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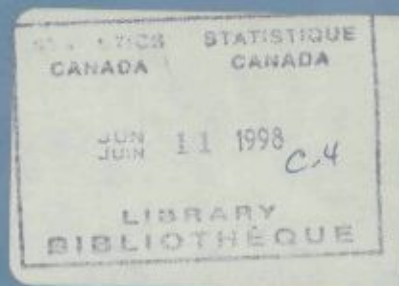
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Catalogue No.  
96-321-MPE No. 2

C E N S U S  
M O N O G R A P H  
S E R I E S

# WOMEN AND THE CANADIAN LABOUR MARKET

TRANSITIONS TOWARDS THE FUTURE



Morley Gunderson



# **Women and the Canadian Labour Market: Transitions Towards the Future**





# **Women and the Canadian Labour Market: Transitions Towards the Future**

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Published in 1998 by

**ITP<sup>®</sup> Nelson**

A division of Thomson Canada Limited, 1998

1120 Birchmount Road

Scarborough, Ontario M1K 5G4

Published by authority of the Minister responsible for Statistics Canada

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**Canadian Cataloguing in Publication Data**

Gunderson, Morley, 1945-

Women and the Canadian labour market : transitions towards the future

(Census monograph series)

Co-published by ITP Nelson.

Includes bibliographical references and index.

ISBN 0-17-605638-6

1. Women - Employment - Canada. 2. Women - Employment - Canada - Statistics.
3. Canada - Census, 1991. I. Statistics Canada. II. Title. III. Series: Census monograph series (Ottawa, Ont.)

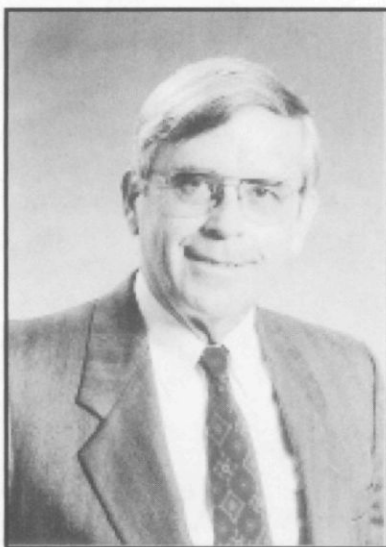
HD6093.G86 1998 331.4'0971 C98-930483-3

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Printed and bound in Canada

1 2 3 4 (WC) 01 00 99 98

## DEDICATION



**Edward Thomas Pryor, 1931–1992**

This series of census analytical volumes is dedicated to the memory of Dr. Edward T. Pryor, a respected and internationally acclaimed sociologist, demographer and author. Dr. Pryor served as Director General of the Census and Demographic Statistics Branch of Statistics Canada and was affectionately known as “Mr. Census.” His scholarship, vision, leadership and unfailing dedication to his profession served as inspiration and guidance in the conception and development of this series.



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## FOREWORD

*Women and the Canadian Labour Market* is the second in a series of eight monographs produced by Statistics Canada as part of the 1991 Census Analytic Program. The 1991 Census monographs continue a tradition in census analysis that began with the 1931 Census and was repeated in 1961 and 1971. Although several studies were conducted following the 1981 Census, there has not been a formal monograph program associated with the census since 1971. Many of the 1971 series are still used today in university programs and by the general public.

It has always been the purpose of census monographs to provide analysis of topics related to Canadian social and economic life. To this end, the current series deals with some major issues of Canadian life in the 1990s that will continue to have ramifications into the 21st century. These issues concern education, aging of the population, the changing Canadian labour market, families, immigrants, income distribution, women, and Aboriginal peoples. Using sophisticated analytic techniques, the monographs deal with the selected themes in a comprehensive way and complement the *Focus on Canada* series, which presents more general analyses.

I would like to express my appreciation to all the authors who contributed to this excellent series. I would also like to thank the staff of the Census Analytic Program of Statistics Canada, who so efficiently oversaw the program, as well as the Census Monographs Advisory Committee for their valuable expertise.

I hope the series will help Canadians understand the challenges our country faces as we approach the 21st century, and contribute to informed discussion of how to deal with them.

DR. IVAN FELLEGI

Chief Statistician, Statistics Canada



## FOREWORD

Over the past 25 years women have increased their participation in the labour market at a substantial rate. Their impact and contributions are felt in most occupations and in all industrial sectors. The question of their success in penetrating the labour market, both in absolute terms and relative to men, has been the focus of numerous studies and policy initiatives over this period. *Women and the Canadian Labour Market* is a comprehensive analysis of how women have fared in the labour market since the early 1970s and what patterns are emerging for the future.

*Women and the Canadian Labour Market* analyses the experiences of women from a variety of perspectives. This volume presents a multifaceted analysis examining women's participation in the labour market, the number of hours they devote to paid work, their earnings, where they work and their occupations. It also includes an analysis of the impact of policy initiatives as they pertain to women's participation in the labour market.

As part of the 1991 Census Monograph Series, *Women and the Canadian Labour Market* joins the other volumes in providing substantive, in-depth analyses of selected themes, and in demonstrating the power and value of census data on their own and when analytically coupled with other data sources. Topics in the series include aging, income distribution, immigration, the family, education, the labour force, and Aboriginal peoples. The monographs are designed to be integrated into a variety of academic programs and to serve as background in formulating and developing public policy.

Planning and overseeing the 1991 Census monograph program was the responsibility of the Census Analysis Division of Statistics Canada. The program manager and those responsible within the division were assisted by the Advisory Committee, whose members reflect the broad interests and professional backgrounds of Canada's socio-economic research community. The committee provided advice on all aspects of the monograph program, including topic suggestions, methodology for competitions, assessment of proposals, and the process for peer review. In the Acknowledgments page of this volume, a listing is provided of Advisory Committee members as well as Statistics Canada personnel who gave generously of their time and effort to the monograph series.

The invitation to submit research proposals was extended by the Chief Statistician to all members of the Canadian research community, both new scholars and those with proven track records. Proposals were assessed on the basis of their relevance to socio-economic issues facing Canada, the scope of the analytical approach, the suitability of the analytical techniques and methodologies, and the importance of census data to the study. The authors selected represent the full spectrum of Canada's social science research community. They come from universities across Canada as well as from Statistics Canada.

By encouraging investigations of the trends and changes in Canadian society, the 1991 Census monograph program continues a valuable tradition in census analysis. As we approach the millennium, many social issues will persist and possibly intensify. Canada, and all Canadians, will benefit from insight provided by the 1991 Census Monograph Series. Persons interested in economic and social issues related to the evolution of the working environment will find *Women and the Canadian Labour Market* an informative analysis of their labour market experience.

DR. MONICA BOYD

Chair, Census Monographs Advisory Committee



## PREFACE

How do Canadian women fare in the labour market? This question is the focus of the comprehensive analysis of women's labour market outcomes in this volume. Wherever feasible, these outcomes are discussed in the context of the many policy variables that can affect them; however, a comprehensive analysis of the impact of policy initiatives is beyond the scope of the present study.

Although the study is based largely on data from the 1991 Census, it also makes comparisons, where relevant, with 1971 and 1981 Census data.<sup>1</sup> Various labour market outcomes are analysed: labour force participation; hours worked; earnings; occupational distribution; industrial distribution; and unemployment.

The intent is to provide not only a clear, comprehensive and descriptive picture but, more importantly, an analysis of the causes or determinants of variations and changes in the different outcomes. Particular attention is paid to how those determinants changed over the 1970s and 1980s, and how this has, in turn, affected women's labour market outcomes.

Understanding the underlying causes of labour market outcomes is crucial for determining the ultimate impact of policy initiatives, and how those impacts may be offset by other adjustments. It is also crucial for predicting how those outcomes may change over time as the underlying determinants change.

Understanding the determinants of women's labour market outcomes should shed light on many questions of current interest. How did women's labour market outcomes change over the 1970s and 1980s, a period of substantial structural transformation and policy intervention in the Canadian labour market? What does the empirical evidence on these outcomes imply about the potential scope for different policy initiatives like pay and employment equity, child care policies and family leave, hours of work and overtime regulation, and non-standard work issues including such factors as job sharing? The analysis is placed in the context of other broad changes taking place in the Canadian labour market. While the disciplinary focus is on labour economics, other perspectives are used.<sup>2</sup> For example, industrial relations and human resource management issues are dealt with in the context of the impact of new workplace practices on women; sociological perspectives are used to shed light on issues pertaining to the interrelationship of the family and the labour market; and some of the new feminist literature is used to deal with issues pertaining to such factors as scarcity, power relations, dependency and group divisions. In essence, the analysis is intended to be current, comprehensive and policy-oriented, while recognizing the contributions of many disciplines as well as the international dimensions of each issue.

In focusing on a particular dimension of labour market analysis, each chapter begins by discussing *why* that dimension merits analysis. Although a wide range of issues, including policy issues, are outlined in the introductory remarks, not all of them can be addressed by this particular

study. The intent is to provide the broad picture into which the analysis fits, rather than to suggest that the study has direct implications for each of the issues.

The 1991 Census is then analysed with respect to the determinants of individual variation in women's labour market outcomes. The focus is frequently on key tabulations, supported by regression equations where appropriate, so as to confirm that the essential tabulations hold, after controlling for the effect of other factors. For readers interested in regression analysis, the regression results are presented in appendices or in self-contained sections. Where simple tabulations and regression results differ, this is discussed since the differences are informative (for example, they highlight how the gross relationships with which we are most familiar may differ after controlling for the effect of other key determinants).

The trends over the 1971, 1981 and 1991 Censuses are illustrated using tables, graphs, and regression results, with particular attention to how the determinants of the elements of female labour market outcomes may have changed over time.

Each chapter ends with a summary and some concluding observations. Wherever feasible, the results are related to current and emerging policy issues. However, an analysis of the actual impact of the different initiatives is beyond the scope of the study.

Before analysing each determinant of women's labour market outcomes, the key background changes in the labour market and the general economic environment are analysed in more detail. Discussing key background factors and policy initiatives is important, given the emphasis on placing women's labour market outcomes in the broader context, and given the policy emphasis of this volume. The implications of these changes for women's labour market outcomes receive special attention, as do the existence and evolution of the policy initiatives affecting those outcomes.

MORLEY GUNDERSON

1. For the measures of earnings and weeks worked per year, the reference period is the calendar year prior to the census year. For these outcomes, 1970, 1980 and 1990 are the reference years for the 1971, 1981 and 1991 Censuses. The term "current" also describes the 1991 Census, since it is the latest census for which the individual public use micro-data files were available. The term "current specification" is also used to distinguish from the common "historical specifications" based on 1971, 1981 and 1991 Census data.
2. Sociological perspectives on women in the Canadian labour market are given in Armstrong and Armstrong (1994) and Phillips and Phillips (1993).

# ACKNOWLEDGEMENTS

Statistics Canada and ITP Nelson wish to acknowledge the following for their excellent efforts on behalf of the Census Monograph Series:

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**ACKNOWLEDGEMENTS**

# INTRODUCTION

Few factors have impacted more on labour markets and social issues in general in the last quarter century than has the labour market experience of women. This is true not only in Canada, but throughout the world. The international recognition of this importance is highlighted by the fact that the United Nations declared 1975 to 1985 to be the Decade for Women.

In Canada, women are one of the four target groups designated for employment equity—the others are visible minorities, Aborigines and disabled persons. Invariably, when labour market and social policy changes are discussed, their impact on women is an important part of that discussion.

## 1.1 RELATIONSHIP TO OTHER POLICY ISSUES

The growth of women's labour force participation, and the terms and conditions under which women participate in the labour market, have been the catalyst for many labour market and social policy developments. In the labour market itself, these include anti-discrimination and human rights policies pertaining to women's wages and employment opportunities. But they also include many other important policy issues that, while not directly related to women, have a disproportionate influence on women and/or are themselves greatly affected by women's labour market experience.

Issues pertaining to the working poor have been linked to women's wages and employment. This is because women constitute a substantial share of the working poor. The fact that they form the majority of lone-parent families is one reason this is so.

The wider issue of poverty itself is inextricably tied to women's labour market experience, since many families escape poverty only because two adults in the family do paid work.

Part-time workers' issues have been linked to women's labour market experience, since women constitute a disproportionate share of part-time workers. Minimum wage legislation is especially important for women, since they are often found in minimum-wage jobs. Maternity leave policies have obvious implications for women. So do parental leave policies in general, given that there tends to be an unequal sharing of household tasks even when both parties do paid work. Policies to curb public sector wage settlements can have a disproportionate impact on women given their predominance in the public sector, and given that they earn a higher public sector wage premium—that is, wages in excess of private sector wages for workers of otherwise comparable wage-determining characteristics.

Policies not directly pertaining to the labour market can also have important implications for women's labour market experience. Day-care policies are an obvious example, given the importance of child care for employed mothers. Free trade can have a substantial impact on

women if import competition from low-wage countries affects women in low-wage jobs. Pension policies can be important, since women often do not accumulate as many service credits and seniority-based wage increases, both of which determine pension accruals in earnings-based occupational pension plans. Similarly, mandatory retirement policies can affect workers' ability to accumulate service credits and seniority-based wage increases.

Occupational health and safety legislation can be particularly important for women, especially when they are pregnant. Collective bargaining legislation can make it harder for unions to organize jobs in the services sector and in small establishments, which are often disproportionately occupied by women. Laws governing labour relations in the public sector can be particularly important to women, especially in areas such as education and health, where women predominate.

Even macroeconomic policies can disproportionately affect women. If women are the "last to be hired and first to be laid off," they may be hurt by restrictive monetary and fiscal policies, which can lead to greater unemployment. A loose labour market with fewer job openings makes it more difficult to achieve employment equity objectives if hiring and promotions are not occurring.

Reform in Canada's income maintenance programs can also have important implications for women. Longer eligibility periods can make it more difficult for women to collect unemployment insurance since they tend to spend shorter periods in the labour market. And if collecting unemployment insurance becomes more difficult, women may be more likely than men to drop out of the labour force altogether. Obviously, more women than men will be affected by changes in maternity leave payments.

In earlier times, special "protective" employment standards laws shielded women from working conditions such as night shifts and long hours. Separate female minimum wages were also often legislated. These were abandoned largely on the grounds that they perpetuated the image of women as the "weaker sex" in need of protection. As well, we now realize that these standards often existed simply to protect male jobs—if women require these special measures, employers may be reluctant to hire them.

These examples are only meant to illustrate the myriad policy issues, both inside and outside the labour market, that influence, and are influenced by, women's labour market experience. When these policy issues are debated and addressed, the extent to which they affect women's labour market experience is invariably addressed.

## **1.2 RELATIONSHIP TO OTHER CHANGES**

Women's changing labour market experience must be viewed in light of the other dramatic pressures on the Canadian labour market. As discussed in more detail later, these forces, emanating from the supply side of the labour market, include: the aging of the work force; the predominance of the two-earner family; the growing importance of the lone-parent family; greater ethnic diversity; and the labour market's increasing difficulty in assimilating new immigrants. On the demand side of the labour market, the interrelated forces include: global competition; free trade; industrial restructuring; deregulation; privatization; subcontracting; public sector budget cuts; and the legacy of deep and pronounced recessions.

All these supply-side and demand-side forces are also affected by political and institutional forces. Governments in different countries, as well as within countries, are competing more and more for business investment and the associated jobs. Such interjurisdictional competition can affect the ability of governments to add costly regulations to labour markets, including regulations that may improve women's labour market experience. Concern over deficits is also restraining governments from adding costly programs and policy initiatives, many of which could be directed towards women in the labour market.

Institutional and other forces are also changing women's labour market experience. De-unionization in the United States is putting similar pressures on Canadian labour markets. At the workplace level, personnel practices such as job design, training, employee participation and compensation are affecting how women fare in their jobs.

This all adds up to a transformation of the general labour market, the industrial relations environment, and practices at the workplace level. All workers are being affected, but women are being affected in particular ways.

### **1.3 THE INTERNATIONAL CONTEXT**

Increasing globalization means it is no longer possible to develop domestic policies, including labour market policies, in isolation. Globalization is fostered by the growing number of free trade agreements, as well as the international mobility of capital, both financial capital and direct investments in plant and equipment. Business investment and plant-location decisions increasingly are made on a global basis. Hence, countries that impose intrusive regulations on employers may not be able to compete and may lose business investment and the associated jobs to other jurisdictions. This applies to all regulations and policies, including those that affect women workers.

Conversely, it is also true that countries that do not effectively use the skills of all their people, including women, will not be able to compete.

Globalization also increases the likelihood that workers will be exposed to different workplace and human resource management practices. Multinationals, for example, may standardize some of their workplace practices in different countries. They may emulate "best practices" used in different countries, and adapt them to their particular environment.

Women's greater participation in the labour market is an international phenomenon. So are the terms and conditions under which women operate in the labour market, especially relative to men. Whether those terms and conditions reflect discrimination, or are unequal outcomes that reflect many household and educational constraints, they have generated intense policy debate.

In the international community, there is particular interest in Canada's experience with respect to women's labour market outcomes. Canada is in the spotlight for several reasons. One is that Canada is in the vanguard, especially with respect to pay equity initiatives requiring equal pay for work of equal value. Canada's labour market policy and regulations fit on the spectrum between the United States' market-oriented, deregulated environment (especially that of the Reagan era) and Europe's more regulated, interventionist environment. There is considerable international interest in the viability of that in-between position.

Lastly, the broad differences in provincial labour policies, which govern most labour matters, enable us to compare the effects of these policies on women's labour market experience.





## CHAPTER

# 1

## THE SOCIO-ECONOMIC AND POLITICAL CONTEXT

How women fare in the labour market must be seen in the context of the many other forces that affect the labour market. Many of these forces were mentioned in the introduction. In this chapter, they are analysed in more detail, with emphasis on how they affect women's labour market outcomes.

These forces are categorized according to whether they affect the supply side or the demand side of the labour market, or whether they work through institutional channels and changing workplace and social practices. While they are discussed here as independent factors, these forces are interrelated in that some are different manifestations of similar underlying pressures.

### 1.1 SUPPLY-SIDE FORCES

The Canadian labour market has been subject to supply-side pressures such as: the aging work force; the prominence of two-earner and lone-parent families; increased ethnic and other types of diversity; and immigrants and others who find it increasingly difficult to assimilate into the labour market.

#### 1.1.1 The aging work force: from child care to elder care

The baby-boom generation (those people born between 1946 and 1966) is aging through the labour market; the vanguard of that group is now past 50. That population bulge created crowding in educational institutions during their school years, and problems of youth unemployment when they flooded into the labour market in the 1970s and 1980s. As they aged, they clogged the channels of career advancement as there were so many of them and so few younger workers to supervise.

This baby-boom population also entered the labour market at the same time as women increasingly were entering the labour market. To the extent that they are reasonable substitutes for each other, this supply influx served to depress wages and to create employment adjustment problems as large numbers of women and younger workers competed for a scarce number of jobs.

This has also made employment equity objectives more difficult to reach, since it is hard to promote women to higher positions when there are so few positions available and the competition for them is intense.

When the vanguard of the baby-boom population reaches retirement age in 10 years or so, they will create adjustments associated with their retirement and demands for pension support. When they age further, they will create pressures for more elder care and health services at a time when the population's tax base will be low.

Taking care of the current generation of elderly is already an issue for women; elder care, like child care, is a task that disproportionately falls to women, in part because of societal and cultural pressures. And since women tend to earn less than men, the "opportunity cost" of time devoted to elder care tends to be lower for women. For this reason, they devote more time to this task. This, of course, helps perpetuate a cycle; women often specialize in household tasks because they earn less, and they earn less partly because they specialize in household tasks.

The burden on women is intensified by many other pressures. The trend of de-institutionalizing care for the elderly puts more pressure on the family to provide care—that usually means the women in the family. Increased life expectancy is making this issue more and more important.

The tendency for young people to remain at home for longer periods out of economic necessity leads to an additional burden on many women.

All of these pressures may come at a time when some women are re-entering the labour market after periods of child-rearing. Many find that the "empty nest" is full—occupied by children who are not leaving home, and by elderly parents who need care and attention.

### **1.1.2 Dual-earner families**

Dramatic changes have also been occurring in family structure.<sup>1</sup> The single-earner family with only the husband doing paid work changed from being the norm to being the exception in less than 30 years. In 1967, 58% of all husband–wife families were single-earner families; by 1994, only 18% were.

In the same period, the dual-earner family—that is, one with both spouses doing paid work—changed from being the exception to being the norm. In 1967, 33% of all husband–wife families were dual-earner families; by 1994, 60% were.

The concept of the male breadwinner—to the extent that it ever was meaningful—is now almost a curiosity. Dual-earner families with preschool children usually have one partner—more often the mother—engaged in some form of non-standard work<sup>2</sup> to balance work and family responsibilities (Marshall 1995).

Single-earner families where the wife is the sole earner are still a small group, but they grew from 1% of all husband–wife families in 1967 to 5% in 1994. When these families are added to

the families where the wife earns more than the husband, we find that wives were the main or sole earner in 18% of all husband-wife families in 1994, up from 5% in 1967.

Among dual-earner families alone, the proportions are even larger. Women were the main wage-earner in 25% of all dual-earner families in 1993, up from 11% in 1967 (Crompton and Geran 1995).

The number of female-headed lone-parent families has also grown. They were 14% of all families with children in 1991, compared with 8% in 1976 (Devereaux and Lindsay 1993). This trend had the greatest impact on the feminization of poverty that occurred over the period (Dooley 1994).

All these changes in family structure have profound implications. The growing proportion of two-earner families puts pressure on employers and public policy to accommodate these families' needs. Employers feel pressure to offer flexible work time arrangements and paid or unpaid leave policies to accommodate household responsibilities. They will also have more difficulty recruiting and moving employees, since such decisions more often affect two jobs. Proximity to day-care and to schools may matter more. Workers may also be reluctant to take on extra responsibilities at work if they conflict with household responsibilities. With both parties working in the labour market, there may also be less economic pressure to take on such responsibilities.

The growing diversity in family structure also means growing diversity in individual workers' needs and preferences. Dual-earner families may want a full-time job for one earner and a part-time job for the other. Neither may want overtime, and in fact may want assurance that overtime is voluntary.

To the extent that women bear a disproportionate burden of household tasks, they may prefer a part-time job. However, their preference may change as their child-rearing responsibilities change. Single-earner families, in contrast, may prefer a full-time job with regular overtime work. In fact, the regular overtime may be necessary for the family's income to approach that of dual-earner families.

Similarly, decisions about vacation time, work leave and retirement are, more often, joint decisions by two workers. Employee health benefits increasingly overlap in coverage.

While the predominance of the two-earner family has implications for men's labour market behaviour, the implications are more profound for that of women. This is so in large part because women continue to bear a disproportionate burden of household tasks, especially those associated with child-rearing.

### **1.1.3 Increased ethnic and other diversity**

At the same time that women are constituting a larger portion of the work force, the work force itself is becoming more diverse. Most of the work force expansion in the coming years will be from "non-traditional" groups, notably women, racial minorities and immigrants entering the labour market.<sup>3</sup> Immigrants are also increasingly members of racial minorities, since they now tend to come from Asia and Latin America rather than Europe, historically the major immigration source (Bloom, Grenier and Gunderson 1995).

For women, the increasing diversity has mixed effects. On the positive side, it stresses to employers the importance of "managing diversity" at the workplace. Employers are finding that

they must establish policies to deal with this diversity, and establishing policies for one group may make it easier to do so for others. When diversity becomes the norm, it is easier to establish new policies and discontinue old ones that are based on the "white male breadwinner" paradigm.

On the negative side, greater workplace diversity may lead to a dilution of the resources devoted to managing diversity. In the employment equity area, for example, members of designated groups may compete against each other for the same jobs.

As well, women are more susceptible than men to competitive pressures from the other minority groups. This is so, in part, because women tend to be segregated into occupations that are often taken up by other minorities.

Women are also likely to be hit by the discrimination "double whammy"—being both a woman and a member of another designated group.<sup>4</sup>

#### **1.1.4 Reduced immigration assimilation**

Immigration has been an increasing source of employment growth in Canada in recent decades. Immigration should bring positive net benefits to both the receiving country and the immigrants themselves. However, by boosting the supply of particular types of labour, immigration may lower the wages and employment opportunities of groups that compete with immigrant labour. Women may be one of those groups.

In Canada, however, there is no direct empirical evidence on the effect of immigration on women's wages and employment opportunities. As well, the empirical evidence on the effect of immigration on domestic wages in general is inconclusive. Several studies based on U.S. data<sup>5</sup> find that the wages and employment opportunities of domestic, or home-grown, labour are not depressed in cities that have seen considerable immigration compared with cities that have not.

However, Borjas, Freeman and Katz (1992), using data for the U.S. economy as a whole, do find evidence that immigration has depressed domestic wages to some degree, especially at the lower wage levels. To the extent that women predominate at the lower wage level, they would be disproportionately hurt by competition from immigrant labour.

The authors suggest that their economy-wide results may differ from those based on inter-city comparisons because an exodus of domestic labour in response to the immigration influx may moderate the wage-depressing effects at the city level.

Immigration pushing down women's wages—and this is not an empirical relationship established in the existing literature—will likely be augmented by the fact that immigrants themselves are having an increasingly difficult time assimilating into the Canadian labour market.<sup>6</sup> More recent cohorts of immigrants are assimilating more slowly. That is, they are taking longer to reach the earnings level of Canadian-born workers with the same wage-determining characteristics. This slower assimilation may reflect several factors: increased discrimination, since immigrants are increasingly from racial minorities; lower skill levels,<sup>7</sup> since fewer immigrants are entering Canada under the skills-oriented point system and more are entering as refugees or as part of the family reunification program; and the labour market's failing ability to absorb immigration, associated with rising unemployment and falling labour demand at lower skill levels.

While empirical studies have documented that assimilation is slower for more recent cohorts of immigrants, they have not quantified each factor's relative importance in the slower assimilation. As long as immigrants assimilate into the labour market more slowly, there likely will be downward pressure on the growth of women's wages.

Male and female immigrants assimilate into Canada's labour market at similar rates.<sup>8</sup> However, there is evidence that immigrant female professionals suffer a considerable earnings disadvantage relative to native-born female professionals.<sup>9</sup> Yet, in spite of the slower rate of assimilation of the more recent cohorts of female immigrants into the labour market, immigrant women are no more likely than native-born women to use employment insurance<sup>10</sup> or social assistance (Baker and Benjamin 1995).

## **1.2 DEMAND-SIDE FORCES**

Demand-side forces also affect women's labour market behaviour. While the demand-side forces are interrelated, they emanate from several sources: global competition and free trade; industrial restructuring, especially from manufacturing to services; public sector retrenchment, deregulation and privatization; and the legacy of pronounced and prolonged recessions.

### **1.2.1 Global competition and free trade**

Increasingly, the Canadian labour market has been subject to global competition, especially from newly industrialized countries in Asia. This competition has accelerated with the advent of the Canada–U.S. Free Trade Agreement (FTA) in 1987, and the North American Free Trade Agreement (NAFTA) in 1989 that also includes Mexico. The possibility of extending NAFTA to other Central and South American countries, and the emergence of low-wage competition from Eastern Europe and China, ensures that these pressures will continue.

To the extent that greater global competition tends to be from low-wage countries, it is likely to have a disproportionate effect on women's wages, which tend to be at the lower end of the wage spectrum.

Yet, there can be countervailing impacts. Such competition is likely to put most pressure on jobs for which there previously was a non-competitive wage premium; for example, a union wage premium or a premium from employment in a monopolistic or oligopolistic industry. Women may be less subject to those forces, since they are less likely to have had those privileged jobs in the first place. Furthermore, the public sector, where women are disproportionately employed and where they receive a larger public sector wage premium than do men, is relatively immune from international competition since it tends to be a "non-tradable" sector.

Most empirical studies of the wage and employment impact of free trade do not estimate separately the expected impact on women and men. However, studies that have examined the impact of the FTA by occupation and industry have reached different conclusions. MacMillan (1987) and the Ontario Women's Directorate (1987) conclude that the FTA will help women move from low-wage to high-wage jobs. Cohen (1987) and Porter and Cameron (1987) conclude that the FTA will cause disproportionate job losses in female-dominated sectors, and that the job gains for women will be in the low-wage service sector. The Ontario Women's Directorate (1993) concludes that NAFTA will have the same effects as the FTA.

One indirect effect, however, can be more important.<sup>11</sup> Freer trade also leads to more capital mobility since it enables companies to more easily relocate in countries with lower wages and less stringent labour market regulations, and then export back into the country that had the tariff and non-tariff trade barriers.

The threat of capital mobility can pressure governments to deregulate their labour markets in order to lighten the legislative and regulatory costs for employers. Pay-equity, employment-equity, and similar legislation can impose costs on employers; governments are under more pressure, given freer trade and capital mobility, not to enact or enforce such legislation. The same can be true of other policies, like day-care subsidies and maternity leave, that have a disproportionate impact on women.

The effect that this may ultimately have on women's labour market behaviour, and on their wages and employment, has not been documented. It would require information on each of the linkages involved: the effect of legislation and regulations on labour costs, especially as they pertain to women; the effect of labour costs on plant location and investment decisions; the effect of the threat of capital mobility on governments' propensity to enact and enforce such costly regulations; and the effect of any retrenchment in legislation on women's labour market behaviour, wages and employment levels.

At this stage, we do not have good information on *any*, let alone *all*, of these linkages. Perhaps the most reasoned statement to be made is that this indirect effect of trade and global competition on legislative initiatives can potentially deter equity-oriented initiatives, including those directed at women. However, the magnitude of that potential effect is simply unknown.

### **1.2.2 Industrial restructuring**

Canada's labour market has also been subject to industrial restructuring, especially from manufacturing to services (Economic Council of Canada 1990, 1991). This phenomenon is associated with global competition, free trade and increased capital mobility. It has also been fostered by continued technological change and automation, especially office automation. The information- and knowledge-based economy is displacing the industrial economy to a substantial degree.

These transformations have been associated with other interrelated changes. Many large, vertically integrated firms have been displaced by smaller firms interconnected through alliances and joint ventures. "Downstream" parts suppliers have become particularly important, as have subcontractors for components and related services.

Organizations themselves have been subdivided into semi-autonomous business units or profit centres. Mergers and acquisitions have been carried out to achieve the economies of scale needed to compete in world markets, and to provide worldwide product mandates. Plant closings and mass layoffs have been widespread.

These changes in product markets and capital markets have had dramatic ramifications for labour markets. They have pushed up unemployment as workers are displaced from declining sectors to expanding ones. They have led to wage polarization through greater demand for skilled labour and less demand for unskilled labour. Many workers from middle-income, blue-collar industrial jobs have been displaced to lower-wage jobs in the services sector, putting more downward pressure on wages. The flexibility and adaptability employers need to compete in the

product market have been translated into similar pressures on workers to be flexible and adaptable in the labour market.

These changes have profound implications for labour markets in general, but their impact is not in all cases worse for women than for men. Certainly, office automation has disproportionately affected women. But while it may have displaced many routine clerical and typing jobs, it has also created new, more skilled jobs involving word processing, spreadsheets, databases and desktop publishing.

Women who are displaced because of mass layoffs in Canada tend to sustain a greater wage loss than do men. This is in part because such workers are often displaced from the union sector to the non-union sector. Since the union wage premium is greater for women than men (Crossley, Jones and Kuhn 1994), losing that premium hurts women more. Workers displaced from middle-wage industrial jobs have pushed down wages in the lower-wage jobs that are often occupied by women. Furthermore, higher unemployment and the lack of net job creation has made it more difficult to achieve employment equity objectives. It has been difficult to hire or promote women when so few jobs have been available.

Other changes in the labour market have benefited women. The considerable turnover associated with job destruction and job creation does make it easier for employers to shift from higher-wage male workers to lower-wage female workers. This should, in theory, increase the demand for female labour, and hence increase their wages and employment opportunities.

This job turnover also makes it easier for women to move into traditionally male jobs. Furthermore, greater competitive pressures should help dissipate some forms of discrimination—for example, when men whose productivity is similar to women's are paid higher wages or given better jobs.

De-industrialization and the shift from heavy manufacturing to services and the information economy implies a shift from blue-collar, unionized, male-dominated jobs to jobs that employ more females. Similarly, the shift to subcontracting, downstream parts suppliers, and part-time and contingent work forces should favour women to the extent that they occupy those jobs.

However, these demand shifts may simply lead to more female-dominated jobs without a corresponding increase in their wages. This could be compounded by the fact that there is a large pool of women doing unpaid labour at home who would be willing to work outside the home. There is also a pool of women who are involuntarily working part time.

This potential supply influx can keep wages from rising, as can import competition, immigration and a large pool of unemployed men and women. However, the shift in demand towards female-dominated jobs, all other things being equal, should improve women's wages and employment opportunities. It may absorb the large influx of women associated with increased labour market participation, and moderate the downward pressure on women's wages that that influx may have caused.

### **1.2.3 Public sector retrenchment, deregulation and privatization**

At the same time that private sector labour markets have been subject to greater competitive forces and restructuring, public sector labour markets have also been subject to budget cuts, deregulation and privatization. Concern over growing public deficits has constrained public

expenditures, and taxpayers have made it clear they do not want to pay more taxes to reduce deficits. Many regulated sectors have been deregulated and subjected to greater competition. Privatization has been extended to inject the discipline of market forces and to shift expenditures from the public to the private sector.

