidens utbildning. Sverige i internationell konkurrens*, Stockholm: SNS Förlag.
- Starr, P. (1992) 'Social categories and claims in the liberal state', in M. Douglas and D. Hull (eds) *How Classification Works. Nelson Goodman among the Social Sciences*, Edinburgh: Edinburgh University Press.
- Statistical Commission (1999) *Preamble. International Family of Economic and Social Classifications*, New York: United Nations Statistics Division.
- Sternberg, E. (1999) 'Transformations: the forces of capitalist change', in W.E. Halal and K.B. Taylor (eds) *Twenty-First Century Economics. Perspectives of Socio-economics for a Changing World*, Houndmills: MacMillan Press Ltd.
- Stewart, A., Prandy, K. and Blackburn, R.M. (1980) *Social Stratification and Occupations*, London: The MacMillan Press Ltd.
- Sztompka, P. (1993) *The Sociology of Social Change*, Oxford: Blackwell.
- Taylor, L. (1968) *Occupational Sociology*, New York: Oxford University Press.
- Treiman, D.J. (1977) *Occupational Prestige in Comparative Perspective*, New York: Academic Press.
- Van den Berg, A., Furåker, B. and Johansson, L. (1997) *Labour Market Regimes and Patterns of Flexibility. A Sweden – Canada Comparison*, Lund: Arkiv Förlag.
- Van den Berg, A. and Smucker, J. (1997) (eds) *The Sociology of Labour Markets. Efficiency, Equity, Security*, Scarborough: Prentice Hall Allyn and Bacon Canada.
- Wagner, P. (1994) *A Sociology of Modernity. Liberty and Discipline*, London: Routledge.
- Waters, M. (1993) *Modern Sociological Theory*, London: SAGE Publications.
- Weber, M. (1971) *The Protestant Ethic and the Spirit of Capitalism*, London: Unwin University Books.
- Wright, E.O. (1985) *Classes*, London: Verso.

GÖTEBORG STUDIES IN SOCIOLOGY

1. Furåker, B (ed.): *Employment, Unemployment, Marginalization. Studies on Contemporary Labour Markets*. Department of Sociology, Göteborg University/Almqvist & Wiksell International, Stockholm 2001.
2. Berglund, Tomas: *Attityder till arbete i Västeuropa och USA. Teoretiska perspektiv och analyser av data från sex länder*. Doctoral Dissertation. Department of Sociology, Göteborg University 2001.
3. Larsson, Bengt: *Bankkrisen, medierna och politiken. Offentliga tolkningar och reaktioner på 90-talets bankkris*. Doctoral Dissertation. Department of Sociology, Göteborg University 2001.
4. Blomquist, Bo: *Förskolebarnets relation till sin familj. Förändrade förutsättningar och föreställningar*. Doctoral Dissertation. Department of Sociology, Göteborg University 2001.
5. Hansen, Lars H.: *The Division of Labour in Post-Industrial Societies*. Doctoral Dissertation. Department of Sociology, Göteborg University 2001.

DOCTORAL DISSERTATIONS AT THE DEPARTMENT OF SOCIOLOGY SINCE 1995

59. Börjesson, Mats: *Sanningen om brottslingen. Rättspsykiatrin som kartläggning av livsöden i samhällets tjänst under 1900-talet*. 1995.
60. Ljung, Margareta: *Lyft jorden mot himlen – växande i kvinnogrupper och kvinnliga nätverk*. 1995.
61. Björkemarken, Mariann: *Implementeringsanalys som komplement vid utvärdering - en fråga om perspektiv och förklaring*. 1995.
62. Håkansson, Kristina: *Förändringsstrategier i arbetslivet*. 1995.
63. Blomsterberg, Marianne: *Garanterade karriärer? Om social styrning och sysselsättningspolitik för ungdomar*. 1996.
64. Kohlström, Gulli: *Identitetsförändring vid anpassning till funktionshinder/ handikapp*. 1996.
65. Larsson, Patrik: *Hemtjänsten ur tre perspektiv. En studie bland äldre, anställda och ledning*. 1996.
66. Oskarsson, Hermann: *En klasstrukturs uppkomst och utveckling. Akureyri 1860-1940*. 1996.
67. Thörn, Håkan: *Modernitet, sociologi och sociala rörelser/Rörelser i det moderna: Politik, modernitet och kollektiv identitet i Europa 1789-1989*. 1997.
68. Einarsdottir, Torgerdur: *Läkaryrket i förändring. En studie av den medicinska professionens heterogenisering och könsdifferentiering*. 1997.

69. Åberg, Jan-Olof: *Det rationella och det legitima. En studie av utvärderingars teori och praktik.* 1997.
70. Pham Van Bich: *The Changes of the Vietnamese Family in the Red River Delta.* 1997.
71. Lalander, Philip: *Anden i flaskan. Alkoholens betydelser i olika ungdomsgrupper.* 1998.
72. Eriksson, Birgitta: *Arbetet i människors liv.* 1998.
73. Bartley, Kristina: *Barnpolitik och barnets rättigheter.* 1998.
74. Nordström, Monica: *Yttre villkor och inre möten. Hemtjänsten som organisation.* 1998.
75. Stier, Jonas: *Dimensions and Experiences of Human Identity. An Analytical Toolkit and Empirical Illustration.* 1998.
76. Jerkeby, Stefan: *Slutna cirklar. Om civila mostånds rörelser i Norge och Danmark. 1940-45.* 1999
77. Oudhuis, Margareta: *Vägen till jämlikhet. En analys av den svenska arbetarrörelsens syn på effektivitet och emancipation i arbetslivet.* 1999.
78. Johansson, Anna: *La Mujer Sufrida – The Suffering Woman. Narratives on Femininity among Women in a Nicaraguan Barrio.* 1999.
79. Theandersson, Christer: *Jobbet – för lön, lust eller andra värden.* 2000.
80. Carle, Jan: *Opinion och aktion. En sociologisk studie av ungdomar och miljö.* 2000.
81. Öhrn, Ingbritt: *Livet, identiteten och kronisk sjukdom. En socialpsykologisk studie av unga vuxna diabetiker.* 2000.
82. Mossberg Sand, Ann-Britt: *Ansvar, kärlek och försörjning. Om anställda anhörigvårdare i Sverige.* 2000.