As in the private sector, these changes have ambiguous effects on the female labour market. According to neoclassical economic theory, injecting competition should help dissipate discrimination, at least to the extent that profit-maximizing employers have an incentive to replace higher-wage men with lower-wage women who are as productive. This higher demand for female labour should push up female wages, and the supply influx into male jobs should push down their wages. This neoclassical economic perspective, of course, assumes that the male and female labour markets are not so segregated that such market forces would not work.

Working in the other direction, budget cuts and any other pressures to reduce public sector wages and employment are likely to disproportionately hurt women. The public sector wage premium tends to be larger for women than for men,<sup>12</sup> and it tends to be larger for low-wage workers than for high-wage workers. Women tend disproportionately to be low-wage workers.

Furthermore, pure wage discrimination itself tends to be less prevalent in the public sector than in the private sector. Hence, restricting employment growth in the public sector restricts the growth of jobs where discrimination is least.

#### **1.2.4 The legacy of recessions**

In addition to these structural changes, the Canadian labour market has seen pronounced recessions in 1981–82 and 1990–92. Such recessions can have a dramatic effect on the female labour market. Women are often the first to be laid off, since interruptions for childbearing and child-rearing often leave them with less seniority. Similarly, employment equity initiatives are more difficult to implement during recessions, since it is difficult to hire and promote women if jobs are not available. Women also tend to drop out of the labour force—to stop looking for work altogether—during recessions, hiding some of the unemployment.

### **1.3 INSTITUTIONAL AND WORKPLACE CHANGES**

Workplace practices and arrangements have also been changing at the level of the firm and the shop floor, partly in response to the changes on the supply and the demand sides of the labour market. These changes include pressures from de-unionization in the United States and new workplace practices such as job redesign, broader job classifications, team production, employee participation, alternative work time arrangements, contingent work forces and contingent compensation schemes. These new practices have important implications for the female labour market.

#### **1.3.1 De-unionization in the United States**

Historically, unionization rates in Canada and the United States have been similar.<sup>13</sup> In the mid-1960s, they were both approximately 30% of the eligible work force. By the early 1990s, however, the U.S. rate had fallen to around 16% of the work force, while the Canadian rate increased to just over 32%.



This de-unionization in the United States has put considerable pressure on unions in Canada, especially under free trade conditions that pressure Canadian employers to be competitive with their U.S. counterparts.

If Canadian unionization rates move toward the U.S. levels, women workers will likely be hurt disproportionately. Canadian evidence on the effects of unions by gender shows several strong trends.<sup>14</sup> First, the union wage premium is larger for women than for men, and women are less likely to be unionized than men. These two effects tend to offset each other so that unions have a neutral effect on the female–male wage gap.

Over the 1980s, unionization rates increased for women and decreased slightly for men, thus narrowing the female–male wage gap. If unionization declines in Canada, and if that decline equally affects men and women, women will still likely lose more because they tend to receive a greater union wage premium. If the decline is greater in female-dominated jobs then, of course, this would mean an even larger negative effect on the female work force.

### **1.3.2 Changing workplace practices**

The industrial restructuring that has occurred throughout the economy has several parallels in the workplace. These changing workplace practices are often complementary policies designed to ensure flexibility, adaptability, quality control, and a highly committed work force.

Job enlargement allows the individual worker to become responsible for a wider array of tasks under broader job classifications. This multitasking has placed a premium on the “multiskilling” or general training that enables a worker to do many tasks.

This practice is also associated with team production, a strategy in which the work team is responsible for a wider array of functions in the product cycle, including quality control. This has been fostered by greater employee participation in decision-making, sometimes through quality circles. The vertical hierarchy in organizations has been flattened with shorter chains of command, more joint governance and more employee decision-making.

Compensation has become more flexible, often tied to the firm’s ability to pay, and to the performance of the firm, the work team, and the individual worker. In many cases traditional wage patterns and pattern bargaining have broken down.

Many types of contingent work forces are more common—fixed-duration contracts, subcontracting, temporary help agencies, fee for service, and self-employment. Alternative work-time arrangements are also more common—flexible working hours, compressed work weeks, part-time work, work-sharing, job-sharing, early retirement, unpaid leave, home work (contracted work done in the home, such as sewing garments) and telecommuting.

These changing workplace practices have important implications for women workers. Many of them are characteristic of the female labour market—temporary help agencies, part-time work, and home-working. So, they may perpetuate the lower-wage job ghettos that are less protected by employment standards and collective bargaining. Nevertheless, many of these practices increase the demand for female labour, perhaps as a substitute for higher-wage male labour. In that sense, they should raise female wages and employment opportunities.

In other circumstances, the very act of change in the workplace may ease women’s integration into the labour market. The hierarchies of command that are breaking down are often male-

dominated hierarchies. Work teams, quality circles and employee participation may help break down old-boy networks and male-dominated decision making. However, those patterns can also be transplanted to the new environments.

Tying pay to performance should reduce wage discrimination where pay is related more to gender than to performance. Breaking down traditional wage patterns may help break down traditional male–female wage and employment patterns.

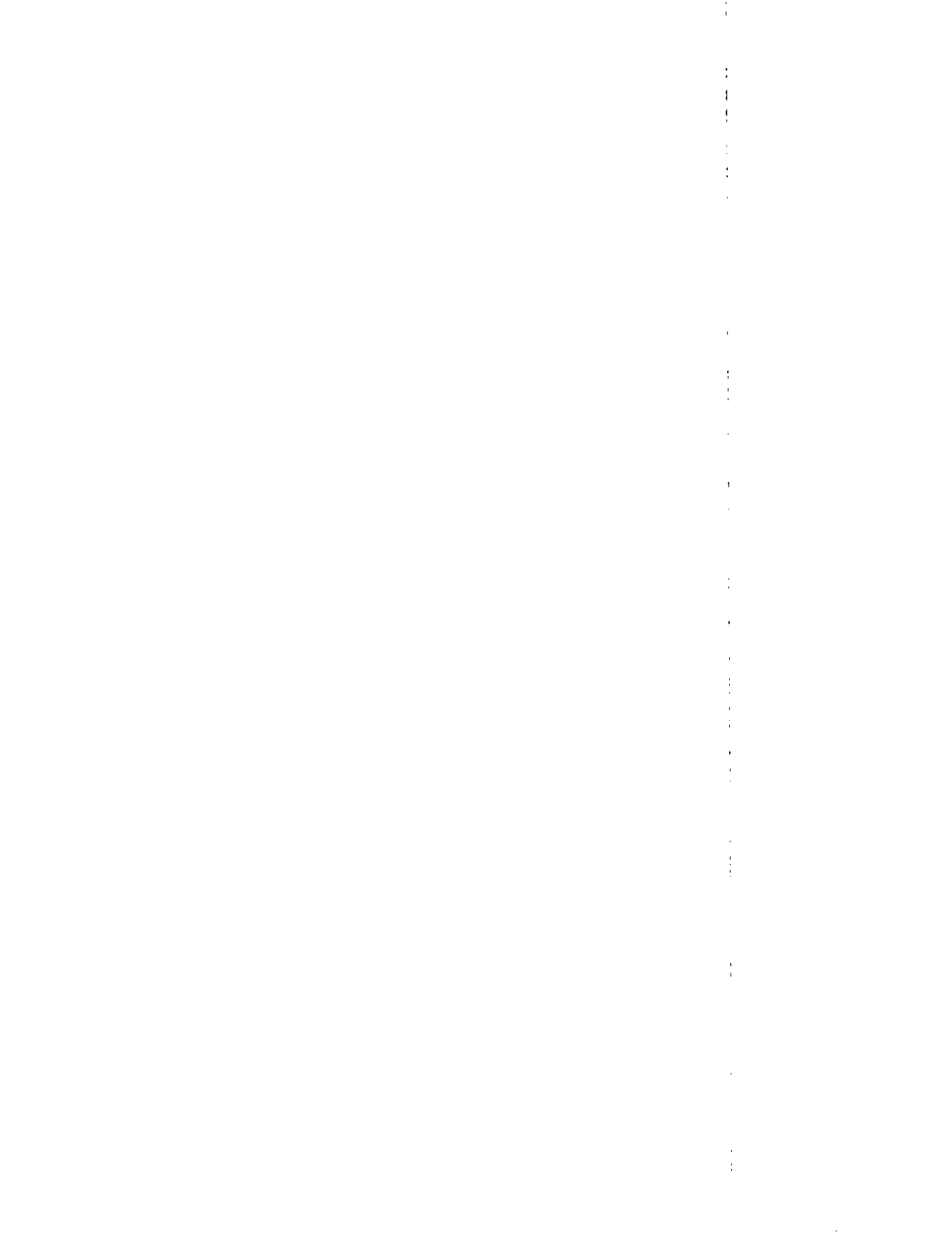
Other practices, especially alternative work time arrangements, may help workers combine labour market work and household tasks, especially child care and elder care. Since women bear a disproportionate share of such household work, this will likely have a disproportionate impact on their labour market behaviour.

Both the workplace and the labour market are responding to the same forces emanating from the supply and demand side of the labour market. Conventionally, we tend to focus on adjustments and changes as they occur in external labour markets—whereby people move between firms or in and out of the labour force. These are important, but so are internal labour markets—those within a firm and between alliances of firms.

An analysis of female labour market behaviour should examine both external and internal labour markets. This is especially true because many of the policy initiatives are designed to alter labour market behaviour within firms, as we will see in the next chapter.

## ENDNOTES

1. Statistics for this section are from Statistics Canada (1994). Further discussion of the phenomenon is found in Charrette (1995), Townson (1987) and Gunderson and Muszynski (1990).
2. Non-standard work includes part-time work, fixed-duration contracts, subcontracting, temporary help agencies, fee for service, and self-employment.
3. In the United States, 85% of the new labour force entrants between 1985 and 2000 will consist of these groups (Johnston 1987, p. 95). The changing composition of the Canadian work force in this direction is discussed in Employment and Immigration Canada (1989), Jain and Verma (1996) and Taylor (1995).
4. The interaction between gender and other designated group status is discussed in Beach and Worswick (1993) for immigrants, Christofides and Swidinsky (1994) for visible minorities, and Drost (1994) for the unemployment of Aboriginals.
5. Such evidence is discussed in Altonji and Card (1991), Butcher and Card (1991), Card (1990) and Lalonde and Topel (1991).
6. Canadian evidence of this, based on census data, is given in Baker and Benjamin (1994), Bloom and Gunderson (1991), Bloom et al. (1995), and Borjas (1988).
7. The lower skills would have to be ones that are not measured or observed in the data sets, since observed skill differences are accounted for in the regression analysis.
8. Bloom et al. (1995) and Fagnan (1995).
9. Fagnan (1995) and Beach (1993). The later study found that immigrant women to Canada were not subject to a double negative effect of discrimination both as a woman and as an immigrant. Immigrant women (except professionals) tended to earn more than otherwise comparable Canadian-born women. That study was based on 1972 data, however, and it was after 1972 that it took more time for immigrants to assimilate into the labour market.
10. Employment insurance was formerly called "unemployment insurance."
11. This indirect effect is discussed in Gunderson (1993).
12. Evidence for this is given in Gunderson (1979), based on the 1971 Census, and Shapiro and Stalcner (1989) who also include the 1981 Census. The latter study indicates that the pure—that is, when other wage-determining characteristics are controlled for—public sector wage advantage for men decreased from 6.2% in 1970 to 4.2% in 1980; for women, it increased from 8.6% in 1970 to 12.2% in 1980.
13. Data for this section are from Riddell (1993).
14. This evidence is from Doiron and Riddell (1994), based on the Labour Market Activity Survey and its precursors. The authors do note that their evidence of a larger union wage premium for women is at odds with the U.S. evidence, which finds a similar wage premium for males and females. The U.S. evidence also finds that unionization declined dramatically for men and stayed roughly constant for women. This accounted for about one-fifth of the 13 percentage point decline in the female-male wage gap that occurred in the U.S. between 1973 and 1987.



Women's labour market behaviour has been the subject of all manner of policy initiatives in recent years. This is not surprising, considering policy makers' acute interest in the subject. Some of these policies are direct—they seek to improve women's wages, employment opportunities and other labour market conditions. Others are indirect—they seek to ease the constraints that impinge disproportionately on women, and that often alter their labour market behaviour.

Understanding these policies is important, since they can be controlled and manipulated to various degrees. As such, they can be important determinants of women's labour market behaviour. Their potential impact on some dimensions of women's labour market behaviour are commented on where appropriate. However, statistically testing for each policy's impact is beyond this book's scope.

In this chapter, policies are discussed in three main groups: equal pay policies, including pay equity or equal pay for work of equal value, that are designed to affect women's pay; equal employment opportunity policies, including employment equity, that are designed to help women's employment and promotion opportunities; and facilitating policies, such as child care and parental leave, that are designed to put women on an equal footing with men in the labour market.

First, each policy's nature and rationale are discussed. Their prevalence across Canadian jurisdictions is then documented, followed by a discussion of their theoretical impact, and any evidence of their actual impact, especially with respect to equal pay and equal employment opportunity policies. The chapter concludes with some observations on the importance of understanding the policies and their intended and actual impacts.

## 2.1 EQUAL PAY POLICIES

### 2.1.1 Equal pay procedures

Equal pay policies are legislative initiatives that require that women be paid the same as men who do the same work. The concept of "the same work" has been contentious, and has undergone an interesting evolution in Canada. The potential comparisons for equal pay have been continually expanding, and so the scope of the legislation has broadened (Gunderson and Robb 1991b).

The original equal pay legislation generally required equal pay for *equal work* done by men and women in the same establishment. That narrow concept allowed comparisons to be invalidated as long as there was some minor difference in the work performed (e.g., occasional heavy lifting).

So the concept of equal work was broadened to require that the work be *substantially similar*. This allowed minor differences, especially if they were offset by other different functions that women perform more often. However, the offsetting factors generally had to be within the broad components of the job, such as skill, effort, responsibility and working conditions. For example, minor differences in some aspect of effort had to be offset by other aspects of effort that women do more often. Differences in effort could not be offset by differences, say, in responsibility.

The *composite approach*, however, allowed broader comparisons across the different job functions as long as they were equal in composite skill, effort, responsibility and working conditions. They did not have to be the same in each and every component. Differences in effort, for example, could be offset by differences in responsibility. Comparisons still had to be restricted, however, to jobs within the same occupation. Clerical workers, for example, could not be compared to parking lot attendants.

Equal pay for work of *equal value* (called *pay equity* in Canada and *comparable worth* in the United States) broadened the scope of equal pay legislation by allowing comparisons across male-dominated and female-dominated occupations within the same establishment. The jobs compared had to be of equal value, as determined by a gender-neutral job evaluation scheme.

Typically, equal value comparisons are a five-step process. First, in some cases, the establishment within which the comparisons are made has to be determined. Second, male-dominated and female-dominated jobs are determined, using such criteria as the percentage of each gender doing the job; for example, a job is gender-dominated if 70% or more of its occupants are of one sex. Third, the value or "worth" of the job is determined by a gender-neutral job evaluation scheme. The evaluation may, for example, assign points to each component: skill, effort, responsibility and working conditions. Fourth, the relationship is established between pay and the job's value. This may be done by estimating pay lines that relate pay to points, or by setting criteria for selecting male-dominated jobs to compare to female-dominated jobs. Fifth, procedures are established for adjusting the pay in undervalued female-dominated jobs to the pay of male-dominated jobs of comparable worth.

Each of these steps involve contentious and sometimes difficult technical issues.<sup>1</sup> Identifying the establishment can be complicated if there are different plants run by the same firm or, in the public sector, different units run by the same employer. The sex dominance of an occupation may be affected by how the occupation is defined, and how the profile of those who work in it changes

over time. Job evaluation schemes may be gender-biased and flawed. Estimating pay lines can invite a host of technical questions: Should they be linear or non-linear? Should they be constrained to pass through the origin or have an intercept? Should they be constrained to have the same slope? How should outliers be treated?

Adjusting the pay in undervalued female-dominated jobs to the pay of male-dominated jobs of the same value also causes uncertainties: Should the female payline be adjusted to the male line, or should each female point be adjusted to the male line or to a comparable male point? Can the lines be extended so that comparisons can be made even if there are no male comparator jobs? Should the adjustment be phased or subject to a ceiling?

### **2.1.2 Rationale for equal pay policies**

The rationale for equal pay policies is to reduce and ultimately eliminate that portion of the male–female wage gap that can be attributed to discrimination. The rationale for moving from equal pay for equal work to equal pay for work of equal value is to expand the scope of job comparisons.

The original equal pay for equal work legislation was very limited in scope, because most jobs have at least slight differences in work performed. Even if they do not, male–female pay differences for identical work in the same job in the same establishment are likely to be slight. The broader concept of equal pay for work of equal value allows jobs to be compared even if they have differences in work components. More importantly, equal pay for work of equal value allows comparisons across occupations. This is important, since women are disproportionately employed in low-wage occupations, and this is likely to be a greater determinant of the pay gap than different pay for the same job (Gunderson 1989).

While pay equity or equal pay for work of equal value substantially broadens the scope for equal pay policies, it must be emphasized that the scope is still limited by various factors. For example, comparisons are restricted to within the same establishment; pay differences across firms and industries are not eliminated. Pay adjustments are made only to those in female-dominated jobs; women in male-dominated or mixed jobs do not have redress. Clearly, even if pay equity were completely successful in areas where it applies, a male–female wage gap would still prevail. Pay equity is particularly important because it does not require women to leave predominantly female jobs to receive higher pay (Robb 1977).

### **2.1.3 Equal pay legislation in various jurisdictions<sup>2</sup>**

All Canadian jurisdictions enacted legislation during the 1950s and 1960s requiring equal pay for similar or substantially similar work—Ontario was the first, in 1951. During the 1970s, both Quebec and the federal government introduced pay equity legislation that required equal pay for work of equal value and allowed comparisons between occupations. In the 1980s, most jurisdictions also adopted some form of pay equity legislation or formal initiative through collective bargaining with public sector employees. The exceptions were Alberta and Saskatchewan, which have maintained conventional equal pay legislation. In general, jurisdictions that have adopted pay equity initiatives have limited its application to the public sector and/or require a complaint to start the process.

The exception today is Ontario, which has the most stringent equal pay legislation in that it is proactive. Ontario requires that most establishments have a pay equity plan in place, whether or not there has been a complaint. Furthermore, it applies to the private as well as the public sector.

#### **2.1.4 Evidence on impact of equal pay<sup>3</sup>**

Most of the empirical evidence on equal pay legislation shows that earlier policies requiring equal pay for substantially similar work (that is, those that restrict comparisons to within the same occupation) did little to narrow the male–female wage gap. In contrast, pay equity initiatives requiring equal pay for work of equal value (that is, those that make comparisons between occupations), where they have been applied in Canada and the United States, have greatly helped the groups that received an adjustment. Wage increases of around 20% have been common, amounting to 4% to 8% of the organization's total payroll.

## **2.2 EQUAL EMPLOYMENT OPPORTUNITY AND EMPLOYMENT EQUITY**

### **2.2.1 Procedures**

Equal employment opportunity legislation is designed to combat discrimination in all phases of employment—recruitment, hiring, training, promotions, transfers, and terminations. The procedure generally begins with a complaint to a human rights commission, sometimes followed by investigations, mediations, hearings and appeals to the courts.

While conventional equal employment opportunity legislation focuses on equality of opportunity, employment equity legislation (called affirmative action in the United States) focuses on the equality of results, or outcomes. The objective is to have the target group represented within the organization in the same proportion as their availability in the external pool of labour.

Four basic steps are involved in employment equity. First, an *internal audit* is conducted to determine the target groups' representation and occupational distribution in the organization. Second, a *comparison* is made of their representation within the organization and in the external pool of labour. Third, *goals* (sometimes including quotas) are established for matching the internal representation with that of the external pool. Fourth, a *plan and timetable* are established for achieving the goals.

Each of these steps can involve difficult technical and implementation issues. For example, the internal audit often involves self-enumeration that may not be accurate. Determining the externally available pool is complicated by data issues; how can a firm identify the labour market from which it expects to draw its employees? Goals and timetables can involve determining when internal representation is sufficiently close to external availability.

### **2.2.2 Rationale for equal employment opportunity and employment equity**

The rationale for conventional equal employment opportunity legislation is to create equality of opportunity for the target group by preventing discrimination in each phase of the employment decision. Employment equity goes a step further. It assumes that equality of opportunity is



insufficient if the groups have “unequal starting points” due to a history of discrimination. To compensate for these unequal starting points, employment equity focuses on the outcomes—on ensuring that the target groups are represented in the organization in the same proportion as they are in the external labour market. The expectation is that, to meet their employment equity targets, employers will expand opportunities for the target groups at all phases of the employment relationship. This process should help members of the target groups get jobs and get ahead. The increase in demand for the target groups should also boost their wages.

### **2.2.3 Equal employment opportunity legislation and employment equity<sup>4</sup>**

All Canadian jurisdictions have equal employment opportunity legislation, usually as part of their human rights code. Such legislation generally prohibits discrimination on the basis of factors such as race, age, religion, nationality and sex. In most jurisdictions, the prohibition based on sex was added in the 1960s and 1970s.

Employment equity legislation is much less common, and was only introduced in the 1980s in Canada. In general, it applies to four target groups: women; visible minorities; Aboriginals and disabled persons. The first legislation, in the federal jurisdiction, took effect in 1986. It applies only to federal Crown corporations and federally regulated employers with 100 or more employees. In 1996, the federal public service was included in the federal legislation. The federal government also requires employment equity for its federal contractors.

In Quebec, employment equity can be part of a remedy imposed by the human rights commission after it conducts an investigation. The investigation is only done after a complaint. Ontario legislated employment equity in 1994, but the legislation was repealed in 1995. Employment equity can also be required by city and municipal governments.

### **2.2.4 Evidence on the impact of equal employment opportunity and employment equity**

Most empirical studies of the effect of equal employment opportunity and affirmative action programs are based on experience in the United States, where there is a longer history of such initiatives. Title VII of the Civil Rights Act of 1964 requires equal employment opportunity and equal pay, and affirmative action can be imposed as part of a court-ordered remedy. Affirmative action initiatives are more prominent as part of the Federal Contract Compliance Program.

The empirical studies<sup>5</sup> of the impact of Title VII are inconclusive, although some find that Title VII has increased women's earnings and occupational advancement.

The evidence on the effect of affirmative action under the federal contractors program is stronger; there have been benefits for the target groups. The benefits include higher employment and wages and lower quit rates and occupational and industrial segregation. In the 1980s, however, when enforcement was considerably weakened, no impact was found (Leonard 1996).

The Canadian evidence on the impact of employment equity is much more limited. Small improvements in occupational advancement and wages have been documented, especially for women and visible minorities.<sup>6</sup> However, there has been little documented progress for disabled persons.<sup>7</sup> Jain and Hackett (1989) found that only slightly more than one-third of Canadian firms that were subject to employment equity had a potentially effective implementation procedure in place.

## 2.3 FACILITATING POLICIES

Many other policy initiatives have been designed to help give women an equal—or closer to equal—footing with men in the labour market. Often these policies are meant to make it easier for women to handle their roles in the household and in the labour market.

These policies sometimes also deal with the labour market effects of the legacy of pre-market socialization, from families, educational institutions, and society in general. Policies to reduce sex stereotyping in schools and textbooks can influence the perception of women, including their perceptions of themselves. Changes in divorce laws can reduce the constraints of an unsupportive marriage. Policies against harassment can make the labour market a better place for women.

Child care policies are important in this regard, as are maternity leave policies. All Canadian jurisdictions require employers to grant maternity leave if it is requested (Labour Canada 1993). The leave is unpaid, although women are eligible for employment insurance<sup>8</sup> while on maternity leave. Typically, 17 or 18 weeks of maternity leave are required, and some jurisdictions also allow 12 to 34 additional weeks of unpaid parental leave, which can be shared by either parent. During the unpaid leave, employees must receive normal wage increases, seniority and benefits, and they must be allowed to return to their same job or a comparable one. While the legislation requires employers to provide unpaid leave, the maternity/paternity provisions of the employment insurance program provide for EI support, turning the unpaid leave into partially paid leave.

Policies to protect part-time and temporary employees are also important, given the extent to which women are employed in such jobs. Part-time and temporary employees are generally covered by employment standards legislation in such areas as minimum wages, working time and parental leave. They tend not to be covered under employment insurance, workers' compensation and employer-sponsored pension plans. Recent amendments to the employment insurance legislation, however, will cover part-time employees by basing eligibility on previous hours worked rather than weeks worked.

Education policies are also important: They can ensure that young women have the chance to acquire the skills and training that will lead to employment opportunities, higher wages and occupational advancement. Women have increasingly entered market-oriented professions such as business and law, and they have attained higher levels of education. This is becoming more important; forces like technological change and trade liberalization are contributing to wage polarization by hurting those with fewer skills and rewarding those with more. In order to move to the higher end of the increasingly polarized wage structure, it is important to have such education and skills. Unfortunately, women who acquire higher levels of education may simply push the next-lower group towards the bottom.

Internal initiatives on the part of organizations can also be important. For example, the federal government allows up to five years of leave for the "care and nurturing" of pre-school children. If the requested leave is less than one year, the employee is guaranteed the same job back; if the leave is between two and five years, the employee is guaranteed a job at the same level upon return.

## 2.4 CONCLUSIONS

A wide range of policy initiatives have both direct and indirect effects on women's labour market behaviour. In the remainder of this volume, they will often be commented upon as the different elements of female labour market behaviour are discussed.

Understanding the relationship between policies and aspects of labour market behaviour is obviously important because the policies can have both intended and unintended impacts on women's labour market behaviour. However, changes in women's labour market behaviour can also influence the pressure for new policies. The greater role that women play in the labour market has, for example, increased the political pressure for child care, flexible work time arrangements, maternity leave, maternity coverage under employment insurance, protection for part-time and temporary workers and access to educational institutions.

Cause and effect work both ways. Policies influence behaviour, but changes in behaviour also have important feedback effects on the demand for policies. Understanding this relationship is crucial.



## ENDNOTES

1. These technical issues in the Canadian context are discussed, for example, in Fudge and McDermott (1991), Gunderson (1989, 1994, 1995), Gunderson and Robb (1991a) and Gunderson and Weiner (1990).
2. The early conventional equal pay legislation is outlined in Gunderson (1985). Pay equity legislation is outlined in Gunderson and Weiner (1990) and Gunderson (1995) and international comparisons are given in Gunderson (1994).
3. Such evidence and the methodologies are discussed in Gunderson (1989, 1995).
4. See Gunderson (1985, 1994) and Weiner (1993).
5. Seven studies of the impact of Title VII and eight studies of the impact of affirmative action under the Federal Contract Compliance Program are reviewed in Gunderson (1989).
6. Jain (1993, 1994), Jain and Hackett (1992), Jain and Verma (1996), Leck and Saunders (1992, 1993), Leck, St. Onge and Lalancette (1995), and Weiner (1995). The annual reports on employment equity also show minimum impact, for the most part.
7. Jain and Verma (1996), Raskin (1994) and Weiner (1995).
8. The federal unemployment insurance program was recently renamed "employment insurance."

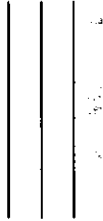


## CHAPTER

# 3

## LABOUR FORCE

## PARTICIPATION



When a person decides to look for work or gets a job, he or she is participating in the labour force. Thus, both unemployed and employed people are considered labour force participants. Non-participants include homemakers, students, people in institutions such as prisons and mental health facilities, retirees and those who choose a life of leisure.

The labour force participation rate is that portion of the eligible population who are employed or looking for work. The eligible population comprises most Canadians 15 years of age and over. The exceptions are those living on reserves, those living in the territories,<sup>1</sup> those in the military and those in institutions.

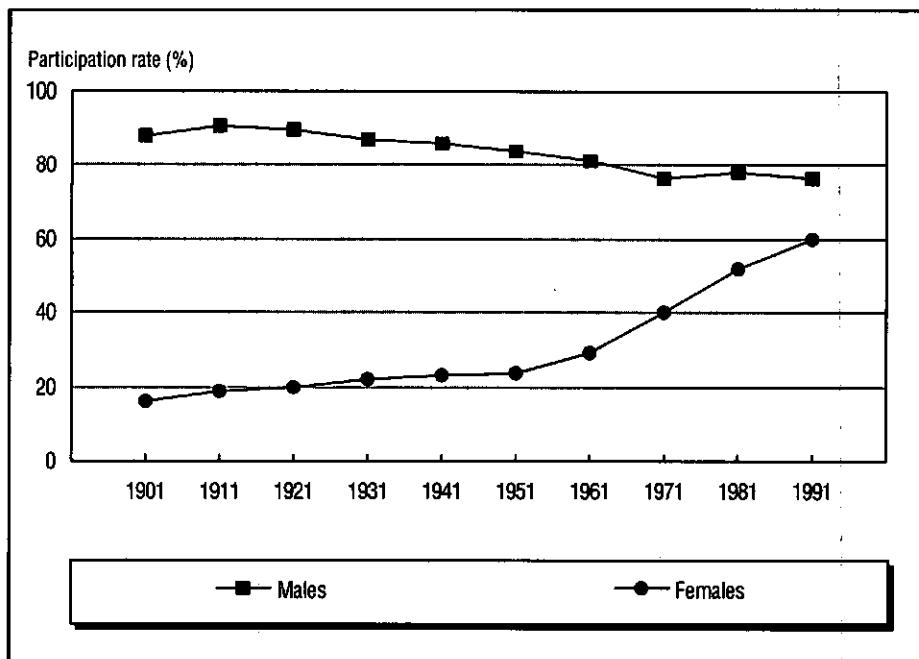
Male and female participation rates have moved closer together during this century, especially since 1960 (Figure 3.1). Male rates have generally declined steadily over the period, but have levelled off since 1970. Female rates have risen steadily, most dramatically since 1960.

The rise of women's participation in the labour market has transformed the Canadian labour market as well as the Canadian household. It is truly remarkable that over such a brief period the rate of women's labour force participation more than doubled, from 29% in 1961 to 60% in 1991, while the men's rate declined from 81% to 76%.<sup>2</sup> This narrowing of the gap in participation rates has important implications for many other phenomena that are the subject of intense policy interest.

Women's increased labour force participation has given rise to the dominance of the two-earner family, as discussed previously. This in turn has increased the demand for child care arrangements. It has increased the demand for part-time work and flexible work arrangements such as flextime, job-sharing, and compressed work weeks. It has also increased pressure for legislative initiatives such as equal pay and equal employment opportunity policies, as well as access to government-supported training and labour adjustment programs.

**FIGURE 3.1**

**PARTICIPATION RATES<sup>1</sup> OF MALES AND FEMALES, 1901 TO 1991**



1. Participation rate includes workers aged 14+ for the years 1901 to 1961, and 15+ thereafter.

Sources: Census of Canada, 1991; Gunderson and Riddell 1993.

Women's increased labour force participation has also led to pressures for change in the education system, especially in professional schools in higher education. Factors like unionization can also be affected to the extent that men and women have different propensities to unionize.

Income support programs are also influenced by women's labour force participation, and by the associated policy issue of whether support should be based on individual or family income. There has been pressure to reform unemployment insurance, for example. This is because it has evolved from an insurance program into an income maintenance program, even though the benefits are not based on family income or need shaped by the number of labour force participants.

Similarly, pension reform is influenced by women's growing labour force participation.

As well, our concepts and measures of income inequality are heavily influenced by whether we use individual or family measures of income; family incomes are greatly influenced by the number of labour force participants. Our measures of economic growth are also influenced by the fact that household production is not included in our measures of national income, while work in the labour market is.

Women's growing labour force participation can also influence the unemployment rate, at least in the short run, if the economy is unable to absorb such an influx. It could also lead to a



decline in male participation rates, if, for example, higher family income enabled men to retire earlier. Women's increased labour force participation can also contribute to increased wage polarization, especially if women disproportionately occupy the low-wage jobs. Family formation, including the decision to have children and when to have them, can also be influenced by labour force participation decisions.

Clearly, women's rising labour force participation influences many social and policy issues. Also, many of these factors themselves (for example, child care arrangements, income support or the presence of children) can influence women's choice to participate in the labour force. So it is important to understand the factors that influence women's labour force participation decisions, and how those decisions differ from men's.

### **3.1 THEORETICAL DETERMINANTS OF LABOUR FORCE PARTICIPATION**

Economists stress that people are more likely to participate in the labour market if their expected labour market wage exceeds their reservation wage—the minimum wage at which they would enter the labour market. The reservation wage is the implied value of individuals' time in such non-labour market activities as household work, education or retirement. It can be augmented by income support programs.

The reservation wage provides a convenient way of analysing how different variables influence the decision to participate in the labour force. A variable is likely to increase labour force participation if it raises the individual's expected market wage; it is likely to reduce labour force participation if it raises the person's reservation wage. Training and higher education, for example, are likely to raise expected labour market earnings and hence labour force participation. In contrast, higher family income may afford an individual the choice of not having to work in the labour market. As well, the presence of children, especially pre-school age children, is likely to enhance the value of household time, and will discourage labour force participation.<sup>3</sup>

However, women who are strongly attached to the labour force prior to the birth of their first child are likely to remain in the labour force after having children. Econometric studies of the determinants of labour force participation generally confirm these theoretical expectations—especially for married women, the group that has most dramatically raised its labour force participation.<sup>4</sup>

Broader social forces also influence women's labour force participation. For example, social norms have changed; it is now acceptable for women with young children to work. Rising divorce rates may increase women's desire to keep a career for economic security. And once they've worked in the labour market, they may also continue because they enjoy their work.

### **3.2 1991 PARTICIPATION RATES BY GENDER AND OTHER CHARACTERISTICS<sup>5</sup>**

In 1991, an average 76% of males and 60% of females who were eligible to participate in labour market activities did so (see Table 3.1).<sup>6</sup> Thus, the average ratio of female-to-male labour force participation was 0.78. The remainder of the table indicates how those average participation rates, and the ratio of female-to-male participation, differ by such factors as age, education, children, marital status, language fluency, immigration status, ethnic status, Aboriginal origins, province and city size.

TABLE 3.1

## AVERAGE LABOUR FORCE PARTICIPATION RATES, BY VARIOUS CATEGORIES, 1991

Category	Female	Male	Female: male ratio
<b>Overall participation rate</b>	59.8	76.3	0.784
<b>Age</b>			
15-24	65.6	69.2	0.948
25-34	78.4	94.5	0.830
35-44	80.2	94.7	0.847
45-54	71.7	91.7	0.782
55-64	39.0	66.4	0.587
65+	5.6	13.8	0.406
<b>Vocational training</b>			
No vocational training	53.9	72.1	0.748
Vocational training	77.9	87.7	0.888
<b>Degree, certificate or diploma</b>			
No degree, certificate or diploma	39.4	61.3	0.643
High school graduate	68.2	83.8	0.814
Trade certificate or diploma	73.0	85.0	0.859
Other non-university certificate	79.1	90.6	0.873
University diploma below bachelor level	71.5	82.5	0.867
Bachelor's degree(s)	83.5	89.8	0.930
University degree above bachelor's	80.9	86.6	0.934
Degree in medicine, dentistry, veterinary medicine or optometry	87.1	86.2	1.010
Master's degree(s)	84.8	90.3	0.939
Doctorate degree	83.0	88.4	0.939
<b>Non-labour income (\$'000)</b>	...	...	...
<b>Children at home</b>			
No children	53.4	..	..
At least one child under 2, none over 5	65.4	..	..
No children under 2, some 2 to 5	70.7	..	..
Some children under 6, some over 5	63.1	..	..
No children under 6, some 6 to 14	78.1	..	..
No children under 15, some 15+	61.7	..	..
<b>Marital status</b>			
Never married, single	66.8	73.1	0.914
Common law	80.3	90.9	0.883
Married	61.0	78.0	0.782
Separated	65.6	78.0	0.841
Widowed	14.5	23.6	0.614
Divorced	68.9	75.6	0.911
<b>Languages known</b>			
English only	60.6	76.9	0.788
French only	50.4	70.9	0.711
Both English and French	67.8	79.4	0.854
Neither English nor French	27.0	47.8	0.565
No non-official languages	60.4	76.9	0.785
Some non-official languages	57.4	74.2	0.774

**TABLE 3.1 (CONCLUDED)****AVERAGE LABOUR FORCE PARTICIPATION RATES, BY VARIOUS CATEGORIES, 1991**

Category	Female	Male	Female:male ratio
<b>Immigrant status</b>			
Non-immigrant	60.8	76.9	0.791
Immigrant	55.8	73.9	0.755
<b>Visible minority status</b>			
Not visible minority	59.3	76.2	0.778
Visible minority	65.2	77.3	0.844
<b>Aboriginal origins</b>			
Non-Aboriginal	59.9	76.4	0.784
Aboriginal	58.3	73.0	0.799
<b>Province</b>			
Ontario	62.1	77.5	0.801
Newfoundland	53.8	69.6	0.773
Prince Edward Island	61.2	75.0	0.816
Nova Scotia	54.5	72.4	0.753
New Brunswick	53.0	72.4	0.732
Quebec	56.2	74.5	0.754
Manitoba	60.0	76.1	0.788
Saskatchewan	59.6	77.6	0.768
Alberta	65.8	81.6	0.806
British Columbia	59.9	75.5	0.793
Yukon and Northwest Territories	71.5	79.7	0.897
<b>Census area</b>			
Not in census metropolitan area	56.1	74.1	0.757
Toronto	65.0	79.1	0.822
Montréal	58.0	75.7	0.766
Vancouver	63.1	77.6	0.813
Other census metropolitan area	62.4	78.1	0.799

**Notes:** The reference categories for categorical variables appear in bold, unshaded type.

.. figures not available

... figures not applicable

**Source:** Census of Canada, Individual Public Use Micro-data Files, 1991.

### **3.2.1 Age**

Labour force participation rates for both genders tended to rise quickly through the early adult years, slip a little after age 50 and then plunge after age 65. Among younger males and females, participation rates were very similar; in the 15-to-24 age group, the female rate was very close to the male rate. For the 25-to-34 age group, the participation rate rose substantially to 95% for males, but only to 78% for females; thus the ratio of female-to-male participation was 0.83 in that age group. This is likely because some women in the 25-to-34 age group left the labour force for marriage, child-bearing and child-raising activities. However, this drop is small—most women continued to participate through the childbearing years. Female participation rebounds in the 35-to-44 age group, likely reflecting the mothers returning to the labour force after periods of child-rearing. After age 44, however, the ratio of female-to-male participation was substantially lower. This may be because these older generations of women were less likely to have participated in the labour market when they were younger.

### **3.2.2 Education**

Among both males and females, labour force participation increased with level of education. This reflects, in part, the greater earning power associated with more education.

The effect is much more pronounced for females than males. Women with a university degree at the bachelor's level or higher had participation rates that were approximately 94% of men's rates. Women with degrees in medicine, dentistry, veterinary science or optometry had higher participation rates than did men with those degrees. Conversely, women with no degree, certificate or diploma had by far the lowest participation rate, both absolutely and relative to males.

### **3.2.3 Children**

Women with children in the household actually had a higher participation rate than women without children. This is an example, however, of how the average participation rate can mask confounding influences, since women without children in the household are also likely to be older, and older women have lower participation rates. The regression analysis later in this chapter shows that the presence of children, all other things being equal, does reduce women's labour force participation. The children at home variable is tabulated only for women, since the census data do not record children at home for men.

Remarkably, however, 71% of women with children between the ages of 2 and 5, and 78% of those with children between the ages of 6 and 14, participated in the labour force. In fact, these women had higher participation rates than did women in general. This shows that, although the presence of younger children deters women from labour force participation, women with children still had high participation rates. These women are in their peak years of labour force participation; this highlights the pressure they face from both child-rearing and labour market activities.

### **3.2.4 Marital status**

Being married or single also accounts for some of the participation rate differences between the sexes. The rate was lowest for females relative to males among those who are widowed. Again, however, this likely reflects the impact of age—older people are most likely to be widowed, and older women have low participation rates.

The difference in participation rates was also greater for married people, since married women are more likely to have both children and alternative sources of family income, each of which tends to reduce labour force participation. Participation rates were similar for males and females who were single and had never married.

### **3.2.5 Language**

The greatest gaps between male and female participation rates are found in language groups. Women who knew French only participated less (at 50%) than similar men (at 71%). Among women who knew neither English nor French, 27% participated in the labour force, compared with 48% of similar men.

### **3.2.6 Immigration status**

Immigrants of both genders had slightly lower participation rates than did non-immigrants.<sup>7</sup> The gap was slightly greater for female immigrants (56%) than male immigrants (74%). This also means that the ratio of female-to-male participation was lower among immigrants.

### **3.2.7 Aboriginal and minority participation**

Participation rates were also a little lower for Aboriginals than for non-Aboriginals. The Aboriginal males' rate was 73%, compared with 76% among non-Aboriginal males. The Aboriginal females' rate was 58%, compared with 60% among non-Aboriginal females.

Visible minorities, however, had higher participation rates than non-visible minorities. The difference was substantial among females—65% compared with 59% among females of non-visible minorities.

### **3.2.8 Across the regions**

The national average participation rates for men and women were 76% and 60%, respectively. Participation rates were higher in Ontario, Alberta, the Yukon and the Northwest Territories, among both genders. Participation rates were close to average among both genders in Manitoba, Saskatchewan and British Columbia, and they were lower than average in Quebec and the Atlantic provinces, except for women on Prince Edward Island.

In general, in provinces where participation rates were high they were high for both males and females—especially females. So, high-participation regions like Ontario, Alberta and especially the territories also had higher-than-average ratios of female-to-male participation. Conversely, low-participation provinces such as Quebec, New Brunswick and Nova Scotia had lower ratios of female-to-male participation.

In metropolitan areas, especially Toronto, participation rates tended to be higher than the national average among both genders. The exception was Montréal, where female participation was slightly lower than average.

In most of the other metropolitan areas, the ratio of female-to-male participation was higher than the national ratio. In essence, the same pattern prevailed across urban areas as across regions: When participation rates were high for males they tended to be disproportionately higher for females.

The reasons for this are not obvious. It does reflect the fact that women are more responsive to the factors that influence labour force participation in general. Presumably, this in turn reflects the importance of their non-labour market activities, including household work. As well, women may be regarded more as a "buffer" or "reserve," disproportionately leaving the labour force when men's participation is low and disproportionately entering the labour force when men's participation is high.

### **3.3 REGRESSION ESTIMATES OF DETERMINANTS OF LABOUR FORCE PARTICIPATION**

The previous analysis focused on how male and female labour force participation rates varied by characteristics such as age, education, children at home, marital status and region. This is informative, but it often masks the confounding influences of different factors that are the underlying determinants of labour force participation.

In multiple regression analysis, the estimated regression coefficients indicate each variable's separate and independent impact while controlling for—holding constant—the effect of the other explanatory variables in the regression equation.

The regression coefficients indicating the determinants of the probability of men and women participating in the labour force are shown in Table 3.2. The independent variables are the same as those in Table 3.1, which give the average participation rates according to these characteristics. All the explanatory variables but one are categorical, capturing whether the individual was in that particular category (for example, age group or region). The exception is non-labour income, which is a continuous variable.

For each variable, the regression coefficients show the effect on the probability of labour force participation of being in a particular category. That probability is relative to the omitted reference category—the category without an associated regression coefficient. As well, each coefficient is derived only after controlling for the effect of all the other variables in the table.

The *t* statistics, which indicate whether the relationship is statistically significant, are given in Appendix 3.4. Logistic regression results are also discussed and presented in Appendix 3.6.<sup>8</sup>

The mean values for each of the independent variables are also shown in Table 3.2. For categorical variables, these simply represent the proportion of persons in each category.

TABLE 3.2

**LABOUR FORCE PARTICIPATION EQUATIONS, 1991 SPECIFICATION (ORDINARY LEAST-SQUARES  
LINEAR PROBABILITY ESTIMATES)**

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Age</b>				
15-24	17.1	...	18.4	...
25-34	22.3	11.1	22.8	15.2
35-44	20.1	9.5	20.8	13.3
45-54	13.6	-0.4	14.4	11.3
55-64	11.2	-29.2	11.2	-12.1
65+	15.7	-59.4	12.4	-62.8
<b>Vocational training</b>				
No vocational training	75.4	...	72.7	...
Vocational training	24.6	3.2	27.3	0.7
<b>Degree, certificate or diploma</b>				
No degree, certificate or diploma	41.1	...	40.0	...
High school graduate	25.1	15.4	21.3	11.4
Trade certificate or diploma	7.8	16.6	14.4	10.0
Other non-university certificate	13.7	20.2	9.8	12.4
University diploma below bachelor level	2.5	22.0	1.6	11.1
Bachelor's degree(s)	7.1	24.1	8.0	12.4
University degree above bachelor's	1.2	24.3	1.4	13.6
Degree in medicine, dentistry, veterinary medicine or optometry	0.2	29.9	0.6	17.8
Master's degree(s)	1.3	26.7	2.3	12.4
Doctorate degree	0.1	28.3	0.6	15.8
Non-labour income (\$'000)	35.6	-0.0008	27.9	-0.0005
<b>Children at home</b>				
No children	56.8	...	..	..
At least one child under 2, none over 5	5.2	-19.7	..	..
No children under 2, some 2-5	3.6	-14.1	..	..
Some children under 6, some over 5	6.0	-20.6	..	..
No children under 6, some 6-14	13.8	-3.6	..	..
No children under 15, some 15+	14.1	3.6	..	..
<b>Marital status</b>				
Never married, single	22.8	...	29.0	...
Common law	6.6	12.4	7.0	11.9
Married	53.7	4.2	56.8	10.8
Separated	2.6	2.5	2.0	5.6
Widowed	9.3	0.4	1.9	2.4
Divorced	5.0	5.4	3.3	3.5
<b>Languages known</b>				
English only	65.8	...	67.4	...
French only	15.1	-4.9	12.6	-2.7
Both English and French	17.5	0.8	19.1	-0.2
Neither English nor French	1.6	-5.3	0.9	-4.9
No non-official languages known	80.6	...	80.1	...
Some non-official languages known	19.4	-1.3	20.0	-0.3

**TABLE 3.2 (CONCLUDED)****LABOUR FORCE PARTICIPATION EQUATIONS, 1991 SPECIFICATION (ORDINARY LEAST-SQUARES LINEAR PROBABILITY ESTIMATES)**

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Immigrant status</b>				
Non-immigrant	80.5	...	80.4	...
Immigrant	19.5	-0.6	19.6	0.5
<b>Visible minority status</b>				
Not visible minority	91.9	...	91.7	...
Visible minority	8.1	-0.9	8.3	-5.6
<b>Aboriginal origins</b>				
Non-Aboriginal	96.8	...	97.0	...
Aboriginal	3.2	-8.8	3.0	-8.4
<b>Province</b>				
Ontario	37.1	...	36.9	...
Newfoundland	2.0	-8.2	2.1	-7.8
Prince Edward Island	0.5	2.2	0.5	2.4
Nova Scotia	3.3	-6.7	3.3	-3.8
New Brunswick	2.7	-6.3	2.7	-4.5
Quebec	25.8	-4.6	25.3	-3.2
Manitoba	4.0	2.1	4.0	1.9
Saskatchewan	3.5	2.1	3.5	3.9
Alberta	8.8	2.0	9.2	2.2
British Columbia	12.1	-2.7	12.2	-1.6
Yukon and Northwest Territories	0.3	8.8	0.3	1.4
<b>Census area</b>				
Not in census metropolitan area	39.4	...	40.6	...
Toronto	14.4	3.3	14.2	1.1
Montréal	12.0	2.1	11.4	0.7
Vancouver	6.0	3.9	6.0	1.7
Other census metropolitan area	28.2	0.9	27.8	-0.8
<b>Intercept</b>				
Intercept	...	60.4	...	66.6
<b>Sample size</b>				
Sample size	...	161,760	...	154,158
<b>R<sup>2</sup></b>				
R <sup>2</sup>	...	0.36	...	0.41
<b>Average participation rate</b>				
Average participation rate	...	59.8	...	76.3

**Notes:** The reference categories for categorical variables appear in bold, unshaded type.

... figures not available

... figures not applicable

**Source:** Census of Canada, Individual Public Use Micro-data Files, 1991.



### **3.3.1 Age**

As shown in Table 3.2, the probability of participating in the labour force is higher in the older age groups, relative to the 15-to-24 age group, at least until age 55 among males and age 45 among females. The effect of age is generally more pronounced for males than females. Thus, males reach their peak participation later than do females.

### **3.3.2 Training and education**

Similar proportions of males and females were likely to have received training (means of 27% and 25%, respectively). Females who received training, however, were 3% more likely to participate in the labour force than untrained females. Among males, the effect of training was statistically insignificant—males with training were less than 1% more likely to participate in the labour market.

The mean values for education show that males were more likely to have a trade certificate or diploma (14% of males, compared with 8% of females). They were also more likely to have a university degree, although by a narrower margin—13% versus 10% for a bachelor's degree or higher.

The regression coefficients show that, for both genders, higher education is associated with greater probabilities of labour force participation. The effect is especially pronounced for females. Females with a bachelor's degree, for example, were 24% more likely to participate in the labour force than were females with no degree, certificate or diploma. This is twice the magnitude of the corresponding coefficient for males. Similarly, females with a master's degree or doctorate were, respectively, 27% and 28% more likely to participate in the labour force than were females with no degree, certificate or diploma. These are approximately twice the corresponding coefficients for males.

### **3.3.3 Income from outside the labour market**

The negative coefficients on the non-labour income variable show that, other things being equal, men and women with greater wealth from sources other than their own labour market earnings are less likely to participate in the labour market. This is presumably because they can afford not to work.

The impact is stronger for women than men. This may reflect the availability of maternity benefits, the perceived importance of parental care, and the high cost of child care for children under the age of 2. The quantitative magnitude of the effect, however, is so small as to be negligible. An increase of \$1,000 in the non-labour wealth of women, for example, would have reduced their participation rate by only 0.0008. It is more accurate to say that, by 1990, non-labour market wealth essentially had no effect on women's or men's participation rates.

### **3.3.4 Children at home**

The inhibiting effect of children, especially of pre-school age children, on women's labour force participation is illustrated by the large negative coefficients for the child variables. Women with children under the age of 2 were 20% less likely to participate in the labour force than were

otherwise similar women with no children. If their children were between 2 and 5, they were only 14% less likely to participate than were similar women with no children. This likely reflects the fact that other child care arrangements are more feasible for children after age 2. Women with some children under 6 and some over 5 also had a much lower participation rate. Older children, however, did not inhibit labour force participation. Participation was less than 4% lower than among women with no children in their household if the children were between 6 and 14, and was nearly 4% higher if they were over 14.<sup>9</sup>

These results highlight the care that must be taken when using average participation rates, as was done in Table 3.1. Those results showed that participation rates were higher than average for women with children, even very young children. Those higher participation rates, however, are bolstered by other characteristics such as age. When these other factors are controlled for in the regression analysis, the effect of younger children becomes pronounced.

The presence of younger children inhibits, but by no means eliminates, participation. Having a child under the age of 2 reduces participation by 20%. But this is only a one-third reduction relative to the average female participation rate of 0.60. Furthermore, the presence of additional children is not an inhibiting factor for women who already have children and participate in the labour force (Nakamura and Nakamura 1994).

### **3.3.5 Marital status**

The marital status variable indicates that, other things being equal, participation rates were 11% higher for married men and 4% higher for married women, both relative to single people who had never married.

### **3.3.6 Language and immigration status**

Those who speak French only had lower participation rates, especially females, other things being equal. It was also 5% lower for those who speak neither English nor French.

Participation rates were not greatly affected by whether the person speaks a language other than English or French or if they are an immigrant. Rates were nearly 6% lower for males who are members of a visible minority group, but less than 1% lower for like females. They are almost 9% lower for Aboriginal males and females.

### **3.3.7 Across the regions**

Participation rates vary moderately across provinces when the impact of other variables are controlled for. Relative to Ontario, female rates were 5% lower in Quebec and 7% to 8% lower in the Atlantic provinces. The exception was Prince Edward Island, where they were slightly higher. Among men, they were also lower, but by a smaller margin. They were slightly higher in the Prairie provinces and slightly lower in British Columbia. Women in the Yukon and Northwest Territories were an anomaly; their rate was almost 9% higher than that of women in Ontario.

In metropolitan and non-metropolitan areas, participation rates were similar, after other variables are controlled for. The rates were slightly higher in most metropolitan areas, especially among females, but the differences are small.

## 3.4 COMPARISONS ACROSS 1971, 1981 AND 1991 CENSUS YEARS

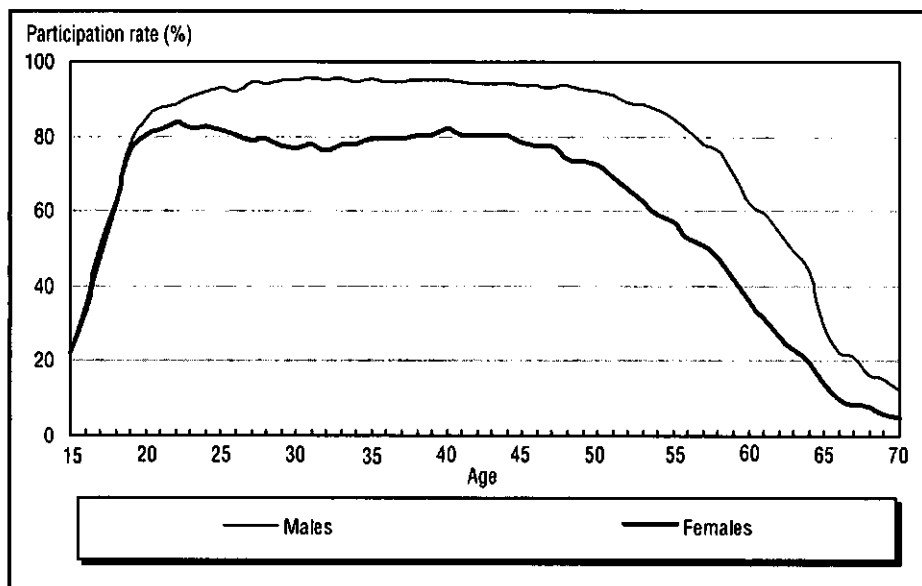
### 3.4.1 Age-participation profiles

In all age groups, males' participation rates exceeded women's in 1991 (Figure 3.2A). Both genders' rates rise rapidly with age and then stay on a high plateau—near full participation for males and around 80% for females. There is also a “twin peaks” pattern for women. The first peak occurs in the early twenties, and the second in the early forties, as many return to the labour force after periods of child-rearing. For both genders, there is then a rapid decline in participation—for women after age 50 and for men after age 55.

The gap in male–female participation rates shrank substantially between 1971 and 1991 (Figures 3.2A, 3.2B, 3.2C). Essentially, male participation rates by age remained flat over the three census years, while female participation rates climbed steadily towards male rates.

**FIGURE 3.2A**

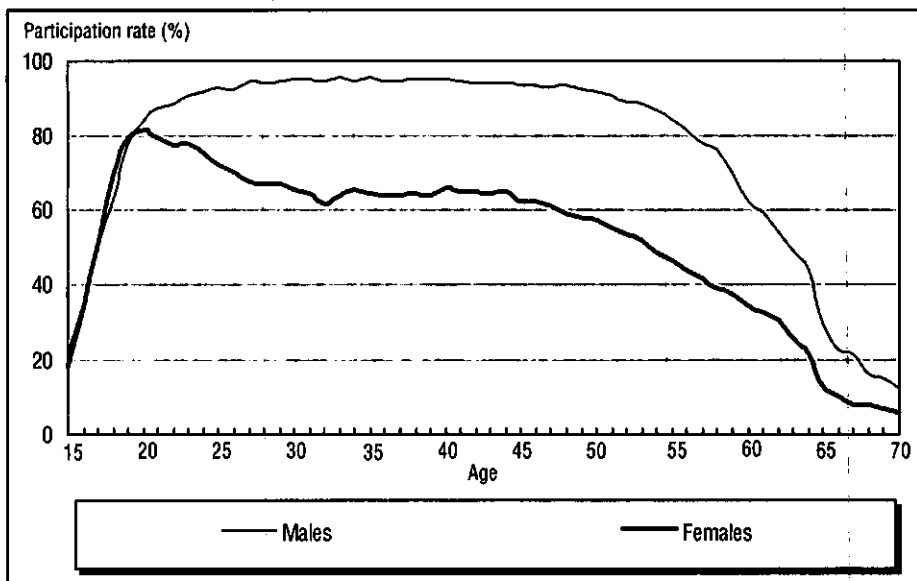
**AGE-PARTICIPATION PROFILES, BY SEX, 1991**



Source: Census of Canada, 1991.

**FIGURE 3.2B**

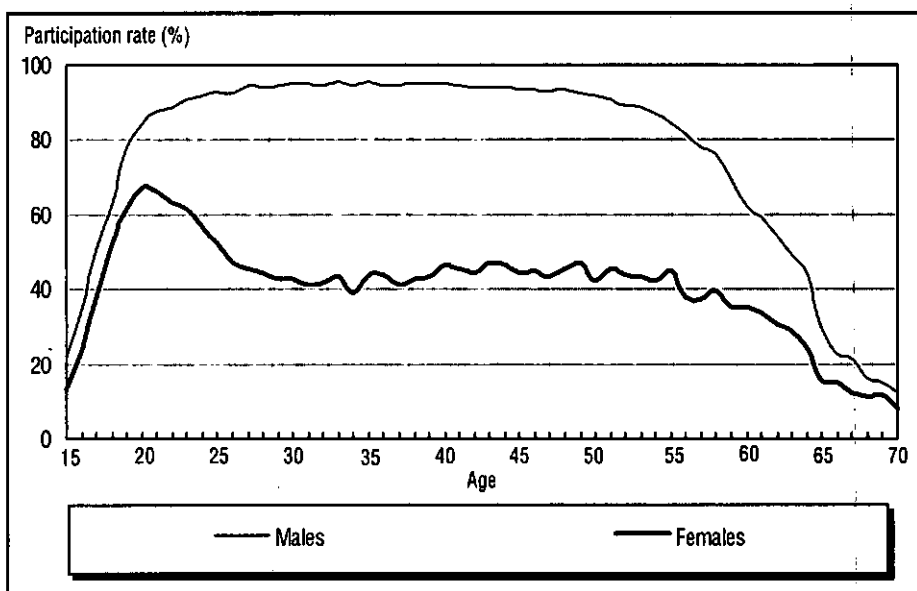
**AGE-PARTICIPATION PROFILES, BY SEX, 1981**



Source: Census of Canada, 1981.

**FIGURE 3.2C**

**AGE-PARTICIPATION PROFILES, BY SEX, 1971**



Source: Census of Canada, 1971.

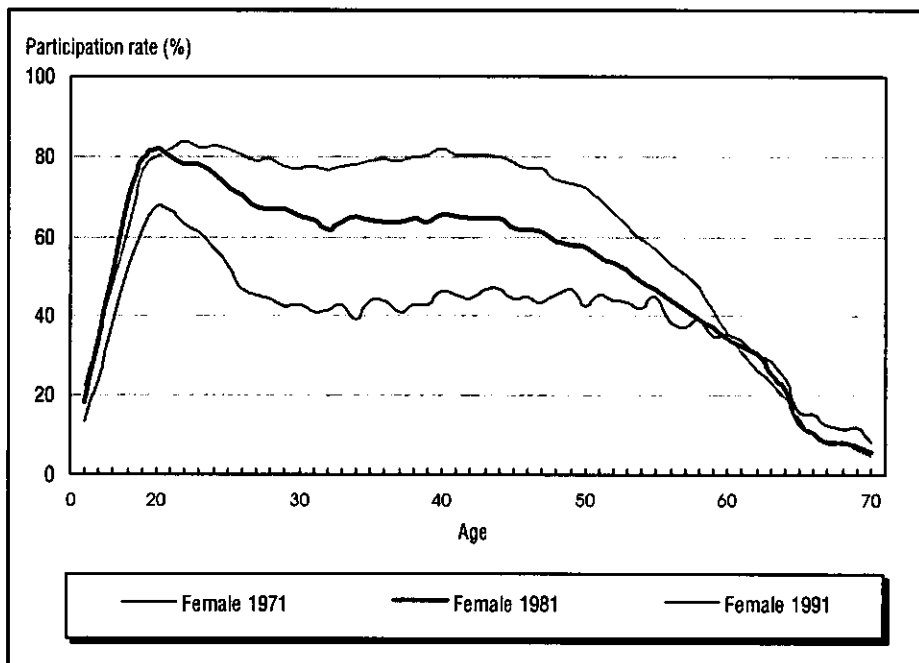
Furthermore, the second peak for women in their forties grew to be almost as high as the earlier peak. This highlights the increasing importance of women returning to the labour force after periods of child-bearing and child-rearing. By 1991, the age-participation profile of women was becoming more like that of men, but at a slightly lower level overall (Figures 3.3A, 3.3B).

Over time, female participation rates have changed dramatically with each successive census year, especially for women in their thirties and forties. The decline in participation for women after age 50 likely reflects the fact that, even by 1991, many of these women may have never participated in the labour force.

Among men, the changes were not so dramatic. However, a trend towards early retirement is shown by the lower profile after age 55 in each of the three successive census years. Some of the increased early retirement may have been involuntary, however, reflecting the restructuring and higher unemployment that occurred over those years.

**FIGURE 3.3A**

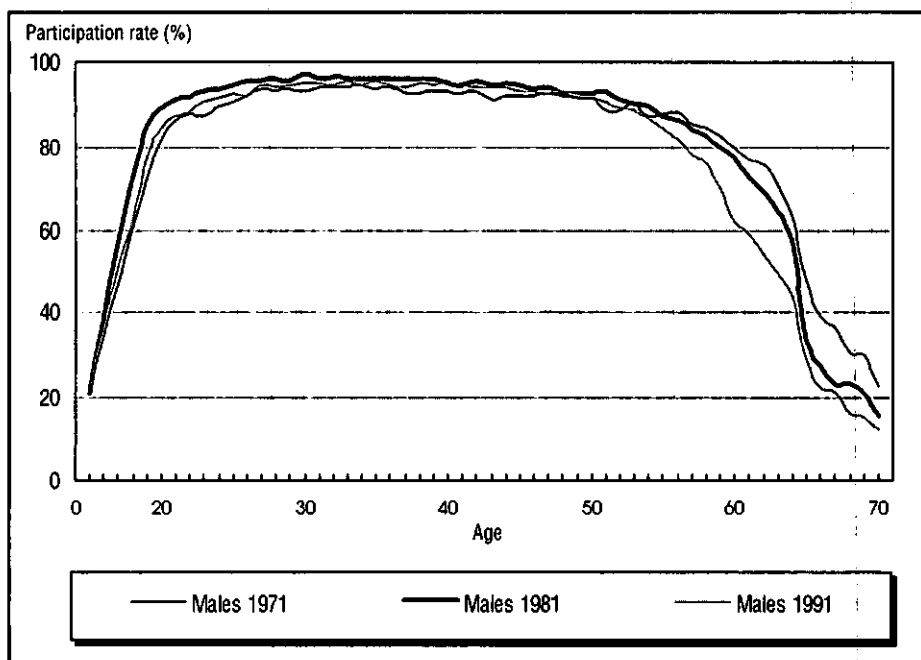
**FEMALE AGE-PARTICIPATION PROFILES, 1971, 1981 AND 1991**



Source: Census of Canada, 1971, 1981 and 1991.

**FIGURE 3.3B**

**MALE AGE-PARTICIPATION PROFILES, 1971, 1981 AND 1991**



Source: Census of Canada, 1971, 1981 and 1991.

### **3.5 REGRESSION ESTIMATES, 1971, 1981, 1991**

Tables 3.3, 3.4, and 3.5 give ordinary least-squares (OLS) estimates of the determinants of male and female labour force participation for 1971, 1981 and 1991. The corresponding  $t$  statistics, which are almost always significant at conventional levels, are in Appendix 3.5.<sup>10</sup>

#### **3.5.1 Children at home**

The most notable trend over the period is the effect of children on women's labour force participation. In 1971 and 1981, women with children were, respectively, 19% and 24% less likely to participate in the labour force than were women without children, after the other determinants of participation are controlled for. By 1991, they were only 14% less likely to participate. Clearly, the inhibiting effect of children on labour force participation declined, especially over the 1980s.

#### **3.5.2 Age**

The aging of the labour force is apparent; among both males and females, over the three census years, smaller portions of the labour force were found in the younger age brackets and larger

portions in the older age brackets. For example, the proportion of the female labour force in the 15-to-24 bracket decreased from 26% in 1971 to 17% in 1991, while the proportion in the 35-to-44 bracket increased from 16% in 1971 to 20% by 1991. Larger proportions of women were also in their main childbearing years—25 to 44—indicating that group's growing labour force participation.

The most notable changes in the coefficients reveal the trend towards earlier retirement from the labour force. The negative coefficients grew for both men and women aged 55 to 64 and over 64 (except for males age 55 to 64 in 1971).

### **3.5.3 Vocational training and higher education**

The proportion of the work force with vocational training grew substantially over the period. Among males, it increased from 15% to 27% between 1971 and 1991; among females, from 11% to 25%.

The labour force also became much more educated over the period. Among both males and females, the proportion of the labour force with no high school diploma fell from 69% in 1971 to around 40% by 1991. The proportions of both genders with some postsecondary education increased dramatically, as did the proportions of those with a bachelor's degree.

The effect of higher education on the probability of participating in the labour force did not change dramatically for either gender. Among males the coefficients were similar across the years, except for post-bachelor's education and postgraduate degrees; those coefficients did rise from 1971 to 1991. Among females, the same applies except for a pronounced increase for those with a post-bachelor's degree.

### **3.5.4 Non-labour income**

Non-labour market wealth had very little negative impact on both male and female labour force participation, and that impact declined over the period. The decision to participate in the labour force has had less and less to do with having the means to not participate.

### **3.5.5 Languages known**

Among those who spoke French only or neither English nor French, labour force participation was lower in all three census years compared with those who spoke only English. For those who spoke French only, however, this negative effect on participation declined continuously over the three census years—that is, the negative coefficients became smaller. The negative effect was sustained, however, for those who spoke neither of the two official languages.

### **3.5.6 Immigrant status**

The portion of the labour force that was immigrant remained remarkably stable over the census years, about 20% for both males and females. The equal likelihood of immigrants participating in the labour force as non-immigrants hardly changed—the coefficients are close to zero in all three census years.

### 3.5.7 Province

The provincial pattern of participation rates also changed little over that time period. Participation rates by and large increased in the Atlantic provinces relative to the other provinces. However, unemployment also increased in the Atlantic provinces relative to other provinces over the period. Thus, the increase in Atlantic provinces' labour force participation reflects more people entering the labour force but remaining unemployed.

Between 1971 and 1991, the determinants of labour force participation, as outlined in Tables 3.3 to 3.5, have been able to explain much of the variation in participation rates for both males and females. That is, there has been a steady increase in  $R^2$  over each successive census year.

**TABLE 3.3**

**LABOUR FORCE PARTICIPATION EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1971  
(ORDINARY LEAST-SQUARES LINEAR PROBABILITY ESTIMATES)**

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Age</b>				
15-24	26.1	...	26.6	...
25-34	19.0	17.7	19.6	14.1
35-44	16.4	11.1	17.0	13.2
45-54	15.2	4.3	15.2	12.3
55-64	11.3	-7.2	11.4	2.5
65+	12.1	-41.4	10.1	-51.4
<b>Vocational training</b>				
No vocational training	89.1	...	84.6	...
Vocational training	10.9	10.4	15.4	5.3
<b>Degree, certificate or diploma</b>				
No high school diploma	69.4	...	69.1	...
High school graduate	21.9	14.1	17.6	8.3
Some postsecondary	5.4	20.9	6.4	12.3
Bachelor's degree	2.1	21.3	3.0	11.2
Post-bachelor's degree	0.1	8.1	0.3	4.5
Postgraduate degree	1.1	25.0	3.6	7.5
<b>Children at home</b>				
No children	36.7	...	..	..
Some children	63.3	-19.4	..	..
15-24 and no children	4.6	...	..	..
25-34 and some children	14.2	-15.5	..	..
35-44 and some children	14.1	1.0	..	..
45-54 and some children	12.6	8.5	..	..
55-64 and some children	8.6	8.3	..	..
65+ and some children	9.2	12.7	..	..



TABLE 3.3 (CONCLUDED)

**LABOUR FORCE PARTICIPATION EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1971  
(ORDINARY LEAST-SQUARES LINEAR PROBABILITY ESTIMATES)**

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Marital status</b>				
<b>Single</b>	24.8	...	31.2	...
<b>Married</b>	61.5	-4.0	62.9	15.9
<b>Separated, widowed, divorced</b>	13.8	3.7	5.9	4.9
<b>Non-labour income (\$'000)</b>	29.1	-0.002	16.9	-0.001
<b>Languages known</b>				
<b>English only</b>	65.8	...	66.2	...
<b>French only</b>	17.3	-9.7	14.2	-9.0
<b>English and French</b>	15.1	-0.05	18.5	-1.1
<b>Neither English nor French</b>	1.8	-4.2	1.1	-6.6
<b>Immigrant status</b>				
<b>Non-immigrant</b>	80.3	...	79.7	...
<b>Immigrant</b>	19.7	2.9	20.3	-0.6
<b>Province</b>				
<b>Atlantic provinces</b>	8.6	...	8.8	...
<b>Quebec</b>	28.4	6.4	27.9	3.4
<b>Ontario</b>	36.6	10.4	36.3	7.1
<b>Prairie provinces</b>	16.0	8.1	16.5	7.2
<b>British Columbia</b>	10.3	4.7	10.6	4.0
<b>Intercept</b>	...	47.6	...	60.0
<b>Sample size</b>	...	75,271	...	74,158
<b>R<sup>2</sup></b>	...	0.17	...	0.31
<b>Average participation rate</b>	...	40.3	...	76.9

**Notes:** The reference categories for categorical variables appear in bold, unshaded type. Statistical significance is not denoted, because the variables were almost always significant at conventional levels. The *t* statistics are given in Appendix 3.5.

... figures not available

... figures not applicable

**Source:** Census of Canada, Individual Public Use Micro-data Files, 1971.

TABLE 3.4

LABOUR FORCE PARTICIPATION EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1981  
(ORDINARY LEAST-SQUARES LINEAR PROBABILITY ESTIMATES)

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Age</b>				
15-24	24.3	...	25.6	...
25-34	22.3	9.5	22.9	11.0
35-44	15.5	2.5	16.3	10.0
45-54	13.1	-4.1	13.6	8.7
55-64	11.8	-26.3	11.2	-5.6
65+	13.0	-60.8	10.4	-63.9
<b>Vocational training</b>				
No vocational training	80.3	...	76.4	...
Vocational training	19.7	0.5	23.6	-0.2
<b>Degree, certificate or diploma</b>				
No high school diploma	52.3	...	49.6	...
High school graduate	21.6	15.6	17.5	10.9
Some postsecondary	20.0	21.4	22.9	10.5
Bachelor's degree	4.4	22.6	6.1	10.7
Post-bachelor's degree	0.7	28.1	1.1	11.1
Postgraduate degree	0.9	27.9	2.9	10.5
<b>Children at home</b>				
No children	37.7	...	..	..
Some children	62.3	-24.2	..	..
15-24 and no children	3.1	...	..	..
25-34 and some children	14.7	-4.6	..	..
35-44 and some children	13.3	11.3	..	..
45-54 and some children	11.3	14.0	..	..
55-64 and some children	9.9	15.3	..	..
65+ and some children	10.0	19.1	..	..
<b>Marital status</b>				
Single	24.5	...	31.1	...
Married	60.4	3.8	62.5	12.2
Separated, widowed, divorced	15.1	9.2	6.4	6.1
Non-labour income (\$'000)	36.6	-0.0009	25.3	-0.0005
<b>Languages known</b>				
English only	65.5	...	66.4	...
French only	16.6	-7.2	13.7	-4.7
English and French	16.4	0.6	19.0	-1.1
Neither English nor French	1.5	-3.4	0.8	-5.4
<b>Immigrant status</b>				
Non-immigrant	80.7	...	80.7	...
Immigrant	19.3	2.6	19.3	-0.5

TABLE 3.4 (CONCLUDED)

**LABOUR FORCE PARTICIPATION EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1981  
(ORDINARY LEAST-SQUARES LINEAR PROBABILITY ESTIMATES)**

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Province</b>				
<b>Atlantic provinces</b>	8.4	...	8.4	...
Quebec	27.1	3.2	26.7	2.5
Ontario	36.3	8.4	35.7	5.3
Prairie provinces	16.8	7.8	17.5	7.2
British Columbia	11.4	5.8	11.6	4.1
Intercept		56.7		66.1
Sample size		187,773		181,607
$R^2$		0.25		0.37
Average participation rate		53.1		79.4

**Notes:** The reference categories for categorical variables appear in bold, unshaded type. Statistical significance is not denoted, because the variables were almost always significant at conventional levels. The *t* statistics are given in Appendix 3.5.

... figures not available

... figures not applicable

*Source:* Census of Canada, Individual Public Use Micro-data Files, 1981.

TABLE 3.5

**LABOUR FORCE PARTICIPATION EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1991  
(ORDINARY LEAST-SQUARES LINEAR PROBABILITY ESTIMATES)**

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Age</b>				
<b>15-24</b>	17.1	...	18.4	...
25-34	22.3	12.0	22.8	15.4
35-44	20.1	9.9	20.8	13.5
45-54	13.6	2.7	14.4	11.6
55-64	11.2	-27.4	11.3	-11.6
65+	15.7	-60.2	12.4	-62.3
<b>Vocational training</b>				
<b>No vocational training</b>	75.4	...	72.7	...
Vocational training	24.6	2.1	27.3	0.7
<b>Degree, certificate or diploma</b>				
<b>No high school diploma</b>	41.1	...	40.0	...
High school graduate	25.1	15.6	21.3	11.4
Some postsecondary	23.9	20.2	25.8	11.2
Bachelor's degree	7.1	23.5	8.0	12.4
Post-bachelor's degree	1.2	23.2	1.4	13.7
Postgraduate degree	1.7	26.0	3.6	13.9

TABLE 3.5 (CONCLUDED)

**LABOUR FORCE PARTICIPATION EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1991  
(ORDINARY LEAST-SQUARES LINEAR PROBABILITY ESTIMATES)**

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Children at home</b>				
<b>No children</b>	37.3	...	..	..
Some children	62.7	-14.3	..	..
<b>15-24 and no children</b>	1.9	...	..	..
25-34 and some children	15.2	-3.0	..	..
35-44 and some children	17.8	8.0	..	..
45-54 and some children	12.8	10.9	..	..
55-64 and some children	10.6	11.9	..	..
65+ and some children	14.6	13.1	..	..
<b>Marital status</b>				
<b>Single</b>	22.8	...	28.9	...
Married	60.3	6.5	63.9	11.1
Separated, widowed, divorced	16.9	5.7	7.2	4.0
<b>Non-labour income (\$'000)</b>	35.7	-0.0007	27.9	0.0004
<b>Languages known</b>				
<b>English only</b>	65.7	...	67.2	...
French only	15.2	-5.0	12.7	-2.6
English and French	17.5	1.2	19.2	0.1
Neither English nor French	1.6	-5.8	0.9	-6.1
<b>Immigrant status</b>				
<b>Non-immigrant</b>	80.4	...	80.3	...
Immigrant	19.6	-0.8	19.7	-1.1
<b>Province</b>				
<b>Atlantic provinces</b>	8.1	...	8.2	...
Quebec	26.0	3.0	25.5	2.1
Ontario	37.4	7.6	37.2	5.2
Prairie provinces	16.3	8.3	16.9	6.8
British Columbia	12.1	5.2	12.3	3.9
Intercept	...	52.2	...	60.5
Sample size	...	160,568	...	152,977
R <sup>2</sup>	...	0.34	...	0.41
Average participation rate	...	59.8	...	76.3

**Notes:** The reference categories for categorical variables appear in bold, unshaded type. Statistical significance is not denoted, because the variables were almost always significant at conventional levels. The *t* statistics are given in Appendix 3.5.

.. figures not available

... figures not applicable

Source: Census of Canada, Individual Public Use Micro-data Files, 1991.

### 3.6 SUMMARY AND CONCLUDING OBSERVATIONS

Women's labour force participation has grown dramatically since 1900, and especially since 1960. This, coupled with the generally slow but steady decline in men's participation, has caused male and female participation rates to approach each other. By 1991, overall participation rates were 60% for females and 76% for males.

Among both males and females, labour force participation increases rapidly with age in the early part of the working years, levels off (declining slightly for females in their thirties), and then plummets around age 50 for women and 55 for men as they retire from the labour force.

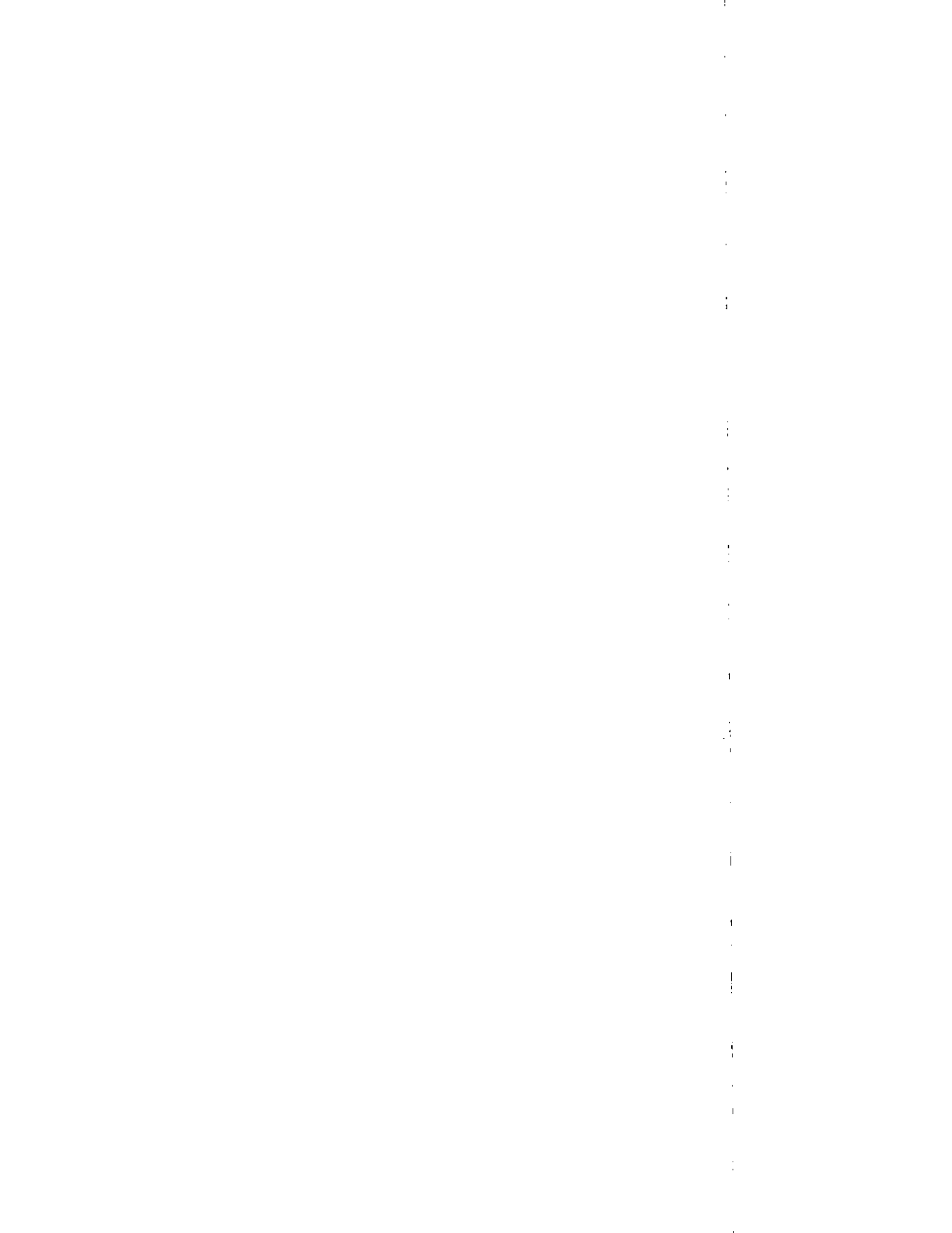
Since 1971, that pattern has been fairly constant for men, although retirement has gained prominence. Among women, however, participation has increased at all ages, especially among women in their thirties and forties. Because men's age-participation profiles have been fairly constant, and women's have increased, the two genders' age-participation profiles have moved towards each other.

Other things being equal, participation increases with education, especially for women. It is lower for those who speak only French or who speak neither French nor English, and it is lower for visible minorities and Aborigines, but not for immigrants. Participation is lower in Quebec and in the Atlantic provinces, and in non-metropolitan areas. In general, where participation is high it is disproportionately higher for women than for men, so that the women's rate is closer to the men's rate than it is to the national averages.

Other things being equal, the presence of young children—especially pre-school-age children—pushes down women's labour force participation. In spite of this, the overall participation rate does not drop sharply for women of child-raising years (ages 20 to 40).

Non-labour market wealth has a very small effect on labour market participation. The effect is stronger for women than men, but it has declined over time.

But the most important change that has occurred since the 1971 Census is the dramatic increase in the labour force participation of women, especially women with young children. This has placed pressure on policies in the areas of child care, equal pay and equal employment, and on alternative work-time arrangements. Even if men's and women's participation patterns never completely converge, these issues will remain on the policy agenda.



# ENDNOTES

1. The Labour Force Survey also excludes those in the Yukon Territory, the Northwest Territories, and on reservations, in part because of the difficulty of surveying such groups monthly.
2. Labour Force Survey data indicate that since 1991 men's labour force participation has continued to decline, while women's appears to have reached a plateau (Basset 1994; Butlin 1995).
3. This has been emphasized by Nakamura and Nakamura (1992, 1994).
4. Cleveland, Gunderson and Hyatt (1996); Gunderson (1976, 1977, 1980); Nakamura and Nakamura (1981, 1983, 1985, 1992, 1994); Robinson and Tomes (1982, 1985); Smith and Stelcner (1988).
5. Data exclusions and adjustments to provide comparability when the 1971, 1981 and 1991 Census data are used are outlined in Appendix 3.1. Variable definitions are given in Appendix 3.2 for the 1991 specification and Appendix 3.3 for the common specification across the 1971, 1981 and 1991 Censuses.
6. The reference period is the week prior to the enumeration week of June 4, 1991.
7. Extensive discussion of the labour market outcomes of immigrant women is given in subsequent chapters, especially Chapter 5.
8. The dependent variable in this case is binary coded or dichotomous, coded 1 if the person participated in labour market activities, 0 if they did not. Predicted values of the dependent variable are interpreted as probabilities of participating in the labour market. However, ordinary least-squares estimates of the regression function (termed the linear probability function) do not constrain the predicted values to fall within the unit interval. This implies that it cannot strictly be interpreted as a probability function since there is no guarantee that probabilities of less than 0 or greater than 1 could not occur.

Logistic regression does provide estimates of logit coefficients, which ensure that predicted values of the dependent variable fall within the unit interval, allowing interpretation as a probability function. The logistic regression procedures are outlined in Appendix 3.6, which also provides a table of the logit results. The logit coefficients by themselves do not give the changes in probability, and such changes have to be calculated for different levels of probability. As such they are more cumbersome to present. Because the logit results are similar to the ordinary least-squares regression results in this case, the simpler ordinary least-squares results are presented in the text, and the logit results are given in the appendix.

9. Although information on the cost and availability of child care is not available in the census data, these factors have been shown to be important determinants of women's labour force participation in Canada (Cleveland, Gunderson and Hyatt 1996).
10. To compare the results over time, a common specification across the three census years was needed. The common specification uses a smaller set of variables and categories than does the full 1991 specification, because the variables and categories must be common across the three census years. Fortunately, the 1991 results are similar for both the full specification and the common historical specification. This suggests that the historical specification is appropriate, even if it is narrower than the full specification. The explicit decisions that were made to construct the common specification are laid out in Appendix 3.3. As with the 1991 specification, the ordinary least-squares results are discussed in the text because they are simpler to present and are similar to the logit results, which are given in Appendices 3.7, 3.8 and 3.9.

Comparing both mean values and coefficients is relevant; comparing the mean values shows the changing nature or composition of male and female labour force participants (for example, how their age and education changed). Comparing the regression coefficients highlights how the labour force behaviour of males and females changed.





## APPENDIX 3

### APPENDIX 3.1

#### DATA EXCLUSIONS AND COMPARABILITY ADJUSTMENTS

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In estimating the determinants of labour market outcomes, it is often necessary to restrict the analysis to a subset of the population for whom the outcomes can be attained. Furthermore, in making comparisons across different census data sets (for example, the 1971, 1981 and 1991 Censuses) it is often necessary to exclude some observations for which common information is not available in all three census years. In this appendix, these exclusions are explicitly outlined.

A more detailed discussion of data exclusions is given later in Appendix 5.1. The exclusions are most prominent in the earnings area.

When analysing labour force participation decisions from the 1991 census data, it was possible to be very inclusive since most of the census population could potentially participate in labour market activities. The exception was children under the age of 15. They are required to be in school, and they are excluded from the census labour force. Labour force participation decisions were recorded for everyone in Canada 15 years of age and over, excluding institutional residents, who, in the week prior to enumeration (June 4, 1991), was employed, unemployed or not in the labour force.

In the historical comparisons, some observations in particular years had to be excluded so as to have a common specification across the three census years. In the 1971 Census, data on the geographic code for people in Prince Edward Island, the Yukon and the Northwest Territories were not available. To facilitate comparability across the three census years, in the historical analysis people in these regions were also excluded from the 1981 and 1991 Censuses.

The 1991 Census marked the first time that a question on the number of children ever born alive was asked of all females (including those never married) 15 years of age and over. In previous censuses, the question was asked of only ever-married females 15 years of age and over. For comparability purposes, in the historical analysis involving the 1991 data, never-married females were recorded as having no children ever born.

## APPENDIX 3.2

### VARIABLE DEFINITIONS, 1991 SPECIFICATION FOR CHAPTER 3

Variable	Field	Code
Labour force participation	84	1-10
Non-labour income	See Appendix 3.3	...
No children at home	11	1
At least one child under 2, none over 5	11	2
No children under 2, some 2-5	11	3
Some children under 6, some over 5	11	4
No children under 6, some 6-14	11	5
No children under 15, some 15+	11	6

**Notes:** The census fields and codes used to define all of the variables used for the 1991 labour force participation analysis are given in Appendix 5.3, which also includes a comprehensive list of variables used in the earnings analysis but not used in this participation analysis. The variables shown here are not used in Chapter 5.

... figures not applicable

**Source:** Census of Canada, Individual Public Use Micro-data Files, 1991.

## APPENDIX 3.3

### VARIABLE DEFINITIONS, COMMON SPECIFICATION, 1971, 1981, 1991 CENSUSES FOR CHAPTER 3

Variable	1971		1981		1991	
	Field	Code	Field	Code	Field	Code
Labour force participation	28	1-7	30	2-9	84	1-10
Non-labour income	50	See Note 1	15	See Note 2	13	See Note 3
Some children	27	2-15	25	1-9	19	2-8

**Notes:** The census fields and codes used to define all of the variables used for the 1971, 1981 and 1991 historical labour force participation analysis are given in Appendix 5.4, which also includes a comprehensive list of the variables used in the earnings analysis but not used in this participation analysis. The variables shown here are not used in Chapter 5.

1. Non-labour income is calculated here as total family income less one's own employment income from wages and salaries and net income from self-employment. In the 1971 coding it is USFAMINC (Field 50) minus INCWAGES (Field 56) minus INCSELF (Field 57). The income measures were in intervals; hence, the mid-points of the intervals were used. For the end intervals, individuals were given the average of their province and sex; that information was provided by Statistics Canada.
2. As in Note 1, with the 1981 coding CFINC (Field 15) minus WAGES (Field 60) minus SELFEMP (Field 61).
3. As in Note 1, with the 1991 coding CFINCP (Field 13) minus WAGESP (Field 97) minus SELFIP (Field 98).

**Source:** Census of Canada, Individual Public Use Micro-data Files, 1971, 1981 and 1991.

## APPENDIX 3.4

### 1 STATISTICS, LABOUR FORCE PARTICIPATION EQUATIONS, 1991 SPECIFICATION (ORDINARY LEAST-SQUARES LINEAR PROBABILITY ESTIMATES)

Variable	Female	Male
<b>Age</b>		
15-24	...	...
25-34	28.92	49.00
35-44	22.00	38.42
45-54	-0.89	30.33
55-64	-61.12	-30.87
65+	-125.33	-160.97
<b>Vocational training</b>		
No vocational training	...	...
Vocational training	5.05	1.33
<b>Degree, certificate or diploma</b>		
No degree, certificate or diploma	...	...
High school graduate	59.25	49.30
Trade certificate or diploma	22.08	16.68
Other non-university certificate	28.16	20.11
University diploma below bachelor's level	32.52	15.70
Bachelor's degree(s)	53.30	34.85
University degree above bachelor's	26.22	18.43
Degree in medicine, dentistry, veterinary medicine or optometry	14.25	16.88
Master's degree(s)	30.14	21.42
Doctorate degree	10.27	14.36
Non-labour income (\$'000)	-24.02	-16.71
<b>Children at home</b>		
No children	...	..
At least one child under 2, none over 5	-39.03	..
No children under 2, some 2-5	-24.51	..
Some children under 6, some over 5	-42.92	..
No children under 6, some 6-14	-9.84	..
No children under 15, some over 14	10.57	..
<b>Marital status</b>		
Never married, single	...	...
Common law	26.92	31.95
Married	11.96	41.34
Separated	3.68	8.78
Widowed	0.84	3.57
Divorced	9.82	6.70

# APPENDIX 3.4 (CONCLUDED)

## *t* STATISTICS, LABOUR FORCE PARTICIPATION EQUATIONS, 1991 SPECIFICATION (ORDINARY LEAST-SQUARES LINEAR PROBABILITY ESTIMATES)

Variable	Female	Male
<b>Languages known</b>		
English only	...	...
French only	-9.99	-6.22
Both English and French	2.38	-0.63
Neither English nor French	-6.45	-5.55
<b>No non-official languages known</b>	...	...
Some non-official languages known	-4.22	-1.22
<b>Immigrant status</b>		
<b>Non-immigrant</b>	...	...
Immigrant	-1.82	1.54
<b>Visible minority status</b>		
<b>Not visible minority</b>	...	...
Visible minority	-2.20	-15.60
<b>Aboriginal origins</b>		
<b>Non-Aboriginal</b>	...	...
Aboriginal	-15.23	-16.88
<b>Province</b>		
<b>Ontario</b>	...	...
Newfoundland	-11.18	-12.70
Prince Edward Island	1.50	1.97
Nova Scotia	-11.63	-7.81
New Brunswick	-9.58	-8.17
Quebec	-9.20	-7.60
Manitoba	3.97	4.20
Saskatchewan	3.73	8.10
Alberta	5.07	6.63
British Columbia	-5.82	-4.27
Yukon and Northwest Territories	4.62	0.89
<b>Census area</b>		
<b>Not in census metropolitan area</b>	...	...
Toronto	8.72	3.61
Montréal	4.95	1.91
Vancouver	6.84	3.55
Other census metropolitan area	3.50	-3.42

**Notes:** The reference categories for categorical variables appear in bold, unshaded type. Variables are statistically significant at the 0.01 and 0.05 level when their *t* statistics respectively are greater than 2.58 and 1.96 based on two-tailed tests.

.. figures not available

... figures not applicable

Source: Census of Canada, Individual Public Use Micro-data Files, 1991.

# APPENDIX 3.5

## 1 STATISTICS, LABOUR FORCE PARTICIPATION EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1971, 1981, 1991 (ORDINARY LEAST-SQUARES LINEAR PROBABILITY ESTIMATES)

Variable	1971		1981		1991	
	Female	Male	Female	Male	Female	Male
<b>Age</b>						
15-24	...	...	...	...	...	...
25-34	20.52	29.96	20.84	41.20	27.69	49.37
35-44	9.51	26.18	3.50	32.97	17.43	39.25
45-54	3.94	23.98	-5.11	27.86	3.49	31.44
55-64	-6.54	4.57	-34.33	-17.11	-31.94	-30.14
65+	-38.57	-89.44	-94.18	-190.29	-90.13	-163.84
<b>Vocational training</b>						
No vocational training	...	...	...	...	...	...
Vocational training	19.53	14.55	0.77	-0.32	3.79	1.35
<b>Degree, certificate or diploma</b>						
No high school diploma	...	...	...	...	...	...
High school graduate	33.51	23.19	58.50	50.25	59.43	49.56
Some postsecondary	28.07	22.60	32.45	19.96	35.46	21.95
Bachelor's degree	18.31	14.57	42.49	30.89	52.68	35.33
Post-bachelor's degree	1.91	1.99	23.98	14.93	24.80	18.48
Postgraduate degree	15.62	10.67	26.41	22.27	32.30	29.01
<b>Children at home</b>						
No children	...	..	...	..	...	..
Some children	-19.52	..	-35.39	..	-13.02	..
15-24 and no children	...	..	...	..	...	..
25-34 and some children	-12.65	..	-5.91	..	-2.61	..
35-44 and some children	0.65	..	11.78	..	6.73	..
45-54 and some children	5.98	..	13.60	..	8.26	..
55-64 and some children	5.74	..	15.17	..	8.69	..
65+ and some children	8.91	..	20.88	..	10.52	..
<b>Marital status</b>						
Single	...	...	...	...	...	...
Married	-6.21	40.36	10.11	53.40	17.50	43.75
Separated, widowed, divorced	4.64	7.51	19.87	16.27	12.63	9.94
Non-labour income (\$'000)	-35.22	-24.79	-33.67	-22.08	-20.09	-15.43
<b>Languages known</b>						
English only	...	...	...	...	...	...
French only	-13.78	-15.50	-15.70	-13.07	-10.61	-6.25
English and French	-0.08	-2.59	1.62	-4.27	3.46	0.20
Neither English nor French	-3.35	-5.19	-3.94	-6.17	-7.08	-6.87
<b>Immigrant status</b>						
Non-immigrant	...	...	...	...	...	...
Immigrant	6.50	-1.69	9.37	-2.54	-2.85	-5.07

### APPENDIX 3.5 (CONCLUDED)

#### **t** STATISTICS, LABOUR FORCE PARTICIPATION EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1971, 1981, 1991 (ORDINARY LEAST-SQUARES LINEAR PROBABILITY ESTIMATES)

Variable	1971		1981		1991	
	Female	Male	Female	Male	Female	Male
<b>Province</b>						
<b>Atlantic provinces</b>	...	...	...	...	...	...
Quebec	8.29	5.56	6.35	6.68	6.06	4.96
Ontario	16.50	14.36	21.69	17.96	19.36	15.90
Prairie provinces	11.70	13.35	18.25	22.66	19.30	18.87
British Columbia	6.14	6.65	12.67	11.76	11.43	10.13

**Notes:** The reference categories for categorical variables appear in bold, unshaded type. Variables are statistically significant at the 0.01 and 0.05 levels, when their *t* statistics respectively are greater than 2.58 and 1.96 based on two-tailed tests.

.. figures not available

... figures not applicable

Source: Census of Canada, Individual Public Use Micro-data Files, 1971, 1981, and 1991.

### APPENDIX 3.6

#### LOGIT LABOUR FORCE PARTICIPATION EQUATIONS, 1991 SPECIFICATION

Variable	Female		Male	
	Change in probability	Significance level	Change in probability	Significance level
<b>Age</b>				
<b>15-24</b>				
25-34	14.8	27.30	15.1	39.67
35-44	12.1	19.62	12.8	26.31
45-54	-2.1	-2.95	7.5	12.90
55-64	-32.4	-46.89	-27.7	-36.64
65+	-56.2	-96.31	-69.8	-102.18
<b>Vocational training</b>				
<b>No vocational training</b>				
Vocational training	7.2	6.06	2.9	2.40
<b>Degree, certificate or diploma</b>				
<b>No degree, certificate or diploma</b>				
High school graduate	17.8	53.57	12.2	41.29
Trade certificate or diploma	17.6	14.59	10.5	9.65
Other non-university certificate	21.8	19.69	14.4	14.14
University diploma below bachelor level	25.0	27.98	12.1	11.65
Bachelor's degree(s)	26.8	44.83	14.7	27.87
University degree above bachelor's	27.1	21.64	16.1	15.03
Degree in medicine, dentistry, veterinary medicine or optometry	32.4	11.21	18.8	14.49
Master's degree(s)	29.6	24.42	15.1	16.41
Doctorate degree	30.6	8.25	17.8	11.75
<b>Non-labour income (\$'000)</b>	-0.1	-24.13	-0.1	-14.84

**APPENDIX 3.6 (CONTINUED)**
**LOGIT LABOUR FORCE PARTICIPATION EQUATIONS, 1991 SPECIFICATION**

Variable	Female		Male	
	Change in probability	Significance level	Change in probability	Significance level
<b>Children at home</b>				
<b>No children</b>				
At least one child under 2, none over 5	-29.7	-39.83	..	..
No children under 2, some 2-5	-23.1	-26.53	..	..
Some children under 6, some over 5	-30.1	-42.90	..	..
No children under 6, some 6-14	-7.1	-11.74	..	..
No children under 15, some 15+	4.7	9.18	..	..
<b>Marital status</b>				
<b>Never married, single</b>				
Common law	17.8	25.95	15.3	28.36
Married	6.2	10.99	15.5	44.63
Separated	3.8	3.58	9.5	9.75
Widowed	-2.6	-2.74	8.0	7.98
Divorced	8.1	9.57	7.3	9.34
<b>Languages known</b>				
<b>English only</b>				
French only	-7.3	-9.44	-3.8	-5.01
Both English and French	1.2	2.16	-0.2	-0.29
Neither English nor French	-10.0	-7.05	-7.6	-4.92
<b>No non-official languages known</b>				
Some non-official languages known	-2.2	-4.43	-1.1	-2.42
<b>Immigrant status</b>				
<b>Non-immigrant</b>				
Immigrant	-0.8	-1.47	0.4	.72
<b>Visible minority status</b>				
<b>Not visible minority</b>				
Visible minority	-1.7	-2.58	-10.4	-15.54
<b>Aboriginal origins</b>				
<b>Non-Aboriginal</b>				
Aboriginal	-12.0	-14.30	-15.3	-17.19
<b>Province*</b>				
<b>Ontario</b>				
Newfoundland	-12.3	-11.16	-14.2	-12.75
Prince Edward Island	3.5	1.49	3.6	1.79
Nova Scotia	-10.7	-11.88	-7.0	-7.91
New Brunswick	-9.9	-9.78	-8.4	-8.30
Quebec	-7.5	-9.42	-6.6	-8.39
Manitoba	3.5	4.16	3.2	4.26
Saskatchewan	3.3	3.66	6.5	8.43
Alberta	3.0	4.93	4.1	7.27
British Columbia	-4.1	-5.68	-2.6	-3.88
Yukon and Northwest Territories	13.0	4.59	4.0	1.63

### APPENDIX 3.6 (CONCLUDED)

#### LOGIT LABOUR FORCE PARTICIPATION EQUATIONS, 1991 SPECIFICATION

Variable	Female		Male	
	Change in probability	Significance level	Change in probability	Significance level
<b>Census area</b>				
Not in census metropolitan area				
Toronto	5.2	8.93	2.1	3.87
Montréal	3.1	4.85	1.3	2.26
Vancouver	6.0	6.87	2.8	3.48
Other census metropolitan area	1.4	3.40	-1.3	-3.24
Intercept				
Sample size	161,760	...	154,158	...
Chi <sup>2</sup>	62,854	0.0001	64,001	0.0001
Average participation rate	59.8	...	76.3	...

.. figures not available

... figures not applicable

Source: Census of Canada, Individual Public Use Micro-data Files, 1991.

### APPENDIX 3.7

#### LOGIT LABOUR FORCE PARTICIPATION EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1971 (CHANGE IN PROBABILITIES AT MEAN)

Variable	Female		Male	
	Change in probability	t statistic	Change in probability	t statistic
<b>Age</b>				
15-24				
25-34	21.6	19.26	14.2	26.43
35-44	12.6	8.78	12.9	21.08
45-54	4.5	3.53	10.8	16.88
55-64	-7.8	-6.52	-2.8	-3.55
65+	-33.4	-32.55	-59.6	-62.81
<b>Vocational training</b>				
No vocational training				
Vocational training	12.3	18.99	9.7	17.38



# APPENDIX 3.7 (CONTINUED)

## LOGIT LABOUR FORCE PARTICIPATION EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1971 (CHANGE IN PROBABILITIES AT MEAN)

Variable	Female		Male	
	Change in probability	t statistic	Change in probability	t statistic
<b>Degree, certificate or diploma</b>				
No high school diploma				
High school graduate	16.1	31.92	10.2	22.56
Some postsecondary	23.9	26.33	13.8	21.00
Bachelor's degree	24.8	17.05	15.0	13.96
Post-bachelor's degree	9.1	1.74	5.9	1.79
Postgraduate degree	29.9	14.53	11.0	9.91
<b>Children at home</b>				
No children				
Some children	-17.8	-17.20	..	..
15-24 and no children				
25-34 and some children	-16.7	-12.39	..	..
35-44 and some children	1.4	0.78	..	..
45-54 and some children	10.2	5.98	..	..
55-64 and some children	9.0	5.22	..	..
65+ and some children	-0.5	-0.21	..	..
<b>Marital status</b>				
Single				
Married	-5.4	-7.18	15.3	38.56
Separated, widowed, divorced	5.1	5.09	6.0	7.15
Non-labour income (\$'000)	-0.3	-31.34	-0.2	-20.23
<b>Languages known</b>				
English only				
French only	-11.5	-14.12	-11.8	-12.81
English and French	-0.3	-0.39	-2.4	-3.54
Neither English nor French	-5.1	-3.30	-12.4	-6.01
<b>Immigrant status</b>				
Non-immigrant				
Immigrant	4.1	7.35	-0.3	-0.49
<b>Province</b>				
Atlantic provinces				
Quebec	8.3	8.51	3.8	4.80
Ontario	13.1	16.41	8.4	14.30
Prairie provinces	10.1	11.58	8.6	13.15
British Columbia	6.1	6.41	4.7	5.94

### APPENDIX 3.7 (CONCLUDED)

#### LOGIT LABOUR FORCE PARTICIPATION EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1971 (CHANGE IN PROBABILITIES AT MEAN)

Variable	Female		Male	
	Change in probability	t statistic	Change in probability	t statistic
Logit intercept	-0.10	-2.90	0.19	4.82
Sample size	...	75,271	...	74,158
Chi <sup>2</sup>	...	14,696	...	23,290
Average participation rate	...	40.3	...	76.9

**Notes:** The reference categories for categorical variables appear in bold, unshaded type. Statistical significance is not denoted, because the variables were almost always significant at conventional levels.

.. figures not available

... figures not applicable

Source: Census of Canada, Individual Public Use Micro-data Files, 1971.

### APPENDIX 3.8

#### LOGIT LABOUR FORCE PARTICIPATION EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1981 (CHANGE IN PROBABILITIES AT MEAN)

Variable	Female		Male	
	Change in probability	t statistic	Change in probability	t statistic
<b>Age</b>				
15-24				
25-34	17.2	24.68	13.0	37.94
35-44	3.8	3.76	11.2	25.57
45-54	-5.7	-5.47	7.0	14.92
55-64	-28.4	-32.36	-16.0	-27.40
65+	-49.4	-68.32	-70.7	-114.92
<b>Vocational training</b>				
No vocational training				
Vocational training	0.4	0.43	-0.5	-0.43
<b>Degree, certificate or diploma</b>				
No high school diploma				
High school graduate	17.5	54.49	11.3	42.88
Some postsecondary	23.9	28.67	12.6	15.82
Bachelor's degree	25.6	37.87	13.2	25.12
Post-bachelor's degree	31.4	20.61	14.1	12.34
Postgraduate degree	31.7	22.73	13.6	18.44

### APPENDIX 3.8 (CONCLUDED)

#### LOGIT LABOUR FORCE PARTICIPATION EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1981 (CHANGE IN PROBABILITIES AT MEAN)

Variable	Female		Male	
	Change in probability	t statistic	Change in probability	t statistic
<b>Children at home</b>				
<b>No children</b>				
Some children	-26.6	-32.71	..	..
<b>15-24 and no children</b>				
25-34 and some children	-13.8	-13.25	..	..
35-44 and some children	10.5	8.45	..	..
45-54 and some children	15.5	12.66	..	..
55-64 and some children	17.0	14.63	..	..
65+ and some children	10.0	6.29	..	..
<b>Marital status</b>				
<b>Single</b>				
Married	5.8	10.57	14.0	53.23
Separated, widowed, divorced	14.2	21.41	8.8	17.57
<b>Non-labour income (\$'000)</b>	-0.1	-31.68	-0.1	-18.48
<b>Languages known</b>				
<b>English only</b>				
French only	-9.1	-14.69	-6.7	-10.89
English and French	0.7	1.42	-2.2	-4.96
Neither English nor French	-4.5	-3.76	-10.1	-6.80
<b>Immigrant status</b>				
<b>Non-immigrant</b>				
Immigrant	3.6	9.74	-0.5	-1.35
<b>Province</b>				
<b>Atlantic provinces</b>				
Quebec	3.7	5.62	2.8	5.08
Ontario	10.7	21.52	6.6	17.25
Prairie provinces	9.8	17.92	9.0	22.48
British Columbia	7.4	12.40	5.1	10.66
<b>Logit model statistics</b>				
Logit intercept	0.23	10.49	0.40	15.09
Sample size	...	187,773	...	181,607
Chi <sup>2</sup>	...	54,540	...	64,234
Average participation rate	...	53.1	...	79.4

**Notes:** The reference categories for categorical variables appear in bold, unshaded type. Statistical significance is not denoted, because the variables were almost always significant at conventional levels.

.. figures not available

... figures not applicable

**Source:** Census of Canada, Individual Public Use Micro-data Files, 1981.

## APPENDIX 3.9

### LOGIT LABOUR FORCE PARTICIPATION EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1991 (CHANGE IN PROBABILITIES AT MEAN)

Variable	Female		Male	
	Change in probability	t statistic	Change in probability	t statistic
<b>Age</b>				
15-24				
25-34	16.7	26.39	15.2	39.95
35-44	13.1	15.05	13.1	27.41
45-54	1.9	1.64	8.1	14.31
55-64	-31.3	-27.77	-26.0	-35.57
65+	-56.0	-57.11	-69.2	-103.64
<b>Vocational training</b>				
No vocational training				
Vocational training	3.4	3.72	2.8	2.83
<b>Degree, certificate or diploma</b>				
No high school diploma				
High school graduate	17.6	53.56	12.2	41.56
Some postsecondary	22.5	28.52	12.2	14.74
Bachelor's degree	26.2	44.19	14.7	28.26
Post-bachelor's degree	25.9	20.21	16.1	15.02
Postgraduate degree	28.9	25.90	16.5	23.52
<b>Children at home</b>				
No children				
Some children	-19.7	-13.27	..	..
15-24 and no children				
25-34 and some children	-9.8	-6.20	..	..
35-44 and some children	7.2	4.55	..	..
45-54 and some children	13.1	7.96	..	..
55-64 and some children	15.1	9.38	..	..
65+ and some children	13.0	6.57	..	..
<b>Marital status</b>				
Single				
Married	9.9	16.84	15.5	46.57
Separated, widowed, divorced	8.9	12.27	8.0	13.32
Non-labour income (\$'000)	-0.001	-18.83	-0.1	-13.12
<b>Languages known</b>				
English only				
French only	-7.3	-9.89	-3.5	-4.88
English and French	1.8	3.40	0.2	0.45
Neither English nor French	-10.9	-7.90	-10.4	-6.54
<b>Immigrant status</b>				
Non-immigrant				
Immigrant	-1.2	-2.86	-2.4	-5.97

### APPENDIX 3.9 (CONCLUDED)

#### LOGIT LABOUR FORCE PARTICIPATION EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1991 (CHANGE IN PROBABILITIES AT MEAN)

Variable	Female		Male	
	Change in probability	t statistic	Change in probability	t statistic
<b>Province</b>				
<b>Atlantic provinces</b>				
Quebec	3.9	5.32	2.5	3.68
Ontario	10.6	19.56	7.4	15.66
Prairie provinces	11.5	19.20	9.5	18.88
British Columbia	7.4	11.26	5.5	9.59
Logit intercept	-1.8	-2.83	0.11	3.72
Sample size	...	160,568	...	152,967
Chi <sup>2</sup>	...	154,614	...	62,818
Average participation rate	...	59.8	...	76.3

**Notes:** The reference categories for categorical variables appear in bold, unshaded type. Statistical significance is not denoted, because the variables were almost always significant at conventional levels.

... figures not available

... figures not applicable

**Source:** Census of Canada, Individual Public Use Micro-data Files, 1991.



The second major dimension of labour supply, after labour force participation, is the hours worked by those employed in the labour force.

Working time issues influence a wide range of labour market policy matters. Hours of work in the labour market affect income. In two-earner families, which have become the dominant family structure, hours of work also affect time that can be spent with the family. The balancing act between work and family tends to be more important for women than men. This is because women still tend to have primary responsibility for household work, even in dual-earner families where both partners work full time in the labour market (Marshall 1993).

Issues associated with part-time work have been the subject of a commission of inquiry.<sup>1</sup> The inquiry was set up because of the rapid growth in part-time employment, and the possibility that part-time workers are unfairly treated. The key issues were pay, benefits, pensions, occupational segregation, and a lack of opportunities for training or promotion.

Work-sharing has also attracted considerable policy attention because of a paradox in the Canadian labour market: Some are working long hours and regular overtime, while others are unemployed or underemployed. The discussion is about whether the work time of some can be reduced and “spread around” to create jobs for others.<sup>2</sup>

As well, survey evidence<sup>3</sup> indicates that only about one-third of Canadians are content with their existing work time arrangements. Of the two-thirds who would prefer to change their work time arrangements, approximately half would like to increase their hours and earn proportionately more, and the other half would prefer to reduce their hours and earn proportionately less. In essence, approximately one-third of the work force is underemployed, while an equal one-third is overemployed at their existing wage rate.<sup>4</sup> Yet there are no mechanisms for “trades” to reallocate the hours of overemployment to the underemployed to both

parties' satisfaction. Women in the peak child-rearing years (25 to 34) and women with children under the age of 5 expressed the greatest preference for work time reductions.

Working time issues are also related to growing earnings inequality, another important policy issue. Recent evidence<sup>5</sup> suggests that the growing earnings inequality in Canada is being driven by growing inequality in the distribution of working time. In contrast, in the United States the growing inequality is more the result of growing inequality in hourly wages.

Hours-of-work issues are also relevant to many legislative initiatives. Employment standards legislation often sets maximum hours of work and regulates overtime. That legislation is under pressure to accommodate alternative work time arrangements, such as compressed work weeks, that may exceed legal limits on the maximum number of hours worked per day. As a result of unemployment insurance reforms in the new Employment Insurance Act, effective June 30, 1996, the qualification period is based on a minimum number of hours worked—rather than weeks, as was formerly the case—during the previous year.<sup>6</sup> This would enable part-time workers or workers with irregular work schedules to be eligible for benefits. The move to the hours-based system took effect in January, 1997.

For women, hours-of-work issues may be crucial, not only because of the policy issues discussed above, but also because much of the male-female earnings gap is attributable to differences in hours of work. This can occur directly, as fewer hours of work translate into lower annual earnings for any given wage rate, and indirectly, as fewer hours may mean less opportunity to accrue experience and on-the-job training. As well, reduced hours are often taken as a signal of lower labour market commitment and attachment. In the Labour Force Survey supplement discussed above, women also expressed the strongest preference for work time reductions, in large part due to family responsibilities.

Clearly, hours-of-work issues are related to numerous current policy matters, many of which are of particular interest to women. So to understand women's labour market behaviour, it is important to understand the determinants of their hours of work in the labour market.

#### **4.1 THEORETICAL DETERMINANTS OF HOURS OF WORK**

Hours of work are determined by the interplay of employee preferences (on the supply side), employer needs (on the demand side), and institutional and legal factors that mitigate—and sometimes reflect—supply and demand factors.

With respect to employee preferences, basic economic theory suggests individuals' preferences about hours of work are influenced by their expected wage and non-labour income or wealth.

A wage increase can have two opposing effects. It increases a person's economic returns to labour market work, and this induces them to prefer to work longer hours. Working in the opposite direction, an increase in their expected wage also increases their income or wealth, and this enables them to afford not to work as long. These are, respectively, the substitution and income effect of basic economic theory. Since they work in opposite directions, they have conflicting, hard-to-measure effects on individuals' hours-of-work decisions. To the extent that women have other non-labour market alternatives, such as household work, they may be more responsive in their hours-of-work decision to changes in their expected wage. In the empirical



work that follows, expected wages are proxied by such variables as education, training and occupation. This enables comparison with the participation equations in Chapter 3, where the same variables are used.

Several factors can affect individuals' preferences for more or less labour market work as opposed to other activities—household work, retirement, education or pure leisure. Child care or elder care responsibilities, for example, may make household work more important for an individual, and hours of work in the labour market less important. Similarly, health problems may reduce the number of hours an individual wishes to work, at least to the extent that such work is more difficult to do. As many jobs become physically less arduous, people may be able to work longer hours at them.

Hours-of-work decisions often reflect joint decisions made by several family members. Two-earner families, for example, may prefer reduced work time for both earners so that they can share in family responsibilities, and the two incomes may enable some to afford to do so. Single-earner families, in contrast, may want more work hours, so that they can approach a standard of living like that of dual-earner families.

The actual hours worked in the labour market are the result of these supply-side factors reflecting employees' preferences interacting with demand-side factors reflecting employers' needs. Employers today more often need a more flexible and adaptable work force—a “just-in-time” pool of labour to meet the needs of their just-in-time production system. Employers often want part-time workers to fill specific short-term needs or time slots, and overtime worked to fill immediate, short-term demands. The demand side is also often constrained by the absence of jobs, especially full-time jobs.

Institutional and legal factors also play an important role in hours of work. Labour unions have fought long and hard for shorter work weeks and work days. Employment standards legislation has often imposed maximum working hours and overtime premium requirements for overtime hours. The extent to which these are independent influences, or manifestations of the basic underlying supply and demand forces, remains an open question. Undoubtedly, employment standards have been an important force, or vehicle for other forces, influencing hours of work in the labour market.

## **4.2 WEEKLY HOURS BY GENDER AND OTHER CHARACTERISTICS, 1991<sup>7</sup>**

Women worked about 82% as many hours as men in 1991 (see Table 4.1).<sup>8</sup> Men averaged nearly 42 hours per week, and women averaged 34.

The remainder of the table shows how those hours, and the ratio of female-to-male hours, differ by various characteristics believed to influence hours of work.

TABLE 4.1

**AVERAGE WEEKLY HOURS AND RATIO BY SEX OF THE LABOUR FORCE, BY SELECTED SOCIO-ECONOMIC VARIABLES AND SEX, 1991 CENSUS**

Variable	Average female hours	Average male hours	Female:male ratio
<b>Average weekly hours</b>	34.0	41.6	0.817
<b>Age</b>			
15-24	29.6	33.6	0.881
25-34	35.4	43.2	0.819
35-44	35.1	43.8	0.801
45-54	35.2	43.5	0.809
55-64	33.0	42.1	0.784
65+	28.6	35.0	0.817
<b>Vocational training</b>			
No vocational training	33.5	41.2	0.813
Vocational training	35.0	42.5	0.823
<b>Degree, certificate or diploma</b>			
No degree, certificate or diploma	32.4	40.7	0.788
High school graduate	33.4	41.1	0.805
Trade certificate or diploma	35.2	43.0	0.819
Other non-university certificate	34.7	42.2	0.822
University diploma below bachelor level	34.3	42.6	0.805
Bachelor's degree(s)	35.6	41.8	0.849
University degree above bachelor's	36.3	42.1	0.862
Degree in medicine, dentistry, veterinary medicine or optometry	42.7	48.8	0.875
Master's degree(s)	37.3	42.5	0.878
Doctorate degree	41.5	43.2	0.961
<b>Non-labour income (\$'000)</b>	...	...	...
<b>Children at home:</b>			
No children	34.1	..	..
At least one child under 2, none over 5	31.5	..	..
No children under 2, some 2-5	33.2	..	..
Some children under 6, some over 5	31.8	..	..
No children under 6, some 6-14	34.1	..	..
No children under 15, some 15+	35.1	..	..
<b>Marital status</b>			
Never married, single marital status	32.3	36.7	0.880
Common law	36.3	42.6	0.852
Married	34.1	43.7	0.780
Separated	36.1	42.7	0.845
Widowed	32.9	38.8	0.848
Divorced	36.7	42.0	0.874
<b>Languages known</b>			
English only	34.1	42.1	0.810
French only	33.1	40.5	0.817
Both English and French	34.0	40.7	0.835
Neither English nor French	36.1	40.6	0.889
No non-official languages known	33.8	41.6	0.812
Some non-official languages known	35.0	41.8	0.837

**TABLE 4.1 (CONCLUDED)****AVERAGE WEEKLY HOURS AND RATIO BY SEX OF THE LABOUR FORCE, BY SELECTED SOCIO-ECONOMIC VARIABLES AND SEX, 1991 CENSUS**

Variable	Average female hours	Average male hours	Female:male ratio
<b>Immigrant status</b>			
Non-immigrant	33.7	41.6	0.810
Immigrant	35.2	41.7	0.844
<b>Visible minority status</b>			
Not visible minority	33.8	41.8	0.809
Visible minority	35.5	40.2	0.883
<b>Aboriginal origins</b>			
Non-Aboriginal	34.0	41.7	0.815
Aboriginal	33.4	40.4	0.827
<b>Province</b>			
Ontario	34.1	41.2	0.828
Newfoundland	34.6	41.9	0.826
Prince Edward Island	35.2	43.1	0.817
Nova Scotia	33.8	42.2	0.801
New Brunswick	34.1	41.9	0.814
Quebec	33.7	40.5	0.832
Manitoba	33.9	43.0	0.788
Saskatchewan	34.7	47.9	0.724
Alberta	34.7	43.7	0.794
British Columbia	33.3	41.1	0.810
Yukon and Northwest Territories	35.5	42.0	0.845
<b>Census area</b>			
Non-census metropolitan area	33.6	43.3	0.776
Toronto	35.2	40.8	0.863
Montréal	34.2	40.0	0.855
Vancouver	34.3	40.5	0.847
Other census metropolitan area	33.6	40.7	0.826

.. figures not available

... figures not applicable

Source: Census of Canada, Individual Public Use Micro-data Files, 1991.

**4.2.1 Age**

Average weekly hours among both women and men jump in the 25-to-34 age group, and remain remarkably stable at about those levels until after age 64. The age-hours pattern is similar to the participation pattern discussed in Chapter 3, except that participation rates begin dropping sharply at around age 55 and then precipitously at age 65.

For those who remain in the labour force, weekly hours only begin to drop around age 55. However, among older workers reductions in hours worked usually represent complete

withdrawal from the labour force, rather than fewer hours worked per week. Institutional rigidities (such as employer work schedules) might make reductions in weekly hours difficult, so the adjustment tends to occur in the form of retirement.

The ratio of female-to-male average hours is consistently around 0.80 throughout the age ranges.

#### **4.2.2 Education and Training**

Weekly hours tended to be higher among women with higher levels of training and education, but were fairly constant among men across all levels. As a result, the ratio of female-to-male weekly hours generally increases with more training and education, nearing equality for women and men with doctorate degrees.

The higher earnings potential associated with higher levels of education might have induced women to work longer hours, but it had little net effect on men's hours. The exceptions to the constancy of hours across different education categories were medicine, dentistry, optometry and veterinary science, where both men and women put in long work weeks. The high expected earnings in these occupations likely make longer hours attractive to both women and men. As well, working long hours may be necessary because of the demands of those professions, and to amortize the high "human capital" costs associated with them.

#### **4.2.3 Children at home**

Women with pre-school age children worked slightly fewer hours weekly than did women with older children or women with no children. For example, women with at least one child under the age of 2 and none over 5 worked 31.5 hours weekly, while women with some children under 6 and some over 5 worked 31.8 hours.

#### **4.2.4 Marital status**

Average weekly hours were lowest for widowed and for single never-married females and males. They were similar for other marital status groups. The ratio of female-to-male hours was also similar most of these groups. However, married women and men had the lowest female-male ratio of hours worked, 0.88, of all the marital status groups.

This likely reflects the attempt by married women to balance the demands of labour market work and household work.

#### **4.2.5 Language**

There was little variation in hours worked across the different language groups, except that women who spoke neither English nor French worked longer hours. Such women likely worked in low-wage jobs with few employment standards or union protection against long hours, and where long hours may be necessary to provide even minimal earnings.

#### **4.2.6 Other characteristics**

There was remarkably little variation in hours worked by immigrant status, and by whether the person was a visible minority or an Aboriginal.

Similarly, there was remarkably little variation in hours worked across the provinces, with the exception of the long hours worked by males in Saskatchewan, likely reflecting farm work. Hours worked also varied little among metropolitan areas.

#### **4.2.7 Summary**

While hours of work varied considerably between females and males, they usually did not vary much by other characteristics. The exceptions were: shorter hours for workers under 24 and over 65; longer hours for medical professionals; and somewhat shorter hours for women with pre-school children and married women in general. But even among these groups the differences were not great. On average, women worked slightly more than 80% of men's hours. That gap varied little by the various characteristics, although it was narrower among highly educated groups and wider among married people.

### **4.3 REGRESSION ESTIMATES OF DETERMINANTS OF HOURS**

The previous analysis showed the variation between male and female average weekly hours across a wide range of characteristics. While, like the earlier analysis of labour force participation, it is informative, it can mask the confounding influences of the different factors on hours of work.

To attempt to unravel these confounding influences, multiple regression estimates are presented in this section. The estimates based on the 1991 Census are provided in Table 4.2, followed by estimates for the common 1971, 1981, and 1991 Census specifications in Tables 4.3, 4.4, and 4.5, respectively.

All the explanatory variables are categorical, except non-labour income. They are explained in Tables 4.6 and 4.7. They indicate the effect on weekly hours of work of being in a particular category relative to the omitted reference category—the category in the table that has no regression coefficient. The *t* statistics, which indicate whether the relationship is statistically significant, are given in Appendix 4.3 for 1991 and Appendix 4.4 for the common specification. Since most of the relationships are statistically significant at conventional levels, only a few are commented on.

In addition to the regression coefficients, the tables also give the mean values of the explanatory variables; for categorical variables, these are the proportion of the observations in each category.

TABLE 4.2

## WEEKLY HOURS EQUATIONS, BY SELECTED SOCIO-ECONOMIC VARIABLES AND SEX, 1991 SPECIFICATION

Variable	Females		Males	
	Mean	Coefficient	Mean	Coefficient
<b>Age</b>				
15-24	0.181	...	0.156	...
25-34	0.285	5.7	0.281	7.4
35-44	0.280	5.5	0.267	7.3
45-54	0.169	4.5	0.178	7.1
55-64	0.072	2.0	0.096	5.5
65+	0.014	-2.1	0.022	-1.9
<b>Vocational training</b>				
No vocational training	0.676	...	0.681	...
Vocational training	0.324	-0.7	0.319	-1.1
<b>Degree, certificate or diploma</b>				
No degree, certificate or diploma	0.258	...	0.303	...
High school graduate	0.287	1.5	0.235	1.4
Trade certificate or diploma	0.095	3.0	0.160	1.9
Other non-university certificate	0.184	2.7	0.120	2.1
University diploma below bachelor level	0.031	1.8	0.018	1.9
Bachelor's degree(s)	0.103	2.8	0.101	0.8
University degree above bachelor's	0.017	3.8	0.017	1.0
Degree in medicine, dentistry, veterinary medicine or optometry	0.003	10.2	0.008	7.8
Master's degree(s)	0.020	4.2	0.030	1.0
Doctorate degree	0.002	8.5	0.008	1.8
Non-labour income (\$'000)	36.9	-0.04	26.2	-0.02
<b>Children at home</b>				
No children	0.514	..	..	..
At least one child under 2, none over 5	0.043	-5.2	..	..
No children under 2, some 2-5	0.042	-3.8	..	..
Some children under 6, some over 5	0.061	-5.3	..	..
No children under 6, some 6-14	0.184	-2.7	..	..
No children under 15, some 15+	0.150	0.004	..	..
<b>Marital status</b>				
Never married, single marital status	0.256	...	0.260	...
Common law	0.085	3.6	0.080	3.2
Married	0.551	1.5	0.604	3.4
Separated	0.027	1.7	0.019	2.1
Widowed	0.022	0.3	0.006	1.1
Divorced	0.058	1.9	0.031	1.5
<b>Languages known</b>				
English only	0.673	...	0.682	...
French only	0.122	-0.9	0.112	-0.7
Both English and French	0.198	-0.2	0.201	-0.4
Neither English nor French	0.006	1.8	0.006	-0.5
No non-official languages known	0.812	...	0.804	...
Some non-official languages known	0.188	0.6	0.196	0.8

TABLE 4.2 (CONCLUDED)

## WEEKLY HOURS EQUATIONS, BY SELECTED SOCIO-ECONOMIC VARIABLES AND SEX, 1991 SPECIFICATION

Variable	Females		Males	
	Mean	Coefficient	Mean	Coefficient
<b>Immigrant status</b>				
Non-immigrant	0.814	...	0.805	...
Immigrant	0.178	0.3	0.188	-0.3
<b>Visible minority status</b>				
Not visible minority	0.911	...	0.914	...
Visible minority	0.089	0.7	0.086	-1.5
<b>Aboriginal origins</b>				
Non-Aboriginal	0.972	...	0.976	...
Aboriginal	0.028	-0.4	0.024	-1.8
<b>Province</b>				
Ontario	0.395	...	0.381	...
Newfoundland	0.014	0.8	0.015	-1.8
Prince Edward Island	0.005	1.6	0.005	0.5
Nova Scotia	0.029	-0.04	0.031	0.2
New Brunswick	0.022	0.3	0.024	-1.5
Quebec	0.236	-0.1	0.243	-1.2
Manitoba	0.041	0.5	0.040	1.9
Saskatchewan	0.036	1.3	0.037	6.2
Alberta	0.099	1.2	0.101	2.5
British Columbia	0.120	-1.7	0.120	-1.3
Yukon and Northwest Territories	0.003	1.7	0.003	-0.8
<b>Census area</b>				
Non-census metropolitan area	0.360	...	0.386	...
Toronto	0.162	0.9	0.151	-2.4
Montréal	0.114	0.2	0.113	-1.9
Vancouver	0.064	1.5	0.061	-1.4
Other census metropolitan area	0.300	-0.7	0.288	-3.4
Intercept	...	29.7	...	34.9
Sample size	...	82,256	...	101,710
R <sup>2</sup>	...	0.07	...	0.11
Mean dependent variable	...	34.0	...	41.6

**Notes:** Statistical significance is not denoted because the variables were almost always significant at conventional levels. The reference variables appear in bold, unshaded type.

.. figures not available

... figures not applicable

**Source:** Census of Canada, Individual Public Use Micro-data Files, 1991.

TABLE 4.3

WEEKLY HOURS EQUATIONS, BY SELECTED SOCIO-ECONOMIC VARIABLES AND SEX, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1971

Variable	Females		Males	
	Mean	Coefficient	Mean	Coefficient
<b>Age</b>				
15-24	0.320	...	0.231	...
25-34	0.215	2.6	0.231	4.1
25-44	0.175	1.7	0.199	5.2
45-54	0.161	1.4	0.176	4.9
55-64	0.098	0.8	0.121	3.7
65+	0.032	-1.9	0.042	-1.3
<b>Vocational training</b>				
No vocational training	0.853	...	0.825	...
Vocational training	0.147	0.9	0.175	-0.06
<b>Degree, certificate or diploma</b>				
No high school diploma	0.584	...	0.657	...
High school graduate	0.286	-0.9	0.192	-0.7
Some postsecondary	0.080	-0.6	0.071	0.05
Bachelor's degree	0.031	-1.0	0.034	-1.2
Post-bachelor's	0.002	0.8	0.004	0.04
Postgraduate degree	0.017	-0.5	0.042	0.01
<b>Children at home</b>				
No children	0.466	...	..	..
Some children	0.534	-0.5	..	..
<b>Age and children at home</b>				
15-24 and no children	0.049	...	..	..
25-34 and some children	0.130	-4.7	..	..
35-44 and some children	0.141	-3.0	..	..
45-54 and some children	0.126	-1.7	..	..
55-64 and some children	0.069	-1.3	..	..
65+ and some children	0.020	-0.6	..	..
<b>Marital status</b>				
Single	0.309	...	0.267	...
Married	0.580	1.8	0.686	2.9
Separated, widowed, divorced	0.111	2.6	0.047	1.0
Non-labour income (\$'000)	27.2	-0.07	15.2	-0.04
<b>Languages known</b>				
English only	0.691	...	0.671	...
French only	0.128	1.6	0.126	2.2
English and French	0.167	0.3	0.193	0.2
Neither English nor French	0.014	2.8	0.010	-0.2
<b>Immigrant status</b>				
Non-immigrant	0.804	...	0.799	...
Immigrant	0.196	1.3	0.201	0.3



TABLE 4.3 (CONCLUDED)

**WEEKLY HOURS EQUATIONS, BY SELECTED SOCIO-ECONOMIC VARIABLES AND SEX, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1971**

Variable	Females		Males	
	Mean	Coefficient	Mean	Coefficient
<b>Province</b>				
Atlantic provinces	0.072	...	0.082	...
Quebec	0.247	-0.2	0.268	-1.3
Ontario	0.400	-1.2	0.375	-1.2
Prairies	0.176	-0.6	0.170	1.5
British Columbia	0.105	-2.8	0.105	-2.2
<b>Intercept</b>	...	36.2	...	39.3
<b>Sample size</b>	...	37,029	...	61,390
<b>R<sup>2</sup></b>	...	0.04	...	0.10
<b>Mean dependent variable</b>	...	34.7	...	43.3

**Notes:** Statistical significance is not denoted because the variables were almost always significant at conventional levels. The reference variables appear in bold, unshaded type.

.. figures not available

... figures not applicable

**Source:** Census of Canada, Individual Public Use Micro-data Files, 1971.

TABLE 4.4

**WEEKLY HOURS EQUATIONS, BY SELECTED SOCIO-ECONOMIC VARIABLES AND SEX, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1981**

Variable	Females		Males	
	Mean	Coefficient	Mean	Coefficient
<b>Age</b>				
15-24	0.274	..	0.215	...
25-34	0.285	3.3	0.286	3.8
35-44	0.199	2.5	0.207	4.4
45-54	0.147	2.1	0.165	4.0
55-64	0.083	1.0	0.108	2.4
65+	0.012	-3.9	0.020	-3.1
<b>Vocational training</b>				
No vocational training	0.728	...	0.721	...
Vocational training	0.272	0.5	0.279	-0.5
<b>Degree, certificate or diploma</b>				
No high school diploma	0.370	...	0.411	...
High school graduate	0.262	0.9	0.194	0.4
Some postsecondary	0.273	0.5	0.270	0.7
Bachelor's degree	0.068	0.8	0.075	-1.4
Post-bachelor's	0.012	1.1	0.014	-1.0
Postgraduate degree	0.015	3.4	0.036	1.6

TABLE 4.4 (CONCLUDED)

WEEKLY HOURS EQUATIONS, BY SELECTED SOCIO-ECONOMIC VARIABLES AND SEX, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1981

Variable	Females		Males	
	Mean	Coefficient	Mean	Coefficient
<b>Children at home</b>				
No children	0.464	...	..	..
Some children	0.536	-1.8	..	..
<b>Age and children at home</b>				
15-24 and no children	0.022	...	..	..
25-34 and some children	0.152	-3.7	..	..
35-44 and some children	0.164	-1.6	..	..
45-54 and some children	0.124	-0.8	..	..
55-64 and some children	0.066	-1.2	..	..
65+ and some children	0.008	-0.9	..	..
<b>Marital status</b>				
Single	0.288	...	0.260	...
Married	0.603	1.9	0.689	3.3
Separated, widowed, divorced	0.109	3.3	0.051	1.6
Non-labour income (\$'000)	36.4	-0.04	23.0	-0.02
<b>Languages known</b>				
English only	0.683	...	0.680	...
French only	0.123	-0.3	0.117	0.7
English and French	0.185	0.1	0.198	-0.1
Neither English nor French	0.009	3.0	0.006	-1.3
<b>Immigrant status</b>				
Non-immigrant	0.807	...	0.803	...
Immigrant	0.193	1.4	0.197	-0.5
<b>Province</b>				
Atlantic provinces	0.067	...	0.073	...
Quebec	0.235	-0.8	0.250	-1.5
Ontario	0.396	-0.7	0.373	-0.2
Prairies	0.185	-0.3	0.188	3.2
British Columbia	0.117	-1.7	0.116	-0.7
<b>Summary statistics</b>				
Intercept	...	33.6	...	37.4
Sample size	...	83,070	...	125,194
R <sup>2</sup>	...	0.05	...	0.06
Mean dependent variable	...	33.7	...	42.4

Notes: Statistical significance is not denoted because the variables were almost always significant at conventional levels. The reference variables appear in bold, unshaded type.

... figures not available

... figures not applicable

Source: Census of Canada, Individual Public Use Micro-data Files, 1981.

TABLE 4.5

WEEKLY HOURS EQUATIONS, BY SELECTED SOCIO-ECONOMIC VARIABLES AND SEX, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1991

Variable	Females		Males	
	Mean	Coefficient	Mean	Coefficient
<b>Age</b>				
15-24	0.180	...	0.156	...
25-34	0.283	6.2	0.281	7.4
25-44	0.280	6.0	0.267	7.4
45-54	0.170	4.7	0.179	7.2
55-64	0.073	1.8	0.096	5.8
65+	0.014	-1.4	0.022	-1.2
<b>Vocational training</b>				
No vocational training	0.675	...	0.680	...
Vocational training	0.325	-0.3	0.320	-1.1
<b>Degree, certificate or diploma</b>				
No high school diploma	0.258	...	0.303	...
High school graduate	0.288	1.3	0.235	1.1
Some postsecondary	0.309	2.1	0.298	1.9
Bachelor's degree	0.103	2.3	0.101	0.3
Post-bachelor's	0.017	3.1	0.017	0.5
Postgraduate degree	0.025	4.8	0.046	1.9
<b>Children at home</b>				
No children	0.433	...	..	..
Some children	0.567	-0.1	..	..
<b>Age and child status</b>				
15-24 and no children	0.022	...	..	..
25-34 and some children	0.183	-5.5	..	..
35-44 and some children	0.246	-3.4	..	..
45-54 and some children	0.159	-1.2	..	..
55-64 and some children	0.067	-0.5	..	..
65+ and some children	0.013	-2.1	..	..
<b>Marital status</b>				
Single	0.254	...	0.259	...
Married	0.639	2.3	0.685	3.6
Separated, widowed, divorced	0.108	2.7	0.056	1.6
Non-labour income (\$'000)	37.2	-0.04	26.3	-0.02
<b>Languages known</b>				
English only	0.671	...	0.680	...
French only	0.124	-1.1	0.113	-0.5
English and French	0.200	-0.2	0.202	-0.5
Neither English nor French	0.006	2.4	0.005	-0.8
<b>Immigrant status</b>				
Non-immigrant	0.820	...	0.809	...
Immigrant	0.180	1.0	0.191	-0.9

TABLE 4.5 (CONTINUED)

WEEKLY HOURS EQUATIONS, BY SELECTED SOCIO-ECONOMIC VARIABLES AND SEX, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1991

Variable	Females		Males	
	Mean	Coefficient	Mean	Coefficient
<b>Province</b>				
Atlantic provinces	0.067	...	0.070	...
Quebec	0.238	-0.3	0.245	-1.2
Ontario	0.397	-0.1	0.383	-0.4
Prairies	0.178	0.5	0.181	2.7
British Columbia	0.120	-1.1	0.121	-0.7
Intercept	...	29.8	...	33.5
Sample size	...	80,998	...	100,221
$R^2$	...	0.06	...	0.09
Mean dependent variable	...	34.0	...	41.6

**Notes:** Statistical significance is not denoted, because the variables were almost always significant at conventional levels. The reference variables appear in bold, shaded type.

.. figures not available

... figures not applicable

*Source:* Census of Canada, Individual Public Use Micro-data Files, 1991.

#### 4.3.1 Age

Average weekly hours, among both females and males, increase after age 24, and do not plummet until after age 65 (see Table 4.2). Females in any of the age groups between 25 and 55 have work weeks that are 4.5 to nearly 6 hours longer than those of females aged 15 to 24. Between the ages of 55 and 64, women's weekly hours drop off somewhat, but it is not until age 65 that their work week drops to two hours below that of the 15-to-24 group.

Males in all the age groups between 25 and 55 have work weeks that are slightly more than seven hours longer than those of males aged 15 to 24. Between the ages of 55 and 64, the average male work week drops off slightly, but only at 65 does it drop below the hours of the 15-to-24 group.

#### 4.3.2 Education and Training

Interestingly, both males and females with vocational training worked approximately one hour less per week than did those without the training. This is the opposite of what was found when comparing simple averages; in that comparison, the average work week was slightly more than one hour longer for both males and females who received vocational training.

The longer average work week for those with some training clearly reflects factors other than the training. Once these factors are controlled for in the regression analysis, the pure effect of training becomes a small negative. The mean values of the training variable show that the proportion of females with some vocational training is almost identical to the proportion of males with such training, about 32% (see Table 4.2).

Workers with different education levels were found to have worked similar weeks when the averages were compared. The same result is found when the effect of other factors is also held constant by way of regression. Work weeks are longer by 2 to 3 hours for females and about 1 to 2 hours for males in higher education categories compared with those with no degree, certificate or diploma. However, those with degrees in medicine, dentistry, optometry or veterinary science had substantially longer work weeks (10 additional hours among women and 8 among men). Women with university degrees above the bachelor's level or with a master's degree or a PhD also have longer work weeks; the positive relationship between hours and education is stronger for females than for males.

The mean values of the education variables show that the education distribution of the female work force is slightly less polarized than that of the male work force. A lower proportion of the female work force has no degree, certificate or diploma (26% of females compared with 30% of males). However, a slightly higher proportion of the male work force has master's, doctorate or professional degrees in medicine, dentistry, optometry or veterinary science.

The positive coefficients for the education variables indicate that higher education levels are generally associated with longer work weeks, confirming the relationship shown in Table 4.1. The effect is pronounced among professionals, where the females' work weeks are more than 10 hours longer and males' nearly 8 hours longer relative to workers who did not graduate from high school.

The fact that the coefficients are usually longer for females than males highlights the stronger positive relationship between education and hours worked for females than for males.

#### **4.3.3 Non-labour market income**

The mean level of annual non-labour market income (defined in Appendix 3.3) among women was \$36,900, considerably higher than the \$26,200 among men. This reflects the higher earnings of women's spouses. Among both women and men, higher non-labour market income enables people to afford not to have to work as many hours. That is, higher non-labour market earnings are associated with an expected reduction in weekly hours.

While this effect is statistically significant, it is quantitatively small. An increase in non-labour market income of \$30,000 would give rise to a 1.2-hour reduction in weekly hours for women.<sup>9</sup> Among males, the impact is half that, highlighting that they are less responsive in their hours-of-work decision. This may be because there are fewer alternatives for them in the household. This positive effect of income or wealth in reducing hours of work highlights that as we become wealthier over time we may expect a continuous, if small, reduction in our weekly hours.

#### **4.3.4 Children at home**

Another group that tends to work fewer hours per week in the labour market is employed women with children, especially pre-school age children. Relative to women with no children, women with pre-school age children averaged 4 to 5 fewer hours worked per week, which is almost 15% of their average work week of 34 hours. This reflects their reallocation of time to household work associated with child-rearing.

#### **4.3.5 Marital status**

For both men and women, being in any marital status category other than never-married and single is associated with longer work weeks. This is especially true for common-law partners and for married men, but less so for married women.

#### **4.3.6 Other characteristics**

When other factors are held constant, differences in weekly hours worked are not substantial across a wide range of other characteristics: language groups; immigrant status; visible minority and Aboriginal origins.

Nor is there much variation across the provinces, except among males (and to a lesser extent females) in Manitoba, Saskatchewan and Alberta, who worked longer weeks. This likely reflects the longer hours in agriculture and resource-based industries.

Similarly, there is not wide variation across different census metropolitan areas, although males in the major cities tended to work two or three hours less per week than did men outside the major cities. Females in Toronto and Vancouver worked slightly longer weeks relative to those outside the major cities.

The extremely low  $R^2$  values highlight that the variables used in the models are only able to explain 10% of the variation in males' weekly hours of work and 4% of the variation in females' hours. Clearly, other factors are more important in explaining variation in hours of work, especially among women. These factors could include peculiarities of individuals' family or child care circumstances or preferences and constraints shaped by their socio-economic background.

The regression variables explained a much smaller proportion of the variation in hours of work than they did the variation in labour force participation, where the  $R^2$  values were around 40%. This also highlights that individuals' hours-of-work-decisions are more likely to be influenced by the peculiarities of family and child care circumstances, the preferences and constraints shaped by their socio-economic background and workplace circumstances dictated by their employer. The generally low  $R^2$  values for the hours-of-work decision also reminds us to be extremely modest about our ability to explain variation in that decision, especially for females.

### **4.4 COMPARISONS ACROSS THE 1971, 1981 AND 1991 CENSUS YEARS**

#### **4.4.1 Average hours, females and males, 1971, 1981, 1991**

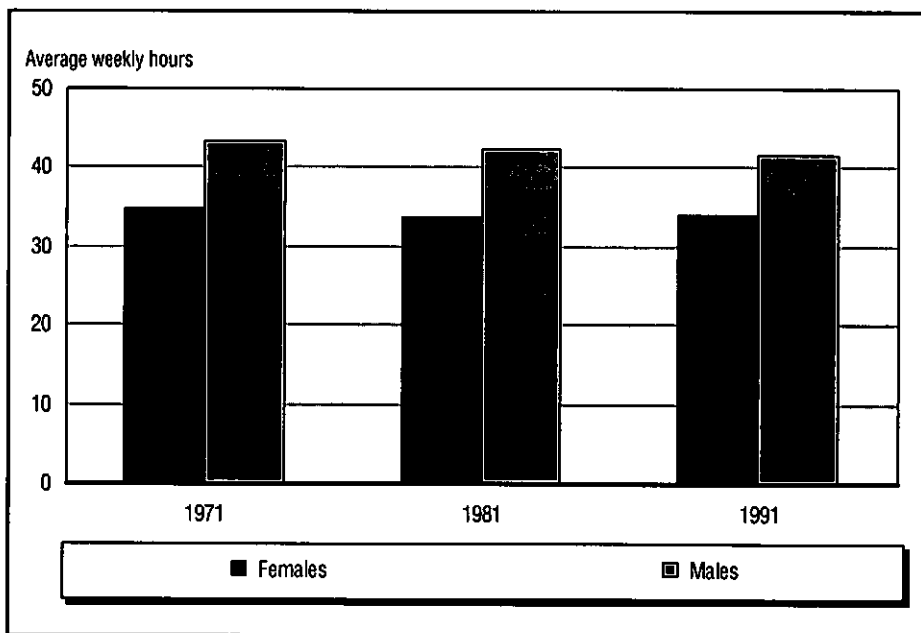
Females' average weekly hours were consistently lower than males' in recent decades (see Figure 4.1). The female average work week declined by about one hour during the 1970s, but edged up during the 1980s. The male average work week declined by about one hour over each of the two decades. By 1991 the female work week was about 82% of the male work week, compared with 80% in 1971.

#### 4.4.2 Regression estimates, 1971, 1981 and 1991<sup>10</sup>

Mean values highlight how the composition or distribution of the male and female work forces have changed over time with respect to the various factors believed to influence the hours of work (for example, if both work forces are moving into age brackets when hours of work are reduced). Regression coefficients highlight how women's and men's labour force behaviour is changing (for example, if women with pre-school age children are less likely over time to reduce their hours of work). Both considerations are obviously important in understanding how women's and men's hours of work may be changing over time,<sup>11</sup> and how those changes may differ between the sexes.

**FIGURE 4.1**

**AVERAGE WEEKLY HOURS, FEMALES AND MALES, 1971, 1981 AND 1991**



Source: Census of Canada, 1971, 1981 and 1991.

Not all the results from each of Tables 4.3, 4.4 and 4.5 will be discussed, given the complexity of comparisons across these extensive tables. Only the most prominent *changes* across the three census years will be highlighted. As well, the focus will also be on changes in the coefficients rather than changes in mean values. This is because the distribution of the male and female work forces with positive hours is similar to the distribution of labour force participants, discussed in Chapter 3.

#### **4.4.2.1 Age**

Among females, the pure effect of age on hours declines steadily in each successive age bracket, when other variables are controlled for. In 1991, this pattern also prevails, although the whole distribution is pushed upwards (see Table 4.5). This reflects the fact that, as among males, females in all older age groups work longer hours than do the 15-to-24 age group. This may account for some of the polarization in working hours that is occurring, as well as the longer work weeks many Canadians are putting in today. That is, as the work force ages, people are moving into age brackets where they work longer hours than younger workers. This pure effect of age also appears to be increasing.

Males' average weekly hours—when other variables are controlled for—tend to increase after age 24, peak in the middle age groups, drop after age 55, and then plummet after age 65. The most notable change over time is that in 1991 the gap between the 15-to-24 age group and older groups widened. In both 1971 and 1981, males aged 25 to 34 tended to work about four hours more per week than males aged 15 to 24; by 1991, they worked over seven hours more than males aged 15 to 24.

#### **4.4.2.2 Training**

Training has had the effect of increasing females' average work week and reducing males' in each census year. The exception is 1991, when training reduced females' hours, but by a smaller margin than it reduced males'. In all cases, however, the magnitudes are very small—often less than one hour per week.

For both males and females, the trend is for vocational training to be associated with reduced work weeks over time.

#### **4.4.2.3 Education**

Among females, a relatively uniform, positive relationship between education and longer working hours prevailed in 1981 and 1991, when other variables are controlled for. In 1991, the pattern was consistent, and the effects were substantial. Women with a post-graduate degree worked nearly five hours per week longer than those who did not graduate from high school. Among males there was no uniform relationship between higher education and working time. By 1991, longer hours were associated with higher levels of education, but the pattern was not uniform.

#### **4.4.2.4 Children at home**

The presence of children is associated with reduced hours of work for women, when other things are held constant.<sup>12</sup> In 1971 and 1981 the negative effects generally got smaller as women got older, and as their children likely required less care.

In 1991, however, that pattern changed. Women aged 25 to 34 with children had nearly as long a work week as did older women with children. The presence of children was apparently less inhibiting to younger women's hours of work in 1991 than it was in 1971 and 1981. This could reflect such factors as changing social norms and the increased availability of child care facilities, and perhaps the greater availability of full-time jobs. Unfortunately, the historical census data



prevent us from specifying a common set of variables reflecting the children's ages and school status. Thus, these historical patterns should be considered tentative.

#### **4.4.2.5 Marital status**

Married women worked an average of 1.8 hours longer per week than did single women in 1971, and 2.3 hours longer in 1991. Women who were separated, widowed or divorced averaged the longest work weeks, 2.6 hours longer than single women in 1971, and 2.7 hours longer in 1991.

This relationship is opposite to that of men. Married men worked the longest week of all men, 3 hours more per week. Separated men worked slightly more than 1 hour per week longer than did single men, after controlling for the other determinants of hours of work. This relationship changed little between 1971 and 1991.

#### **4.4.2.6 Language**

Women who spoke neither official language worked 2 to 3 hours more than did women who spoke only English or both English and French across the three census years. In 1971, women who spoke only French worked about 1.5 hours more per week than did women who only spoke English; by 1991, they worked about 1 hour less than did women who spoke only English. Bilingual women worked about the same number of hours as women who only spoke English. This was also the case for bilingual men.

Men who spoke only French worked more than 2 hours more per week in 1971 compared with men who spoke only English. That difference became negligible by 1991.

#### **4.4.2.7 Immigrant status**

Immigrant women consistently worked 1 to 1.5 hours longer per week than did non-immigrant women. Compared with male non-immigrants, male immigrants worked a slightly longer work week in 1971 and a slightly shorter work week in 1981 and 1991, although again the differences were very small.

#### **4.4.2.8 Region**

Women in British Columbia averaged 2.8 fewer hours per week in 1971 compared with women in the Atlantic provinces. By 1991, however, their results, 1.1 fewer hours, were much closer to the rest.

Among men, the regional pattern of weekly hours remained reasonably stable over the three census years. Men on the Prairies worked the longest hours, followed by the Atlantic provinces, then Ontario, Quebec and British Columbia.

### **4.5 SUMMARY**

In 1991, the average work week for women, 34 hours, was about 82% of the average work week of men, 41.6 hours.

While women's and men's hours of work varied considerably, they usually did not vary much by other characteristics. There were some exceptions: shorter hours for those under 24 and over

65; longer hours for medical professionals; and slightly shorter hours for women with pre-school children and married women compared with separated, widowed and divorced women. Nevertheless, the differences between these groups were small.

The female average work week declined by about one hour over the 1970s, but increased slightly over the 1980s. By 1991, the female work week was about 82% of the male work week, compared with 80% in 1971. Since 1971, the male average work week has declined by about one hour over each of the two decades.

The relationship between hours of work and various characteristics is more complicated when the pure relationship is isolated by regression procedures that control for the effect of other influential factors.

On that basis, hours tend to increase for workers over age 24, but they drop slightly with each successive age group, especially among females. However, they do not drop substantially until after age 65.

Workers with training, women with children (especially pre-school age children) and those with higher incomes worked fewer hours. However, the effect of income is not substantial, especially among males.

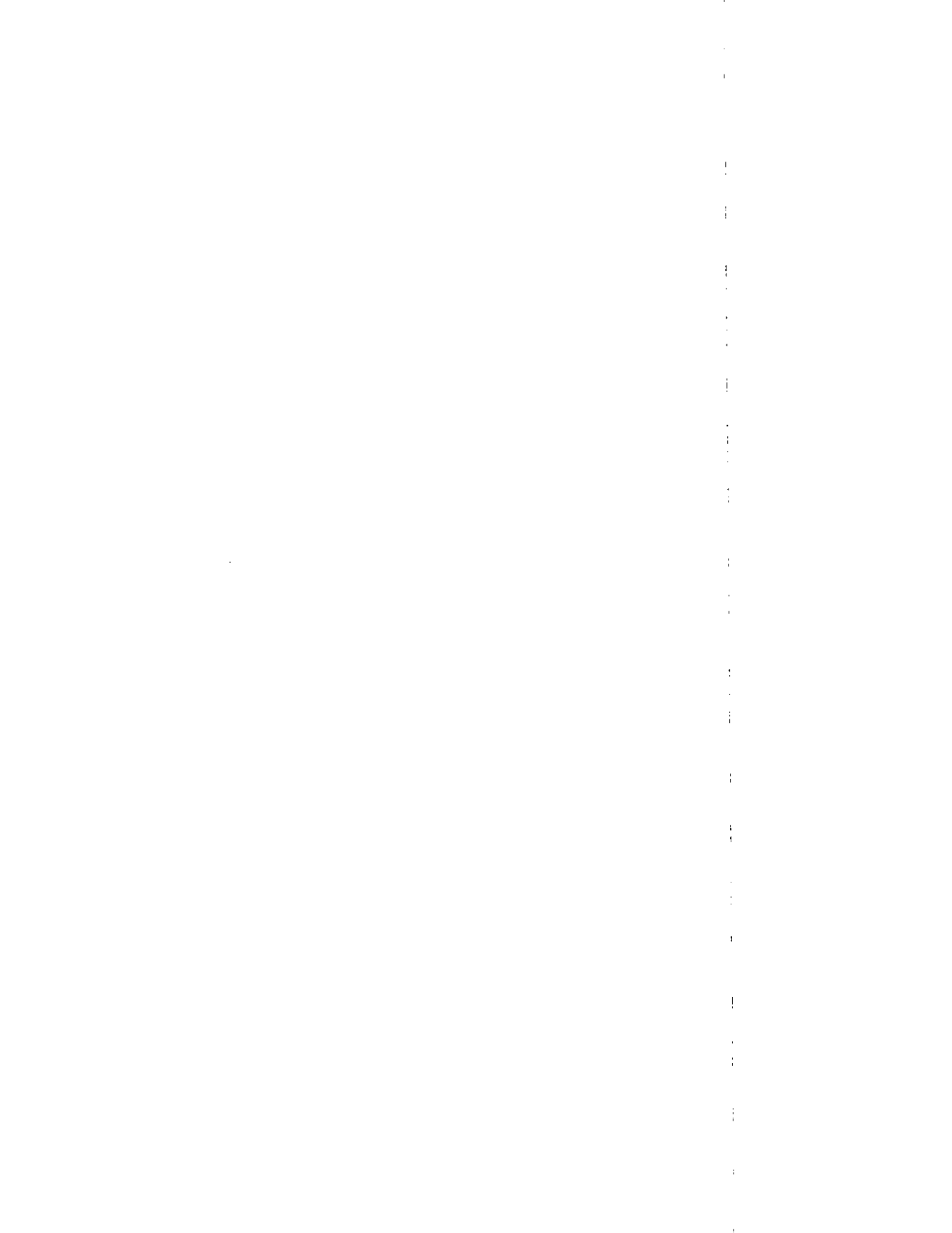
Workers with professional degrees and females with higher levels of education put in longer hours.

After controlling for the impact of other factors, hours tend not to vary much by such factors as language, immigrant status, visible minority or Aboriginal origin or region. (The exception is the longer hours worked by men in the Prairie provinces.)

Since 1971, the main changes in the relationship between hours and the various determinants of hours, after controlling for the impact of other factors, were: a greater disparity in hours between the 15-to-24 age group and the other age groups; an increasing negative effect of training; a stronger positive relationship with higher levels of education, especially among females; and some narrowing of the regional differences.

## ENDNOTES

1. Set up by the federal government, it was called the Commission of Inquiry into Part-time Work (Wallace 1983).
2. This issue was the subject of two recent task forces (Donner 1987, 1994). Robb and Gunderson (1987) conclude that the job creation potential from restricting overtime is not likely to be substantial for women, although the right to refuse overtime work may better enable them to deal with household responsibilities.
3. The evidence is based on the Statistics Canada Survey of Work Reductions, conducted as a supplement to the June 1985 Labour Force Survey. The evidence is discussed in Benimadhu (1987).
4. Lang and Kahn (1996) discuss this data, as well as surveys in other countries, and they highlight why the preferences for reduced work time may be overstated. Furthermore, Statistics Canada data from the 1995 Survey of Work Arrangements (a supplement to the November, 1995 Labour Force Survey) suggest that only one-third of that sample would like to change their hours, and only 6% would prefer to work less for less pay at their current wage, according to Ernest Akyeampong at Statistics Canada).
5. Morissette, Myles and Picot (1995) and Picot (1996).
6. These changes and their rationale are outlined in Human Resources Development Canada (1995; p. 5).
7. Variable definitions are given in Appendices 4.1 and 4.2.
8. The weekly hours refer to the reference week, which is the week prior to enumeration (June 4, 1991). For these outcomes, the term "census years" 1970, 1980 and 1990 is used to reflect the time period of the outcome. The term "current" also describes the 1991 Census, since it is the latest census for which individual public use micro-data files were available. The term "current specification" is also used to distinguish from the common historical specifications based on 1971, 1981 and 1991 Census data.
9. The number was derived by multiplying the regression coefficient (0.04) by the increase expressed in thousands of dollars.
10. As with the labour force participation estimates in the previous chapter, comparisons across the three census years are difficult because the results are in three separate tables. The complexity is compounded by the relevance of comparing the two sexes' mean values and coefficients. Mean values show how the composition or distribution of the male and female work forces changed over time with respect to the various factors believed to influence hours of work.  
  
The mean values in the hours-of-work equations will differ from those in the participation equations discussed in the previous chapter. This is because the hours equations are for the subset of those participants who are working for pay.
11. The hours-of-work equations over the three census years involved a more modest set of variables than that used in the 1991 Census results discussed previously in this chapter. This was because of the need for a common specification across the three census years. Fortunately, the 1991 results are similar for both the full specification and the modest common historical specification. This adds credence to the latter specification.  
  
The mean values in the hours-of-work equations will differ from those in the participation equations discussed in the previous chapter, because the hours equations are for the subset of those participants who are working for pay.
12. The effects of the number and ages of children at home on women's hours of work are more difficult to portray, because they involve the child status variable in the hours equations as well as the interactions with age in those equations.



# APPENDIX 4

## APPENDIX 4.1

### VARIABLE DEFINITIONS,<sup>1</sup> 1991 SPECIFICATION, FOR CHAPTER 4

Variable	Field	Code
Weekly hours worked	88	hours
<b>Non-labour income</b>	See Appendix 3.3	...
<b>No children at home</b>	11	1
At least one child under 2, none over 5	11	2
No children under 2, some 2-5	11	3
Some children under 6, some over 5	11	4
No children under 6, some 6-14	11	5
No children under 15, some over 14	11	6

1. The census fields and codes used to define all of the variables used for the 1991 weekly hours analysis are given in Appendix 5.1, which also includes a comprehensive list of variables used in the earnings analysis but not used in this weekly hours analysis. The only variables used in this chapter and not in Chapter 5 categories are shown above. Reference variables appear in bold type.

Source: Census of Canada, Individual Public Use Micro-data Files, 1991.

## APPENDIX 4.2

### VARIABLE DEFINITIONS,<sup>1</sup> COMMON SPECIFICATION, 1971, 1981, 1991 CENSUSES

Variable	1970		1980		1990	
	Field	Code	Field	Code	Field	Code
Weekly hours	32	See Note 2	32	hours	88	hours
Non-labour income	50	See Note 3	15	See Note 3	13	See Note 3
Some children	27	2-15	25	1-9	19	2-8

- The census fields and codes used to define all of the variables used for the 1971, 1981 and 1991 labour force hours of work analysis are given in Appendix 5.1, which also includes a comprehensive list of the variables used in the earnings analysis but not used in this hours of work analysis. The only variables used in this chapter and not in Chapter 5 are shown above.
- The measure of hours usually worked each week were in intervals; hence, the mid-points of the intervals were used. Individuals who usually worked 50 hours or more were given the average hours for their gender; that information was provided by Statistics Canada.
- As in Appendix 3.3.

Source: Census of Canada, Individual Public Use Micro-data Files, 1971, 1981 and 1991.

### APPENDIX 4.3

#### † STATISTICS, BY SELECTED SOCIO-ECONOMIC VARIABLES AND SEX, WEEKLY HOURS EQUATIONS, 1991 SPECIFICATION

Variable	Female	Male
<b>Age</b>		
15-24	...	...
25-34	36.2	48.1
35-44	31.0	43.1
45-54	23.3	38.9
55-64	8.7	26.8
65+	-5.1	-5.9
<b>Vocational training</b>		
No vocational training	...	...
Vocational training	-2.8	-4.4
<b>Degree, certificate or diploma</b>		
No degree, certificate or diploma	...	...
High school graduate	11.8	11.8
Trade certificate or diploma	10.2	7.1
Other non-university certificate	9.7	7.4
University diploma below bachelor level	6.6	5.7
Bachelor's degree(s)	15.7	5.0
University degree above bachelor level	10.6	3.0
Degree in medicine, dentistry, veterinary medicine or optometry	13.4	16.5
Master's degree(s)	12.5	3.9
Doctorate degree	8.5	3.7
Non-labour income (\$'000)	-28.7	-12.9
<b>Children at home</b>		
No children	...	..
At least one child under 2, none over 5	-21.6	..
No children under 2, some 2-5	-15.8	..
Some children under 6, some over 5	-25.4	..
No children under 6, some 6-14	-18.1	..
No children under 15, some 15+	0.03	..
<b>Marital status</b>		
Never married, single marital status	...	...
Common law	19.5	18.0
Married	9.8	26.9
Separated	5.6	6.6
Widowed	1.0	1.9
Divorced	8.2	5.6
<b>Languages known</b>		
English language only	...	...
French language only	-3.9	-3.2
Both English and French language	-1.0	-2.4
Neither English nor French language	3.2	-1.0
No non-official languages known	...	...
Some non-official languages known	4.3	5.8

# APPENDIX 4.3 (CONCLUDED)

## *t* STATISTICS, BY SELECTED SOCIO-ECONOMIC VARIABLES AND SEX, WEEKLY HOURS EQUATIONS, 1991 SPECIFICATION

Variable	Female	Male
<b>Immigrant status</b>		
Non-immigrant	...	...
Immigrant	1.8	-1.8
<b>Visible minority status</b>		
Not visible minority	...	...
Visible minority	3.6	-8.5
<b>Aboriginal origins</b>		
Non-Aboriginal	...	...
Aboriginal	-1.5	-6.6
<b>Province</b>		
Ontario	...	...
Newfoundland	2.0	-5.1
Prince Edward Island	2.4	0.8
Nova Scotia	-0.1	0.7
New Brunswick	0.8	-5.3
Quebec	-0.6	-5.5
Manitoba	2.2	8.6
Saskatchewan	5.3	26.5
Alberta	7.2	16.0
British Columbia	-7.7	-6.6
Yukon and Northwest Territories	2.2	-1.0
<b>Census area</b>		
Non-census metropolitan area	...	...
Toronto	5.7	-15.7
Montréal	0.8	-10.4
Vancouver	5.7	-5.5
Other census metropolitan area	-5.7	-30.4

**Notes:** Variables are statistically significant at the 0.01 and 0.05 level when their *t* statistics respectively are greater than 2.58 and 1.96 based on two-tailed tests.

The reference variables appear in bold, unshaded type.

... figures not available

... figures not applicable

Source: Census of Canada, Individual Public Use Micro-data Files, 1991.

# APPENDIX 4.4

## 1 STATISTICS, BY SELECTED SOCIO-ECONOMIC VARIABLES AND SEX, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1971, 1981 AND 1991

Variable	1971		1981		1991	
	Female	Male	Female	Male	Female	Male
<b>Age</b>						
15-24	...	...	...	...	...	...
25-34	9.2	25.0	20.9	30.5	35.9	47.2
25-44	4.2	29.6	10.0	31.4	27.0	43.4
45-54	3.5	27.2	7.1	27.5	15.2	39.6
55-64	1.9	18.8	2.8	14.7	3.9	28.2
65+	-3.0	-4.9	-5.7	-10.9	-1.7	-3.8
<b>Vocational training</b>						
No vocational training	...	...	...	...	...	...
Vocational training	4.4	-0.4	2.0	-2.2	-1.3	-5.0
<b>Degree, certificate or diploma</b>						
No high school diploma	...	...	...	...	...	...
High school graduate	-5.2	-5.3	8.1	3.5	10.5	9.4
Some postsecondary	-2.1	0.3	2.2	3.1	9.1	7.7
Bachelor's degree	-2.5	-4.6	4.0	-8.7	12.9	1.9
Post-bachelor's	0.4	0.06	2.8	-3.2	8.7	1.5
Postgraduate degree	-0.9	0.06	9.4	7.8	15.7	8.6
<b>Children at home</b>						
No children	...	...	...	...	...	...
Some children	-1.3	..	-5.8	..	-0.1	..
<b>Age and child status</b>						
15-24 and no children	...	..	...	..	...	..
25-34 and some children	-10.2	..	-10.8	..	-9.5	..
35-44 and some children	-5.5	..	-4.1	..	-5.9	..
45-54 and some children	-3.1	..	-1.8	..	-1.9	..
55-64 and some children	-2.2	..	-2.5	..	-0.8	..
65+ and some children	-0.7	..	-1.0	..	-2.0	..
<b>Marital status</b>						
Single	...	...	...	...	...	...
Married	7.9	20.3	13.9	30.1	15.2	28.6
Separated, widowed, divorced	8.3	4.1	17.3	8.3	12.9	7.4
Non-labour income (\$'000)	-24.1	-19.2	-34.2	-14.2	-27.0	-13.2
<b>Languages known</b>						
English only	...	...	...	...	...	...
French only	5.1	10.1	-1.4	4.0	-4.9	-2.3
English and French	1.2	1.5	0.6	-0.5	-1.4	-3.5
Neither English nor French	4.6	-0.4	6.4	-2.5	4.1	-1.3



#### APPENDIX 4.4 (CONCLUDED)

#### ***t* STATISTICS, BY SELECTED SOCIO-ECONOMIC VARIABLES AND SEX, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1971, 1981 AND 1991**

Variable	1971		1981		1991	
	Female	Male	Female	Male	Female	Male
<b>Immigrant status</b>						
Non-immigrant	...	...	...	...	...	...
Immigrant	7.1	2.6	12.3	-4.9	8.3	-7.9
<b>Province</b>						
<b>Atlantic provinces</b>	...	...	...	...	...	...
Quebec	-0.6	-5.7	-3.5	-7.6	-1.1	-5.2
Ontario	-4.2	-6.4	-3.6	-1.4	-0.4	-2.0
Prairies	-2.1	7.5	-1.6	19.6	2.3	14.5
British Columbia	-8.3	-10.2	-8.0	-4.1	-5.1	-3.6

**Notes:** Variables are statistically significant at the 0.01 and 0.05 level, when their *t* statistics respectively are greater than 2.58 and 1.96 based on two-tailed tests.

The reference variables appear in bold, unshaded type.

.. figures not available

... figures not applicable

**Source:** Census of Canada, Individual Public Use Micro-data Files, 1971, 1981 and 1991.



## CHAPTER

# 5

## WOMEN'S AND MEN'S EARNINGS

Of all the elements of labour market behaviour, pay differences between women and men have attracted the most attention, both from the general public and from policy makers.

They have also generated the most controversy. Pay is important not only for the economic well-being it brings, but also because of its associated status and prestige. This is especially the case when comparisons are made between women and men who work in the same jobs, or in jobs of comparable value as determined by a job evaluation scheme. But even if the pay gap were not to reflect discrimination, it remains important because inequality in such an important outcome is often considered socially unacceptable.

The differences between women's and men's paycheques beg many questions. What is the overall female-male earnings gap? How much of the gap reflects pay discrimination, and how much reflects differences in productivity or other related characteristics that influence pay? What are the determinants of female and male pay, and how do they differ? How has the pay gap changed over time? Is this because of changes in the pay that women and men receive for their wage-determining characteristics, or because of changes in those characteristics themselves? Does the pay gap and its determinants shed any light on the potential scope for policy initiatives such as equal pay for equal work, equal pay for work of equal value (pay equity), equal employment opportunity legislation or employment equity legislation?

This chapter sheds light on these questions with an analysis of census data on female and male earnings. The analysis begins with 1990 data.<sup>1</sup> Simple tabulations of female and male earnings, and the ratio of female-to-male earnings, are provided. This is followed by an analysis of the determinants of female and male earnings, illustrated by a tabulation of the mean values of those determinants for females and males and regression estimates of the effect of each of those determinants on women's and men's earnings.

The analysis then shifts to the change in female-male earnings differences over the 1970, 1980 and 1990 census years. For ease of exposition, only the regression estimates are presented for this historical analysis.

The overall female-male earnings gap is then decomposed into two components. The first is attributable to differences in the pay that females and males receive for the same wage-determining characteristics. The second is attributable to differences in the extent to which females and males possess those wage-determining characteristics that are productivity-related. The former is a measure of pay discrimination; the latter is a measure of differences in endowments of productivity-related characteristics. This decomposition analysis is done for both the 1990 earnings specification and the historical specification for 1970, 1980 and 1990.<sup>2</sup>

The data analysis is restricted to the subsample of the population for whom it is meaningful to compare female and male earnings. Judgement calls have to be made with respect to those restrictions. These judgements and their rationale are explained thoroughly in Appendix 5.1. For the 1990 analysis, the data are restricted to persons at least 15 years old, who worked for pay or profit as wage- or salary-earners, whose major source of income was wages or salaries, and who worked in other than primary, construction or unspecified occupations or industries.

The historical analysis of the 1970, 1980 and 1990 data required further restrictions in order to have a common specification across the three census years. The analysis is restricted to those with the following characteristics: 15 years of age and over; worked for pay or profit as wage- or salary-earners; major source of income was wages and salaries; worked between 35 and 44 hours per week for 49 to 52 weeks per year; and did not work in primary, construction or unspecified occupations or industries.

## **5.1 AVERAGE EARNINGS COMPARISONS, 1990**

### **5.1.1 Format and procedure<sup>3</sup>**

Comparing average earnings (see Table 5.1) is instructive; often the key issue is the gross relationship between the earnings gap and various characteristics.<sup>4</sup>

Two earnings measures are portrayed in the table.<sup>5</sup> The first is annual earnings as reported by the respondents. The second is a measure of weekly earnings, calculated here as annual earnings reported for 1990, divided by the usual number of weeks worked in 1990.<sup>6</sup>

This discussion focuses on the ratio of female-to-male annual earnings, shown in the third column, since this measure is most widely used when comparing female and male earnings.<sup>7</sup>

### **5.1.2 Average earnings differences**

Males in 1990 averaged \$33,970 in annual earnings, and females \$20,758 or 61% of male earnings. As the last three columns of Table 5.1 show, when annual earnings are divided by a measure of weeks worked, women's implied weekly earnings were 63% of men's weekly earnings.

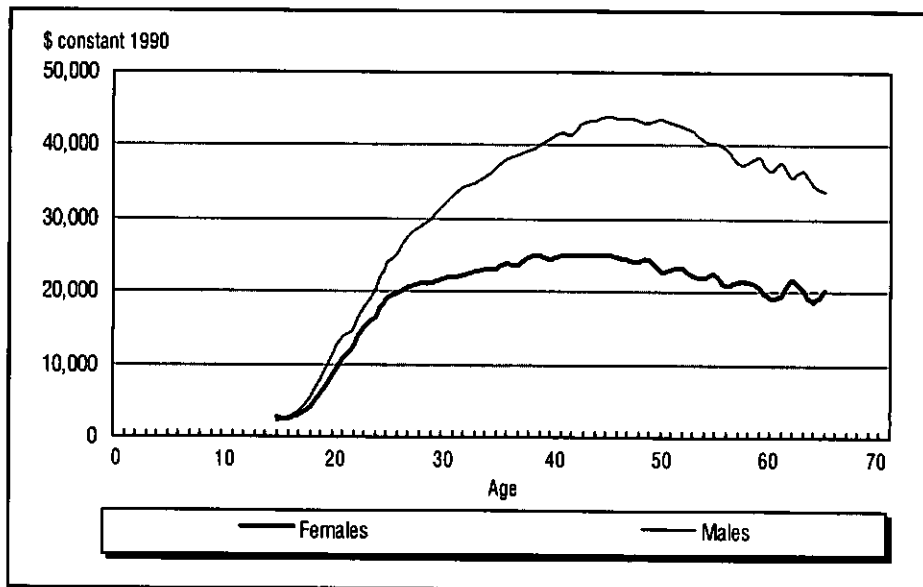
This difference in the pay gap, depending on whether annual or weekly earnings are measured, reflects the fact women averaged fewer weeks of labour market work per year than did men. The remainder of the table illustrates how male and female pay varied by different personal and labour market characteristics.

The ratio of female-to-male annual earnings is clearly highest (that is, the earnings gap is smallest) among younger workers. The ratio falls steadily from 80% of male earnings in the 15-to-24 age group to about 55% of male earnings in the over-45 groups.

The higher ratio among the younger age groups may reflect any combination of many factors. Younger women may be coming into the labour market with more labour market skills, and they are at a stage in their lives before childrearing and other household tasks begin to have an effect. There may also be less discrimination against younger, new female labour market entrants, although it is not obvious why pure gender discrimination would be less pervasive against younger women. Younger women also tend to be employed in the low-wage service sector, where there may be little difference in females' and males' pay.

There is a difference between the sexes as they age; see the females' and males' age-earnings profiles shown in Figure 5.1. Clearly, the male earnings profile rises more steeply with age, and peaks slightly earlier; it is also higher than the female profile at all ages.

**FIGURE 5.1**  
**ANNUAL EARNINGS, FEMALES AND MALES, 1990**



Source: Census of Canada, 1991.

The ratio of female-to-male annual earnings was slightly higher among groups with vocational training and, generally, among those with higher levels of education. This likely reflects the greater similarity of labour market skills and commitment among these groups. However, it is notable that the earnings gap was still very wide for women with a master's or doctoral degree, or a professional degree in medicine, dentistry, veterinary medicine or optometry.

Comparing on the basis of weekly earnings narrows the gap only slightly (see the right-most column of Table 5.1). This suggests that differences in weeks worked per year account for little of the gap. Furthermore, the fact that the gap in women's and men's weekly hours was narrowest at the higher education levels (see Chapter 4) suggests that most of the gap remains after controlling for differences in hours worked.

Of particular note, the ratio of female-to-male annual earnings is highest for never-married, single persons (0.86) and lowest for married persons (0.55). This highlights the differential effect that household tasks and childrearing responsibilities have on women's and men's earnings. Marriage is not an equal opportunity employer!

**TABLE 5.1**

**FEMALE AND MALE LABOUR FORCE ANNUAL AND WEEKLY EARNINGS AND FEMALE:MALE RATIO, 1990**

Category	Annual earnings (\$)			Weekly earnings (\$)		
	Female	Male	Female:male	Female	Male	Female:male
Total, all groups	20,758	33,970	0.611	456	720	0.633
<b>Age</b>						
15-24	9,973	12,400	0.804	272	349	0.779
25-34	21,398	30,774	0.695	474	658	0.720
35-44	24,440	40,316	0.606	521	832	0.626
45-54	23,841	43,113	0.553	503	881	0.571
55-64	20,934	37,866	0.553	442	788	0.561
65-70	16,329	30,416	0.537	366	673	0.544
<b>Vocational training</b>						
No vocational training	19,747	32,958	0.599	436	703	0.620
Vocational training	22,785	35,978	0.633	497	753	0.660
<b>Degree, certificate or diploma</b>						
No degree, certificate or diploma	15,251	26,434	0.577	342	587	0.583
High school graduate	18,099	29,314	0.617	402	632	0.636
Trade certificate or diploma	19,621	34,161	0.574	430	725	0.593
Other non-university certificate	22,384	36,035	0.621	488	748	0.652
University diploma below bachelor level	26,519	40,588	0.653	575	829	0.694
Bachelor's degree(s)	29,429	44,874	0.656	640	918	0.697
University degree above bachelor's	33,434	51,244	0.652	727	1,026	0.709
Degree in medicine, dentistry, veterinary medicine or optometry	56,464	89,848	0.628	1,193	1,825	0.654
Master's degree(s)	39,020	54,331	0.718	824	1,096	0.752
Doctorate degree	45,962	64,311	0.715	969	1,281	0.756
<b>Marital status</b>						
Never married, single	16,700	19,470	0.858	388	468	0.829
Common law	21,300	31,043	0.686	467	669	0.698
Married	21,744	39,759	0.547	473	820	0.577
Separated	23,535	35,821	0.657	503	762	0.660
Widowed	21,031	31,868	0.660	448	679	0.660
Divorced	25,935	35,063	0.740	545	746	0.731

TABLE 5.1 (CONTINUED)

## FEMALE AND MALE LABOUR FORCE ANNUAL AND WEEKLY EARNINGS AND FEMALE:MALE RATIO, 1990

Category	Annual earnings (\$)			Weekly earnings (\$)		
	Female	Male	Female:male	Female	Male	Female:male
<b>Languages known</b>						
English only	20,777	34,332	0.605	455	725	0.628
French only	17,988	27,556	0.653	400	610	0.656
Both English and French	22,514	36,451	0.618	497	765	0.650
Neither English nor French	13,683	23,018	0.594	328	525	0.625
No non-official languages known	20,733	33,990	0.610	455	720	0.632
Some non-official languages known	20,870	33,883	0.616	464	720	0.644
<b>(Immigrant) status</b>						
Non-immigrant	20,534	33,488	0.613	452	711	0.636
Immigrant	21,760	35,990	0.605	476	756	0.630
<b>Visible minority status</b>						
Not visible minority	20,803	34,329	0.606	457	727	0.629
Visible minority	20,275	29,897	0.678	454	643	0.706
<b>Aboriginal origins</b>						
Non-Aboriginal	20,834	34,139	0.610	458	723	0.633
Aboriginal	18,016	26,998	0.667	407	603	0.675
<b>Full-time or part-time status</b>						
Part-time, <30 hours per week	9,581	8,378	1.144	265	269	0.985
Full-time, 30 hours or more per week	24,279	35,833	0.678	516	753	0.685
<b>Full-year or part-year status</b>						
Part-year, <49 weeks per year	13,041	21,918	0.595	422	658	0.641
Full-year, 49-52 weeks per year	24,477	38,458	0.637	473	743	0.637
<b>Glass of worker</b>						
Paid worker	20,703	33,423	0.619	455	709	0.642
Self-employed, incorporated	26,555	40,937	0.649	551	836	0.659
Self-employed, without paid help, unincorporated	15,417	27,920	0.552	364	623	0.584
Self-employed with paid help, incorporated	27,377	46,435	0.590	583	968	0.602
<b>Province</b>						
Ontario	22,208	36,400	0.610	480	759	0.632
Newfoundland	18,083	29,057	0.622	420	670	0.627
Prince Edward Island	17,392	24,585	0.707	418	606	0.690
Nova Scotia	18,191	29,605	0.615	406	642	0.632
New Brunswick	17,014	29,348	0.580	395	659	0.599
Quebec	20,291	32,196	0.630	447	687	0.651
Manitoba	18,560	29,939	0.620	403	627	0.643
Saskatchewan	17,761	29,898	0.594	405	635	0.638
Alberta	20,156	34,161	0.590	446	726	0.614
British Columbia	20,382	34,802	0.586	460	747	0.616
Yukon and Northwest Territories	25,852	36,452	0.709	573	801	0.715

**TABLE 5.1 (CONCLUDED)****FEMALE AND MALE LABOUR FORCE ANNUAL AND WEEKLY EARNINGS AND FEMALE:MALE RATIO, 1990**

Category	Annual earnings (\$)			Weekly earnings (\$)		
	Female	Male	Female:male	Female	Male	Female:male
<b>Census metropolitan area</b>						
Non-census metropolitan area	17,869	31,115	0.574	405	678	0.597
Toronto	21,704	38,661	0.561	533	802	0.665
Montréal	24,925	33,794	0.738	473	707	0.669
Vancouver	22,135	35,545	0.623	491	751	0.654
Other census metropolitan area	20,961	34,750	0.603	456	726	0.628
<b>Occupation</b>						
Sales and Service Level I	10,781	16,381	0.658	267	381	0.701
Senior Managers	41,498	65,937	0.629	840	1298	0.647
Middle and Other Managers	29,160	44,722	0.652	600	898	0.668
Professionals	31,602	48,060	0.658	681	980	0.695
Semi-professionals and Technicians	22,018	33,262	0.662	489	702	0.697
Supervisors	24,719	33,391	0.740	517	676	0.765
Foremen/Forewomen	22,508	36,776	0.612	480	774	0.620
Administrative and Senior Clerical Occupations	22,298	37,205	0.599	475	749	0.634
Sales and Service Level III	19,384	33,663	0.576	425	696	0.611
Skilled Crafts and Trades	15,474	31,985	0.484	364	707	0.515
Clerical Occupations	19,790	25,898	0.764	431	547	0.788
Sales and Service Level II	12,385	26,250	0.472	296	561	0.528
Semi-skilled Manual Workers	16,436	27,965	0.588	385	625	0.616
Other Manual Workers	14,674	22,248	0.660	360	561	0.642
<b>Industry</b>						
Retail Trade	13,880	24,388	0.569	317	520	0.610
Other Primary	23,963	38,474	0.623	567	885	0.641
Manufacturing	21,125	35,129	0.601	461	738	0.625
Construction	19,776	30,042	0.658	452	705	0.641
Transportation and Storage	21,412	33,916	0.631	471	719	0.655
Communications and Other Utilities	27,534	39,966	0.689	572	806	0.710
Wholesale Trade	21,826	34,188	0.638	466	705	0.661
Finance, Insurance and Real Estate	23,699	42,139	0.562	498	856	0.582
Business Services	24,073	42,812	0.562	526	885	0.594
Federal Government Services	28,161	39,452	0.714	605	798	0.758
Other Government Services	25,140	37,424	0.672	536	774	0.692
Educational Services	27,017	42,060	0.642	594	864	0.687
Health and Social Services	23,023	44,137	0.522	500	907	0.551
Accommodation, Food and Beverage Services	10,870	16,074	0.676	273	376	0.726
Other Services	14,263	24,203	0.589	331	540	0.613

**Notes:** The figures for these tables and the subsequent regression results are for persons age 15 and over with positive labour market earnings. Appendix 5.1 outlines these and other restrictions.

For Sales and Services Occupations, the three levels shown in roman numerals denote skill levels; Level III is highest.

**Source:** Census of Canada, Individual Public Use Micro-data Files, 1991.



The ratio of female-to-male earnings is similar for immigrants and non-immigrants. It is higher, however, among those who speak French only, visible minorities, and Aborigines. Among each of these groups, female earnings are approximately 65% to 68% of male earnings, compared with approximately 60% to 62% among the other groups.

The ratio of female-to-male weekly earnings at 0.98 is much higher among part-time workers (those working fewer than 30 hours per week) than among full-time workers, where the ratio is 0.68. In fact, annual earnings for part-time workers are higher among females than males, although they are very similar when weekly rather than annual earnings are used. This anomaly of part-time female workers earning the same as or more than part-time male workers likely reflects their similarity in other wage-determining characteristics, such as working in low-paying occupations and industries. As well, part-time male workers may have other unobserved characteristics that yield lower wages, similar to those of part-time female workers. In the subsequent regression analysis, in which other observed determinants of earnings are controlled for, both females and males who work part time have, not surprisingly, substantially lower weekly earnings than do those who work full time. However, the drop in earnings is less steep for females than for males.

There is little variation in the ratio of annual earnings across the different class-of-worker categories, especially when comparisons are made on the basis of weekly earnings. The ratio of female-to-male earnings does not vary substantially across provinces; it is highest in the Yukon and Northwest Territories. It tends to be higher in census metropolitan areas than elsewhere. Among the CMAs there is little variation in weekly earnings.

The ratio of *annual* female-to-male earnings is unusually low in Toronto and high in Montréal. This is because women in Montréal worked more weeks per year, although their weekly earnings were lower than those of women in Toronto. Thus, women in Montréal earned more per year than did women in Toronto.

There is also some variation in the ratio of female-to-male earnings across occupation or industry groups. The earnings ratio tends to be highest in the lowest-level (Level I) Sales and Service Occupations, and in Supervisory and Clerical Occupations. (These occupations are discussed in more detail in Appendix 5.3.) Within industries, it tends to be highest in the Federal Government Services and Other Government Services sectors, the regulated portion of the Communications and Other Utilities sector, and in Accommodation, Food and Beverage Services.

## **5.2 REGRESSION ANALYSIS, 1990**

### **5.2.1 Format and procedure**

Often simple comparisons of average earnings differences show gross relationships reflecting other variables that have not been controlled for. The regression analysis in this section controls for the effects of these other factors; they are included in the regression equations (see Table 5.2).

The dependent variable is the log of weekly earnings.<sup>8</sup> Each coefficient is the percentage change in weekly earnings associated with a one-unit change in each explanatory variable.

TABLE 5.2

**FEMALE AND MALE LABOUR FORCE EARNINGS EQUATIONS, 1990 SPECIFICATION**  
**(DEPENDENT VARIABLE, LOG OF WEEKLY EARNINGS)**

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Age</b>				
15-24	0.164	...	0.134	...
25-34	0.289	0.310	0.290	0.301
35-44	0.293	0.389	0.283	0.434
45-54	0.174	0.398	0.187	0.485
55-64	0.071	0.379	0.094	0.398
65+	0.009	0.206	0.013	0.199
<b>Vocational training</b>				
No vocational training	0.667	...	0.665	...
Vocational training	0.333	0.009	0.335	-0.054
<b>Degree, certificate or diploma</b>				
No degree, certificate or diploma	0.245	...	0.283	...
High school graduate	0.287	0.133	0.233	0.123
Trade certificate or diploma	0.095	0.133	0.168	0.186
Other non-university certificate	0.188	0.205	0.126	0.228
University diploma below bachelor level	0.032	0.286	0.018	0.203
Bachelor's degree(s)	0.107	0.345	0.106	0.295
University degree above bachelor's	0.019	0.400	0.018	0.319
Degree in medicine, dentistry, veterinary medicine or optometry	0.004	0.848	0.008	1.034
Master's degree(s)	0.021	0.456	0.032	0.395
Doctoral degree	0.002	0.652	0.008	0.552
<b>Marital status</b>				
Never married, single	0.246	...	0.236	...
Common law	0.089	0.099	0.084	0.157
Married	0.555	0.077	0.624	0.258
Separated	0.028	0.089	0.020	0.209
Widowed	0.021	0.103	0.005	0.170
Divorced	0.061	0.102	0.031	0.162
<b>Languages known</b>				
English only	0.673	...	0.678	...
French only	0.119	-0.040	0.110	-0.062
Both English and French	0.203	0.008	0.207	0.0003
Neither English nor French	0.006	-0.177	0.005	-0.097
No non-official languages known	0.819	...	0.812	...
Some non-official languages known	0.181	-0.018	0.188	-0.037
<b>Immigrant status</b>				
Non-immigrant	0.817	...	0.807	...
Immigrant	0.183	-0.027	0.193	-0.034
<b>Visible minority status</b>				
Not visible minority	0.914	...	0.919	...
Visible minority	0.086	-0.083	0.081	-0.166

TABLE 5.2 (CONTINUED)

**FEMALE AND MALE LABOUR FORCE EARNINGS EQUATIONS, 1990 SPECIFICATION**  
**(DEPENDENT VARIABLE, LOG OF WEEKLY EARNINGS)**

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Aboriginal origins</b>				
Non-Aboriginal	0.973	...	0.976	...
Aboriginal	0.027	-0.064	0.024	-0.117
<b>Weeks worked per year</b>				
Part-year, <49 weeks	0.325	...	0.271	...
Full-year, 49-52 weeks	0.675	-0.076	0.729	-0.087
<b>Hours worked per week</b>				
Part-time, <30 hours	0.240	...	0.068	...
Full-time, 30 hours or more	0.760	0.664	0.932	0.791
<b>Class of worker</b>				
Paid worker	0.943	...	0.886	...
Self-employed, incorporated	0.019	-0.033	0.048	-0.155
Self-employed, no paid help, unincorporated	0.026	-0.466	0.037	-0.365
Self-employed with paid help, incorporated	0.012	-0.144	0.030	-0.133
<b>Province</b>				
Ontario	0.406	...	0.389	...
Newfoundland	0.014	-0.011	0.015	-0.081
Prince Edward Island	0.005	0.004	0.004	-0.133
Nova Scotia	0.029	-0.104	0.031	-0.125
New Brunswick	0.022	-0.091	0.024	-0.114
Quebec	0.236	-0.030	0.246	-0.031
Manitoba	0.040	-0.061	0.038	-0.103
Saskatchewan	0.031	-0.070	0.029	-0.116
Alberta	0.096	-0.002	0.098	-0.019
British Columbia	0.117	0.033	0.121	0.039
Yukon and Northwest Territories	0.003	0.257	0.003	0.167
<b>Census area</b>				
Non-census metropolitan area	0.337	...	0.365	...
Toronto	0.170	0.204	0.156	0.145
Montréal	0.117	0.101	0.117	0.055
Vancouver	0.065	0.114	0.062	0.072
Other census metropolitan area	0.311	0.074	0.300	0.063
<b>Occupation</b>				
Sales and Service Level I	0.093	...	0.068	...
Senior Managers	0.004	0.529	0.017	0.616
Middle and Other Managers	0.069	0.360	0.133	0.392
Professionals	0.167	0.430	0.133	0.342
Semi-professionals and Technicians	0.059	0.197	0.060	0.221
Supervisors	0.020	0.291	0.013	0.248
Foremen/Forewomen	0.004	0.155	0.043	0.263
Administrative and Senior Clerical Occupations	0.132	0.197	0.016	0.211
Sales and Service Level III	0.041	0.162	0.053	0.254

TABLE 5.2 (CONCLUDED)

**FEMALE AND MALE LABOUR FORCE EARNINGS EQUATIONS, 1990 SPECIFICATION**  
**(DEPENDENT VARIABLE, LOG OF WEEKLY EARNINGS)**

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
Skilled Crafts and Trades	0.008	-0.069	0.136	0.227
Clerical Occupations	0.182	0.126	0.056	0.036
Sales and Service Level II	0.163	-0.030	0.072	0.169
Semi-skilled Manual Workers	0.041	-0.018	0.148	0.124
Other Manual Workers	0.015	-0.114	0.050	0.048
<b>Industry</b>				
<b>Retail trade</b>	0.145	...	0.119	...
Other Primary Industries	0.009	0.362	0.036	0.420
Manufacturing	0.095	0.186	0.196	0.234
Construction	0.016	0.192	0.096	0.207
Transportation and Storage	0.019	0.246	0.065	0.250
Communications and Other Utilities	0.030	0.332	0.046	0.317
Wholesale Trade	0.031	0.155	0.059	0.171
Finance, Insurance and Real Estate	0.091	0.188	0.045	0.201
Business Services	0.058	0.138	0.060	0.233
Federal Government Services	0.032	0.332	0.040	0.277
Other Government Services	0.050	0.197	0.054	0.226
Educational Services	0.105	0.116	0.054	0.143
Health and Social Services	0.168	0.179	0.035	0.099
Accommodation, Food and Beverage Services	0.075	-0.096	0.044	-0.208
Other Services	0.077	-0.128	0.050	-0.051
<b>Intercept</b>				
...	...	4.556	...	4.632
Sample size	...	65,779	...	85,748
R <sup>2</sup>	...	0.36	...	0.35
Average log weekly earnings	...	5.84	...	6.33

**Notes:** The reference variables appear in bold, unshaded type.

For Sales and Services Occupations, the three levels shown in roman numerals denote skill levels; Level III is highest.

... figures not available

... figures not applicable

Source: Census of Canada, Individual Public Use Micro-data Files, 1991.

All explanatory variables<sup>9</sup> are shown in categorical form; each regression coefficient is the percentage change in earnings associated with being in that particular category as opposed to being in the omitted reference category. The reference categories are shown in the table in bold, unshaded type. The *t* statistics, which show the statistical significance of each regressor, are not reported in Table 5.2—most of the coefficients were significant at conventional levels. The *t* statistics are in Appendix 5.5.

The mean values for each of the variables are also reported in Table 5.2. For the categorical variables, this indicates the proportion of women and men who are in each of the categories. This is important, since female and male earnings reflect both the proportion of females and males in each of the wage-influencing categories (that is, the mean values) and the effect on earnings of being in each category (that is, the regression coefficients).<sup>10</sup>

### **5.3 REGRESSION RESULTS, 1990**

#### **5.3.1 Age**

Even after controlling for the effect of other variables, women's and men's earnings tend to increase with age; they reach a peak and drop thereafter. For example, females in the 25-to-34 age group earned 31% more than did females in the 15-to-24 group (the omitted reference category). Females in the 35-to-44, 45-to-54 and 55-to-64 groups earned approximately 38% to 40% more than did females in the 15-to-24 age group. They were also about eight percentage points higher than the 25-to-34 age group. Earnings drop off after age 54, and plummet after age 64.

Among males, a similar pattern prevails. However, the increase in earnings with age is more rapid, the peak is reached earlier (age 45 to 54), and earnings drop off more rapidly after the peak. These regression results, in which the effect of other earnings determinants are controlled for, confirms the relationship between earnings and age portrayed in the average earnings data in Figure 5.1.

#### **5.3.2 Vocational training**

This is not the case, however, with respect to vocational training. The average earnings of those with vocational training was higher than of those without vocational training (see Table 5.1). However, vocational training is associated with lower earnings for males and similar earnings for females, after controlling for the impact of other variables that influence earnings. Apparently, those who take vocational training tend to have other characteristics that give rise to higher earnings.

#### **5.3.3 Education**

The benefits of higher education hold for both females and males after other earnings determinants are controlled for. In general, each successive level of education leads to higher earnings relative to the previous level. For example, women with a bachelor's degree earned 35% more than women who did not finish high school. Women with a master's degree earned 46% more, and women with a doctorate earned 65% more. The effects are particularly pronounced for women with professional degrees in medicine, dentistry, veterinary sciences or optometry; earnings in those professions were 85% higher than for women who did not finish high school.

In general, the returns to higher levels of education are somewhat greater for females than males, as shown by the larger coefficients for all university diplomas and degrees.<sup>11</sup> However, the high returns for women with professional degrees do not match the higher returns for men with such degrees.

### **5.3.4 Marital status**

When other factors are controlled for, married women and married men showed the widest gap in earnings. Married men had the largest coefficient, and married women had the smallest coefficient. However, the positive coefficient for females highlights that married females earned 7.7% more than did never-married, single females.

### **5.3.5 Languages known**

Women who spoke only French earned 4% less relative to those who spoke only English. However, those who spoke neither official language earned 18% less.

Similar negative effects prevailed for men, in different magnitudes. Among both females and males, the earnings premium for being bilingual was insignificant. Interestingly, having knowledge of some non-official language in addition to one of the official languages is associated with negative earnings, although the magnitudes were small—4% for males and 2% for females.

### **5.3.6 Immigrant status, visible minority status and Aboriginal origins**

Immigrants, both female and male, earned about 3% less than non-immigrants when the effects of other determinants are controlled for.<sup>12</sup> Visible minorities earned substantially less (females, 8% less; males, 17%), as did Aboriginals (females, 6%; males, 12%).

Women who are also visible minorities or Aboriginals in essence suffer an earnings loss associated with that status, as well as a loss associated with their gender. However, their earnings loss is not as great as that of their male counterparts. Reasons for this are not obvious. Presumably once discrimination exists for one reason (for example, gender) there is less motivation for discrimination based on other attributes.<sup>13</sup>

Interestingly, weekly earnings were about 8% lower for both females and males who worked full-year (49 to 52 weeks per year) compared with those who worked part-year. Weekly earnings are substantially higher for full-time workers, reflecting their additional hours worked per week.

### **5.3.7 Class of worker**

Weekly earnings for both women and men were substantially lower among those in the self-employed categories, compared with paid workers.

### **5.3.8 Province**

After controlling for the effect of other determinants of earnings, there are some pure regional differences in earnings, although the differences are not too large. For example, relative to Ontario, earnings in the Atlantic provinces were approximately 1% to 10% lower for females and 8% to 13% lower for males. Relative to Ontario, earnings were substantially higher for females (26%) and males (17%) in the Yukon and Northwest Territories.

### **5.3.9 Census area**

Earnings were higher in census metropolitan areas than elsewhere. In Toronto they were 20% higher for females and 15% higher for males than in non-CMAs. In the other CMAs, they ranged 7% to 11% higher for females, and 6% to 7% higher for males relative to non-CMAs.

### **5.3.10 Occupation**

Considerable earnings differences prevail across different Standard Occupational Classification groups, but the pattern is generally similar among both females and males. For example, female Senior Managers earned 53% more and male Senior Managers 62% more than the low-paying omitted reference group, Sales and Service Level I. Among Middle and Other Managers, females earned 36% more and males and 39% more than the reference group.

Exceptions to the pattern for females and males include Foremen/Forewomen (only 16% higher for females but 26% higher for males), Skilled Crafts and Trades (7% lower for females but 23% higher for males),<sup>14</sup> Sales and Service Level III (3% lower for females but 17% higher for males), Semi-skilled Manual Workers (2% lower for females but 12% higher for males) and Other Manual Workers (11% lower for females but 5% higher for males).

Interestingly, all but one of these occupations with the largest disparity for males and females are male-dominated occupations—that is, the female means are small, both absolutely and relative to males. The exception is the Sales and Service Level I occupation. This means that women who enter non-traditional occupations appear to be having trouble closing the earnings gap in those jobs.

The fact that women were disproportionately employed in lower-paying occupations and men in higher-paying occupations shows the potential scope for pay equity policies, since they allow comparisons between occupations, and equal employment opportunity policies, since they can increase the likelihood of women gaining access to higher-paying jobs. These are in contrast to conventional equal pay policies, which allow comparisons only within the same occupations.

### **5.3.11 Industry**

Both women and men posted considerable variation in earnings across different industries, even when other pay determinants are controlled for. This is shown by the substantial variation in the industry coefficients for both genders.

However, the pattern between industries is similar for both women and men. For example, the manufacturing earnings premium, relative to the Retail Trade industry, is 19% for females and 23% for males. Exceptions to this pattern include: Health and Social Services, where the earnings differences (relative to Retail Trade) are 18% for females and 10% for males; and Accommodation, Food and Beverage Services, where the earnings differences are -10% for females and -21% for males.

## **5.4 HISTORICAL REGRESSIONS, 1970, 1980 AND 1990**

### **5.4.1 Format and procedure**

To portray how the male–female earnings gap and its determinants have changed over time, the regression and decomposition analysis was repeated for three years—1970, 1980 and 1990. To create a common specification of the earnings equation across those three years, additional restrictions on selecting the data had to be imposed, which are over and above the restrictions imposed on the 1990 data, discussed previously. These restrictions are also outlined in detail in Appendix 5.4.<sup>15</sup>

Showing how the male–female earnings gap has changed over time entails a comparison of Table 5.3 (for 1970), of which are Table 5.4 (for 1980) and Table 5.5 (for 1990), all of which are based on the common historical specification. Both mean values and regression coefficients will be discussed, since both help us understand how the determinants of the earnings gap has changed over time. Since most of the *t* statistics are significant, they are simply reported in Appendix 5.6.

### **5.4.2 HISTORICAL REGRESSION RESULTS**

#### **5.4.2.1 Age**

The age–earnings pattern discussed above prevails for both genders across the three census years. That is, earnings tend to increase with age, peaking in the 45-to-54 age group, and then fall off in the older age groups. Females' age–earnings profile tends to be flatter—that is, it rises less sharply with age, and tends to peak slightly earlier. Over the 1970, 1980 and 1990 census years, the profile has become steeper (that is, the coefficients larger) for both females and males. As well, the female peak has come later, in the 45-to-54 age group, corresponding to the male peak. This is a change from 1970, when the female peak was in the 35-to-44 age group, and there was little variation in the middle age groups. In essence, over time, the female age–earnings profile has converged towards the male profile, becoming steeper and having a later peak.

#### **5.4.2.2 Vocational training**

Over the three census years, proportionately more people acquired vocational training, especially females. The proportion of females with vocational training rose from 19% in 1970 to 37% in 1990, matching males' levels. The proportions for males rose almost as steeply, from 22% in 1970 to 37% in 1990.

The economic returns to vocational training, however, showed a surprising pattern for both females and males. In 1970, having some vocational training was associated with an increase of approximately 6% in earnings for both genders. By 1980, vocational training was associated with 5% lower earnings for both females and males, and by 1990 it was associated with 2% lower earnings for females and 5% lower earnings for males.



TABLE 5.3

EARNINGS REGRESSIONS, BOTH SEXES, COMMON SPECIFICATION ACROSS THREE CENSUSES,  
(DEPENDENT VARIABLE, LOG OF ANNUAL EARNINGS), 1970

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Age</b>				
15-24	0.256	...	0.111	...
25-34	0.245	0.159	0.286	0.193
35-44	0.188	0.217	0.247	0.317
45-54	0.189	0.208	0.210	0.315
55-64	0.111	0.210	0.132	0.258
65+	0.011	0.209	0.014	0.057
<b>Vocational training</b>				
No vocational training	0.811	...	0.784	...
Vocational training	0.189	0.064	0.216	0.059
<b>Degree, certificate or diploma</b>				
No high school diploma	0.516	...	0.577	...
High school graduate	0.354	0.096	0.243	0.104
Some postsecondary	0.076	0.175	0.078	0.152
Bachelor's degree	0.035	0.397	0.049	0.374
Post-bachelor's	0.002	0.171	0.004	0.149
Postgraduate degree	0.018	0.521	0.049	0.447
<b>Marital status</b>				
Single	0.320	...	0.133	...
Married	0.542	-0.037	0.825	0.158
Separated, widowed or divorced	0.138	-0.031	0.042	0.131
<b>Languages known</b>				
English only	0.721	...	0.706	...
French only	0.096	-0.083	0.075	-0.134
English and French	0.175	-0.009	0.214	-0.019
Neither English nor French	0.008	-0.157	0.005	-0.230
<b>Immigrant status</b>				
Non-immigrant	0.799	...	0.782	...
Immigrant	0.201	-0.036	0.218	-0.052
<b>Province</b>				
Atlantic provinces	0.065	...	0.069	...
Quebec	0.240	0.189	0.250	0.125
Ontario	0.448	0.193	0.437	0.151
Prairie provinces	0.156	0.076	0.141	0.040
British Columbia	0.091	0.169	0.103	0.158
<b>Hours worked per week</b>				
35-39	0.482	...	0.263	...
40-44	0.518	-0.030	0.737	-0.021

TABLE 5.3 (CONCLUDED)

EARNINGS REGRESSIONS, BOTH SEXES, COMMON SPECIFICATION ACROSS THREE CENSUSES,  
(DEPENDENT VARIABLE, LOG OF ANNUAL EARNINGS), 1970

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Occupation</b>				
<b>Clerical Occupations</b>	0.513	...	0.156	...
Managerial, Administrative and Related Occupations	0.039	0.196	0.106	0.305
Occupations in Natural Sciences, Engineering and Mathematics	0.010	0.152	0.084	0.200
Occupations in Social Sciences and Related Fields	0.013	0.196	0.010	0.176
Teaching and Related Occupations	0.075	0.292	0.035	0.192
Occupations in Medicine and Health	0.115	0.163	0.016	0.081
Artistic, Literary, Recreational and Related Occupations	0.006	0.208	0.011	0.175
Sales Occupations	0.059	-0.086	0.112	0.176
Service Occupations	0.080	-0.148	0.133	0.011
Processing Occupations	0.023	-0.002	0.081	0.074
Product Fabricating, Assembling and Repairing Occupations	0.066	-0.142	0.193	0.064
Transport Equipment Operating Occupations	0.001	0.204	0.063	0.005
<b>Industry sector</b>				
<b>Government</b>	0.096	...	0.162	...
Manufacturing	0.182	-0.095	0.346	-0.035
Transportation, Communications and Utilities	0.069	-0.005	0.135	0.029
Trade	0.146	-0.177	0.150	-0.130
Finance, Insurance and Real Estate	0.113	-0.134	0.051	-0.080
Community, Business and Personal Services	0.394	-0.137	0.156	-0.188
<b>Intercept</b>	...	9.603	...	9.738
<b>Sample size</b>	...	7,653	...	14,173
<b>R<sup>2</sup></b>	...	0.43	...	0.41
<b>Mean dependent variable</b>	...	9.847	...	10.315
<b>Annual earnings, 1991 dollars</b>	...	20,188	...	32,747

**Notes:** The reference categories for categorical variables appear in bold, unshaded type. Statistical significance is not denoted, because the variables were almost always significant at conventional levels. The *t* statistics are given in Appendix 5.5.

... figures not applicable

**Source:** Census of Canada, Individual Public Use Micro-data Files, 1971.

TABLE 5.4

EARNINGS REGRESSIONS, BOTH SEXES, COMMON SPECIFICATION ACROSS THREE CENSUSES,  
(DEPENDENT VARIABLE, LOG OF ANNUAL EARNINGS), 1980

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Age</b>				
15-24	0.212	...	0.122	...
25-34	0.326	0.176	0.323	0.208
35-44	0.204	0.225	0.234	0.340
45-54	0.161	0.240	0.184	0.361
55-64	0.091	0.243	0.128	0.302
65+	0.006	0.139	0.009	0.093
<b>Vocational training</b>				
No vocational training	0.701	...	0.692	...
Vocational training	0.299	-0.053	0.308	-0.052
<b>Degree, certificate or diploma</b>				
No high school diploma	0.318	...	0.347	...
High school graduate	0.284	0.066	0.207	0.103
Some postsecondary	0.299	0.159	0.294	0.183
Bachelor's degree	0.070	0.267	0.097	0.278
Post-bachelor's	0.013	0.307	0.017	0.344
Postgraduate degree	0.016	0.437	0.037	0.429
<b>Marital status</b>				
Single	0.262	...	0.174	...
Married	0.605	-0.009	0.771	0.165
Separated, widowed or divorced	0.133	0.003	0.055	0.105
<b>Languages known</b>				
English only	0.688	...	0.658	...
French only	0.114	-0.073	0.114	-0.082
English or French	0.191	-0.004	0.224	-0.004
Neither English nor French	0.007	-0.152	0.004	-0.275
<b>Immigrant status</b>				
Non-immigrant	0.801	...	0.793	...
Immigrant	0.199	-0.035	0.207	-0.047
<b>Province</b>				
Atlantic provinces	0.068	...	0.068	...
Quebec	0.244	0.186	0.281	0.108
Ontario	0.425	0.136	0.405	0.127
Prairie provinces	0.162	0.145	0.143	0.127
British Columbia	0.101	0.214	0.103	0.230
<b>Hours worked per week</b>				
35-39	0.529	...	0.274	...
40-44	0.471	-0.018	0.726	-0.008

**TABLE 5.4 (CONCLUDED)**

**EARNINGS REGRESSIONS, BOTH SEXES, COMMON SPECIFICATION ACROSS THREE CENSUSES,  
(DEPENDENT VARIABLE, LOG ANNUAL EARNINGS), 1980**

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Occupation</b>				
<b>Clerical Occupations</b>	0.475	...	0.120	...
Managerial, Administrative and Related Occupations	0.076	0.252	0.144	0.311
Occupations in Natural Sciences, Engineering and Mathematics	0.018	0.235	0.086	0.227
Occupations in Social Sciences and Related Fields	0.021	0.144	0.016	0.166
Teaching and Related Occupations	0.063	0.318	0.047	0.271
Occupations in Medicine and Health	0.100	0.232	0.016	0.109
Artistic, Literary, Recreational and Related Occupations	0.009	0.111	0.013	0.080
Sales Occupations	0.073	-0.011	0.110	0.148
Service Occupations	0.084	-0.160	0.110	0.008
Processing Occupations	0.019	0.002	0.079	0.116
Product Fabricating, Assembling and Repairing Occupations	0.059	-0.117	0.201	0.067
Transport Equipment Operating Occupations	0.003	0.039	0.058	0.037
<b>Industry sector</b>				
<b>Government</b>	0.104	...	0.138	...
Manufacturing	0.154	-0.091	0.317	-0.030
Transportation, Communications and Utilities	0.068	0.031	0.123	0.048
Trade	0.154	-0.206	0.177	-0.138
Finance, Insurance and Real Estate	0.133	-0.076	0.052	-0.048
Community, Business and Personal Services	0.387	-0.129	0.193	-0.174
Intercept	...	9.740	...	9.800
Sample size	...	25,877	...	36,233
$R^2$	...	0.39	...	0.41
Mean dependent variable	...	10.049	...	10.451
Annual earnings, 1991 dollars	...	24,859	...	37,611

**Notes:** The reference categories for categorical variables appear in bold, unshaded type. Statistical significance is not denoted, because the variables were almost always significant at conventional levels. The  $t$  statistics are given in Appendix 5.5.

... figures not applicable

**Source:** Census of Canada, Individual Public Use Micro-data Files, 1981.

TABLE 5.5

EARNINGS REGRESSIONS, BOTH SEXES, COMMON SPECIFICATION ACROSS THREE CENSUSES,  
(DEPENDENT VARIABLE, LOG OF ANNUAL EARNINGS), 1990

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Age</b>				
15-24	0.094	...	0.068	...
25-34	0.317	0.219	0.310	0.269
35-44	0.323	0.313	0.310	0.412
45-54	0.190	0.330	0.209	0.485
55-64	0.071	0.318	0.096	0.431
65+	0.005	0.274	0.007	0.267
<b>Vocational training</b>				
No vocational training	0.631	...	0.631	...
Vocational training	0.369	-0.021	0.369	-0.045
<b>Degree, certificate, or diploma</b>				
No high school diploma	0.202	...	0.227	...
High school graduate	0.290	0.072	0.232	0.092
Some postsecondary	0.351	0.140	0.338	0.190
Bachelor's degree	0.114	0.289	0.133	0.288
Post-bachelor's	0.019	0.359	0.020	0.332
Postgraduate degree	0.024	0.479	0.050	0.429
<b>Marital status</b>				
Single	0.210	...	0.181	...
Married	0.660	-0.0004	0.761	0.182
Separated, widowed, divorced	0.130	0.015	0.058	0.127
<b>Languages known</b>				
English only	0.676	...	0.658	...
French only	0.115	-0.067	0.112	-0.094
English and French	0.205	0.009	0.226	0.002
Neither English nor French	0.004	-0.200	0.004	-0.283
<b>Immigrant status</b>				
Non-immigrant	0.814	...	0.800	...
Immigrant	0.186	-0.037	0.200	-0.061
<b>Province</b>				
Atlantic provinces	0.066	...	0.068	...
Quebec	0.244	0.083	0.273	0.074
Ontario	0.429	0.148	0.403	0.146
Prairies	0.157	0.061	0.152	0.054
British Columbia	0.104	0.115	0.104	0.142
<b>Hours worked per week</b>				
35-39	0.490	...	0.267	...
40-44	0.510	-0.008	0.733	0.018

TABLE 5.5 (CONCLUDED)

EARNINGS REGRESSIONS, BOTH SEXES, COMMON SPECIFICATION ACROSS THREE CENSUSES,  
(DEPENDENT VARIABLE, LOG OF ANNUAL EARNINGS), 1990

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Occupation</b>				
<b>Clerical Occupations</b>	0.398	...	0.112	...
Managerial, Administrative and Related Occupations	0.134	0.248	0.167	0.305
Occupations in Natural Sciences, Engineering and Mathematics	0.029	0.264	0.110	0.248
Occupations in Social Sciences and Related Fields	0.033	0.127	0.019	0.136
Teaching and Related Occupations	0.067	0.286	0.049	0.290
Occupations in Medicine and Health	0.106	0.218	0.021	0.163
Artistic, Literary, Recreational and Related Occupations	0.011	0.103	0.014	0.120
Sales Occupations	0.082	0.051	0.110	0.127
Service Occupations	0.088	-0.162	0.123	0.028
Processing Occupations	0.012	-0.013	0.050	0.109
Product Fabricating, Assembling and Repairing Occupations	0.036	-0.095	0.171	0.080
Transport Equipment Operating Occupations	0.004	0.024	0.054	0.033
<b>Industry sector</b>				
<b>Government</b>	0.120	...	0.154	...
Manufacturing	0.109	-0.117	0.246	-0.052
Transportation, Communications and Utilities	0.068	0.018	0.125	0.004
Trade	0.139	-0.269	0.179	-0.183
Finance, Insurance and Real Estate	0.131	-0.115	0.059	-0.085
Community, Business and Personal Services	0.433	-0.154	0.237	-0.201
<b>Summary statistics</b>				
Intercept	...	9.723	...	9.683
Sample size	...	25,415	...	28,260
R <sup>2</sup>	...	0.38	...	0.41
Mean dependent variable	...	10.127	...	10.453
Annual earnings, 1991 dollars	...	27,281	...	38,207

**Notes:** The reference categories for categorical variables appear in bold, unshaded type. Statistical significance is not denoted, because the variables were almost always significant at conventional levels. The *t* statistics are given in Appendix 5.5.

.. figures not available

... figures not applicable

**Source:** Census of Canada, Individual Public Use Micro-data Files.

This does not reflect the fact that those who take vocational training tend to have less education, since general education and other determinants of earnings are already controlled for in the analysis. Presumably, the returns to vocational training have simply declined over time, reflecting a declining premium placed on such skills given the economy's shift away from manufacturing and towards service industries. It is also possible that some workers take vocational training as a response to job losses or earnings reductions, and the negative returns to training simply reflect that reverse causality. Furthermore, vocational training may be a proxy for other attributes not included in the analysis, attributes that may cause the unexpected negative returns.

### **5.4.2.3 Education**

The proportion of the work force that had earned a bachelor's degree or beyond mushroomed over the three census years. It tripled for females, from just over 5% in 1970 to nearly 16% in 1990, and doubled for males, from 10% in 1970 to 20% in 1990.

Higher education is associated with higher earnings for both females and males and for each census year. The exception is the post-bachelor category in 1970.<sup>16</sup>

The impact of additional education on earnings is similar for both genders. For example, the additional income associated with having a bachelor's degree as opposed to not having graduated from high school was 40% for females and 37% for males in 1970, 27% and 28%, respectively, in 1980, and approximately 29% for both genders in 1990. The additional income associated with having a postgraduate degree compared with not having graduated from high school was 52% for females and 45% for males in 1970, 44% for females and 43% for males in 1980, and 48% for females and 43% for males in 1990.

The premium associated with higher education fell for both females and males over the 1970s, likely reflecting the large increase in the number of people with higher education. Over the 1980s, the premium for higher education rebounded slightly, likely reflecting the slower growth in the number of higher-educated people, and the fact that technological and other changes were putting an additional premium on higher education.<sup>17</sup>

### **5.4.2.4 Marital status**

The proportion of the female work force that is married has increased steadily from 54% in 1970 to 61% in 1980 to 66% in 1990. At the same time, the earnings disadvantage for married women compared with single women declined from 4% in 1970 to zero by 1990. Among males, the earnings advantage of being married stayed roughly constant at around 15% over the three census years.

### **5.4.2.5 Languages known**

The proportion of the work force that could speak French only increased slightly among females from 10% in 1970 to 11% in both 1980 and 1990, and among males from approximately 8% in 1970 to 11% in both 1980 and 1990. The proportion that could speak both English and French grew slightly among females from 18% in 1970 to 19% in 1980 to 21% in 1990, and among males from 21% in 1970 to 22% in 1980 to 23% in 1990. The proportion that could speak neither English nor French remained very small, less than 1% for both genders across all three census years.

Those who spoke only French had slightly higher earnings than those who spoke only English, and that premium has grown slightly since 1970. The earnings advantage of those who spoke only French increased among females from 10% in 1970 to 11% in both 1980 and 1990 among females, and among males from 8% in 1970 to 11% in both 1980 and 1990.

The earnings premium associated with being bilingual was more substantial. For males, it remained roughly constant at about 22% over the three census years. For females, it increased slightly from 18% in 1970 to 19% in 1980 to 21% in 1990.

#### **5.4.2.6 Immigrant status**

There was relative stability over the three years in both the proportion of the work force that was immigrant (about 20% among both females and males) and in the earnings disadvantage associated with being an immigrant (roughly 5%, but slightly lower for females).

#### **5.4.2.7 Province**

In 1970, the ranking of the provinces and territories in descending order of earnings were Ontario, British Columbia, Quebec, the Prairies and the Atlantic provinces. The notable anomaly in that ranking is that women in Quebec were tied with Ontario for the top ranking, while men in Quebec were below both Ontario and British Columbia.

By 1980, British Columbia reported the highest earnings by far. The other regions showed a similar earnings advantage relative to the Atlantic provinces. Again, the exception was in Quebec, where women earned more than women in other regions (except for British Columbia) and men earned less than men in other regions (except for the Atlantic provinces).

By 1990, the rankings had returned to their 1970 ranking of Ontario, British Columbia, Quebec, the Prairies and the Atlantic provinces. The anomaly of Quebec women earning substantially more, and Quebec men earning substantially less, relative to most other regions no longer prevailed.

#### **5.4.2.8 Longer hours**

Across all three census years, about half as many females worked 40 to 44 hours a week as worked 35 to 39 hours a week. Almost three-quarters as many males worked 40 to 44 hours per week as worked 35 to 39 hours per week.

Surprisingly, both females and males who worked 40 to 44 hours per week had slightly lower annual earnings than those who worked 35 to 39 hours per week, after controlling for other earnings determinants.

#### **5.4.2.9 Occupation**

Female and male occupational distributions have been substantially different; they have also changed over time. In 1970, more than half the female full-time, full-year work force worked in clerical occupations, compared with 16% of the male work force. The proportion of the female work force in clerical occupations declined over time, but it was still 48% in 1980 and 40% in 1990. In addition, 19% of the female work force was employed in Teaching and Related Occupations and Health Care Occupations in 1970, declining slightly to 16% in 1980 and 17% in 1990.

In contrast, less than 5% of the female work force in 1970 was employed in Managerial Occupations or Occupations in Natural Sciences, Engineering and Mathematics, compared with 19% of the male work force. But women's employment in those fields grew more than threefold to 16% of the female work force in 1990, compared with 28% of the male work force. Similarly, in all three census years, about one-quarter of the male work force worked in Product Fabricating, Assembling, and Repairing Occupations or in Transport Equipment Operating Occupations. In contrast, the proportion of the female work force in those jobs was only 7% in 1970, 6% in 1980, and 4% in 1990.



The economic returns associated with different occupations, as shown by the regression coefficients, also differed for females and males and for the different census years. The earnings premium associated with being a female manager, relative to the omitted reference category of Clerical Occupations,<sup>18</sup> was 20% in 1970, and 25% in both 1980 and 1990. For male managers, it was about 30% in each of the three census years.

Among males, earnings premiums were associated with occupations such as Sales (17% in 1970), Service (1%), Processing (7%) and Product Fabricating, Assembling and Repairing (6%). Among females, these same occupations were associated with lower earnings—Sales (-9%), Service (-15%), Processing (-0.2%) and Product Fabricating, Assembling and Repairing (-14%). By 1990, the negative earnings premium for females in Sales changed to a slight positive.

#### **5.4.2.10 Industry sector**

Across industries, females worked in disproportionate numbers in the Community, Business and Personal Services sector (39% in 1970 and 1980, and 43% in 1990), while males tended towards Manufacturing (35% in 1970, 32% in 1980, and 25% in 1990).

Among both females and males, the Government sector tended to be the highest-paying industry, even after controlling for the impact of other wage-determining characteristics. This is shown by the negative coefficients for most of the other industry variables, with the exception of the extensively regulated Transportation, Communications and Utilities sector. The earnings premium associated with the Government sector did dissipate over time—the negative coefficients for the other industries generally became smaller or positive over the three years.

The industry rankings were also fairly stable over the three census years. In descending order they were: Transportation, Communications and Utilities; Government; Manufacturing; Finance, Insurance and Real Estate; Trade; and Community, Business and Personal Services. For females, however, Trade ranked the lowest in earnings.

### **5.5 DECOMPOSING THE MALE-FEMALE EARNINGS GAP**

The average male-female earnings gap can be decomposed into two components: a portion attributed to differences between females' and males' average characteristics or endowments of wage-determining characteristics; and a portion attributed to differences in the pay that females and males receive for the same wage-determining characteristics.<sup>19</sup> The latter component is often labelled as the discriminatory component, in that it reflects differences in what women and men are paid for the same characteristics. The former component is often labelled as non-discriminatory, in that it reflects the male-female differentials in their endowments of wage-determining characteristics such as education and training. However, such differences in endowments can reflect discriminatory pressures, for example, if women are steered away from education or training that may enhance earnings.

The decomposition procedure involves estimating separate earnings equations for males and females, as in Table 5.2. For each equation, the mean values of the explanatory variables—the particular wage-determining characteristic—indicate the average endowment of that particular characteristic. The regression coefficients indicate the economic returns to each of these characteristics.

In the decomposition procedure, the hypothetical earnings that females could expect to earn if they were paid according to the male pay structure (that is, the non-discriminatory norm) can be calculated by multiplying the average endowments of female wage-determining characteristics (that is, the mean values of their explanatory variables) by the returns that males receive for those characteristics (that is, the male regression coefficients). Subtracting this from the average male earnings yields the portion of the male–female earnings gap attributable to differences in the average endowments of each gender's wage-determining characteristics, where the differences in endowments are evaluated according to the male pay structure. Subtracting the hypothetical earnings that females would receive if there were no pay discrimination from their own average earnings yields that portion of the male–female earnings gap attributable to discrimination.

Table 5.6 decomposes the male–female earnings gap into the component parts attributable, respectively, to: differences in their average endowment of wage-determining characteristics (labelled *characteristics*); and differences in the pay men and women receive for the same characteristics (labelled *discrimination*). The bottom panel provides this decomposition for the 1990 specification, as given in Table 5.2. The top panel provides the decomposition for the narrower historical specification for 1970, 1980 and 1990, as given respectively in Tables 5.3, 5.4 and 5.5.

**TABLE 5.6**

**DECOMPOSITION OF FEMALE–MALE LOG EARNINGS DIFFERENTIAL, 1970, 1980, 1990 HISTORICAL SPECIFICATION AND 1990 CURRENT SPECIFICATION**

Year and specification	Overall differential	Portion attributed to differences in:	
		Characteristics	Discrimination
Historical specification			
1970 annual earnings	0.469 (100%)	0.166 (35.5%)	0.302 (64.5%)
1980 annual earnings	0.403 (100%)	0.135 (33.5%)	0.268 (66.5%)
1990 annual earnings	0.326 (100%)	0.096 (29.5%)	0.230 (70.5%)
Current specification			
1990 weekly earnings	0.485 (100%)	0.228 (47.0%)	0.257 (53.0%)

*Source:* Based on decomposition procedure as outlined in text, using mean values and regression coefficients from Table 5.2 for the current specification, and Tables 5.3, 5.4 and 5.5 for the historical specification.

The average male–female logarithmic weekly earnings differential, based on the 1990 specification, was 0.485 (see bottom panel of Table 5.6). Of that, 0.228, or 47%, can be attributed to differences in endowments of wage-determining characteristics, and 0.257 or 53%, can be attributed to discrimination (that is, differences in pay for the same characteristics).

However, this can underestimate the degree of wage discrimination. For example, occupation is controlled for in the regression analysis, yet occupational segregation may be a mechanism

whereby wage discrimination occurs. This decomposition may also overestimate the degree of wage discrimination, for example, if differences in hours of work are not fully controlled for by examining weekly earnings and controlling for full-time versus part-time status.

Using the narrower historical specification, however, a different picture emerges. This is to be expected, since the historical analysis was restricted to annual earnings for full-time, full-year workers, and it involved fewer control variables. Specifically, the (logarithmic) earnings gap was smaller at 0.326. This likely reflects the fact that the annual earnings gap is smaller for full-time, full-year workers than for all workers, since the gap for all worker also reflects differences in hours worked per week.

As well, in the historical specification, the portion attributable to discrimination (70.5%) is much larger than the portion attributable to differences in endowments of wage-determining characteristics (29.5%). This likely reflects the fact that when the endowments of wage-determining characteristics are not fully controlled for (as is likely the case in the narrower historical specification), the portion of the earnings gap attributed to such differences should be correspondingly smaller. For those reasons, the narrower historical specification likely understates the average earnings gap (because it is restricted to full-year, full-time workers, where the gap is smallest), and overstates the degree of discrimination (because it does not fully control for the array of wage-determining characteristics).

Despite these limitations, the historical measures likely reasonably portray the trend or changes occurring over time. In that vein, an important picture emerges. The overall earnings gap has declined steadily over time, as indicated by the fact that female earnings as a percentage of male earnings for full-time, full-year workers increased from 61.6% in 1970 to 66.6% in 1980, then to 71.4% by 1990.

Within that declining gap, the portion attributed to differences between males and females in their wage-determining characteristics has declined slightly (from 35.5% in 1970 to 29.5% by 1990).

Conversely, the portion attributed to wage discrimination (different pay for the same characteristics) has increased slightly (from 64.5% in 1970 to 70.5% in 1990). In essence, over time, the overall male–female earnings gap has declined, although the portion of the gap attributed to wage discrimination has increased slightly.

This is an important conclusion since it suggests that the female work force has become more like the male work force in its wage-determining characteristics, and this has helped to narrow the overall earnings gap.

However, it appears that less progress has been made to reduce the impact of pure wage discrimination itself. This conclusion, however, must be tempered by the fact that the historical analysis was restricted to annual earnings for full-time, full-year earnings, and it involves a narrow list of common control variables.

## **5.6 SUMMARY**

In 1990, female annual earnings were 61% of male earnings. The ratio of weekly earnings was slightly higher, 63.3%. This reflects the fact that women tend to work fewer weeks per year than do men.

Among all age groups, the male age-earnings profile is above that of females; it rises more steeply and peaks earlier.

Females' earnings relative to those of males are generally higher at younger ages, at higher levels of education, among never-married, single persons and among part-time workers. They are lowest for married women.

After controlling for the impact of other wage-determining factors, somewhat lower earnings are associated with males with vocational training, people who speak neither official language, those not living in a census metropolitan area, and immigrants. Substantially lower earnings are associated with visible minorities and Aboriginals.

Reflecting different skill levels, there is substantial variation in earnings across different occupations, usually with a similar pattern for females and males. There are variations in those patterns: notably, the low proportions of females who enter non-traditional occupations appear to fare poorly in improving their earnings relative to males in those jobs.

The predominance of females in low-paying jobs and of males in high-paying jobs highlights the potential scope for pay equity policies, which allow comparisons across different occupations, and equal employment opportunity policies, which facilitate the advance of women into higher-paying jobs, in contrast with conventional equal pay policies, which do not allow comparisons across occupations.

There is also substantial variation in earnings across industries; the pattern is similar for males and females.

Similar earnings patterns for females and males prevailed over 1970, 1980, and 1990, with some notable exceptions. The female age-earnings profile has converged towards the male profile, becoming steeper and peaking later. The returns to vocational training have dropped, and in fact have become negative. The negative effect of being married on earnings declined slightly for women, nearing zero by 1990, although it has never become positive, as it is among men.

In 1991, about half of the overall male-female earnings differential could be attributed to differences between females and males in their endowments of wage-determining characteristics, and about half to discrimination defined as differences in pay for the same characteristics.

Between 1970 and 1990, female earnings as a percentage of male earnings for full-time, full-year workers increased from 61.6% in 1970, to 66.6% by 1980, and to 71.4% by 1990. Within that shrinking gap, however, the proportion attributable to discrimination actually increased slightly, while the proportion attributable to differences in wage-determining characteristics declined.

While the overall male-female earnings gap has declined between 1960 and 1990, it is impossible from this analysis to know how much of that decline can be attributed to different policy initiatives. The increase in the proportion of the gap attributable to discrimination (defined here as unequal pay for the same wage-determining characteristics) suggests that the policy initiatives have not had a substantial effect on discrimination.

In contrast, the decline in the proportion of the gap attributable to differences in wage-determining characteristics suggests that women are making some progress by improving their wage-determining characteristics such as education, and training and hours worked, as well as their occupational and industrial distribution.

## ENDNOTES

1. Although the census enumeration period is the week before June 4, 1991, the earnings refer to the calendar year 1990; hence, the phrase "1990 data" is used here to refer to the 1990 earnings data from the 1991 Census. The term "current" also describes the 1991 Census, since it is the latest census for which individual public use micro-data files were available. The term "current specification" is also used to distinguish from the "common historical specifications" based on 1971, 1981 and 1991 Census data.
2. Other Canadian studies employing the decomposition analysis include: Baker, Benjamin, Desautliers and Grant (1995), based on the 1971, 1981 and 1986 Censuses and the 1986 and 1991 Survey of Consumer Finances; Christofides and Swidinsky (1994), using the 1989 Labour Market Activity Survey; Coish and Hale (1994), using the 1993 Survey of Labour and Income Dynamics; Doiron and Riddell (1994), based on the 1981 Survey of Work History, the 1984 Survey of Union Membership and the 1988 Labour Market Activity Survey; Kid and Shannon (1994, 1996a, 1996b), based on the 1989 Labour Market Activity Survey; Maki and Ng (1990), based on the 1984 Survey of Union Membership; and Wannell (1990), using the National Graduates Survey of 1984 and the follow-up of the 1982 graduates survey in 1987. Earlier Canadian studies are reviewed in Gunderson (1989).
3. Definitions of each of the variables and how they were constructed are given in Appendix 5.3, which also gives their census field and code.
4. This comparison of average earnings according to various personal and labour market characteristics does not control for the effect of other variables that may influence earnings. (The regression analysis presented later does control for the influence of other wage-determining characteristics.)
5. This second measure controls to a degree for differences in time worked.
6. Calculation of a measure of implied hourly wages would be subject to substantial measurement error, since the measure of usual weekly hours worked pertains to the enumeration week in 1991, while the annual earnings measure and the usual weeks worked refer to 1990.
7. The male-female earnings gap is in most cases simply reported, with little discussion of possible reasons for the gap. This is because the gross relationships involved in the simple comparisons of average earnings differences often show the effect of other variables that are not controlled for in the simple tabulation. These relationships are discussed further in the regression analysis following, especially when they are anomalous or they differ greatly from the simple relationship that emerges from comparing average earnings differences.
8. Weekly earnings are used instead of annual earnings so as to better control for differences in the number of weeks worked.
9. The variable definitions and coding are given in Appendix 5.3, which is relevant for both the comparison of average earnings differences of Table 5.1 and the regression analysis of Table 5.2.
10. This will be illustrated more clearly below when the overall male-female earnings gap is decomposed into two components: a portion attributable to differences in endowments of wage-determining characteristics (differences in means); and a portion attributable to differences in pay for the same endowments of wage-determining characteristics (differences in coefficients).
11. Based on the National Graduates Survey of 1984 and the Follow-up of the 1982 National Graduates Survey, Wannell (1990) finds that female university graduates in Canada earned 88% as much as male university graduates, and that ratio actually fell to 82% by 1987. Differences in wage-determining characteristics accounted for about one-third of the gap. Earnings are almost identical for women and men with a PhD. Davies, Mosher and O'Grady (1995) also discuss the role of higher education for Canadian women.
12. For further analysis of the earnings of female immigrants and visible minorities, see Boyd (1992).
13. The gender wage gap for young, single females and males and the role of job mobility is emphasized in Simpson (1990).

14. The lower pay for women in skilled crafts and trades relative to the Sales and Service (Level I) reference group seems particularly surprising, although very few women are in this category. Presumably it reflects differences in the nature of the skilled crafts and trades jobs done by women compared with those done by men, and the industry they perform them in.
15. Furthermore, the common specification required coding the variables in such a fashion as to make them as similar as possible across the three years. This often required judgement calls, especially on how best to merge certain categories. These judgement calls are explicitly given in Appendix 5.4, which outlines how each of the common variables were coded across the three years.
16. Presumably, the negative signal associated with starting but not completing a postgraduate degree outweighed any benefit from acquiring some education beyond a bachelor's degree. As well, those working while trying to complete a degree may have lower incomes.
17. The changing wage premiums associated with higher education in Canada are discussed in Freeman and Needles (1995) and Riddell (1995).
18. Among males, clerical jobs are considered less preferable.
19. For more details, see Appendix 5.2.

## APPENDIX 5.1

### DATA EXCLUSIONS

In estimating male and female earnings equations, it is invariably necessary to restrict the analysis to subsets of the data for whom such comparisons are meaningful. Trade-offs are inevitable. Excluding too many groups means that the analysis cannot be used to make statements or inferences about those groups. Including groups for which male-female earnings comparisons are not meaningful, in contrast, means that the results may reflect the impact of those unusual groups.

In analysing male-female earnings differentials in particular, it is important to restrict the analysis to groups that could potentially earn conventional wage and salary income. It is difficult enough to control for various other determinants of earnings to isolate a pure "male-female" earnings differential, even when the analysis is restricted to those with conventional labour market earnings. That difficulty is compounded if the analysis is not restricted to such groups.

This is especially the case in the historical analysis when the 1970, 1980 and 1990 data are compared. Comparisons in those circumstances are being made not only between females and males in each census year, but also with respect to how the earnings gap and its determinants may be changing over time. Again, such earnings comparisons are facilitated when they are made between groups that are conventional wage- and salary-earners.

This appendix describes the decisions that were made to include or exclude particular groups for earnings comparisons. The first section deals with the specification for the 1990 data. The second section deals with the historical specification that is common across the 1970, 1980 and 1990 data.

The format followed is to first state the exclusion restriction, giving a brief rationale if it is not obvious. Then the procedure for excluding the data is stated. For each of the census years, the mnemonic for the variable name is given in capital letters, preceded by the census year, and followed by the variable field number (in parentheses) used in the census coding manuals. The variable code is indicated by its census code number (sometimes followed, in square brackets, by a description of the variable if that is instructive). The convention used for inequality signs is:

≠ not equal

< less than

> greater than

As an illustration, the statement "If 71LFCODE(28) ≠ 1 then exclude" implies that if the 1971 variable for labour force status (Field 28 in the tape) does not equal Code 1 (which is

“civilian who worked for pay or profit”), then exclude the observation—that is, include only civilians who worked for pay or profit.

### **The 1990 specification**

To ensure that male–female earnings comparisons are made between males and females with conventional labour market earnings, the analysis was restricted to persons with the following characteristics: at least 15 years old; had positive labour market earnings; were permanent residents; consistently reported their full-time, part-time work status; did not work in agriculture; and reported their education, immigrant status and marital status. The details of those restrictions follow.

### **Age 15 and over**

Persons under the age of 15 were excluded because they would normally be required to be in school as opposed to working at regular labour market work.

If 91AGEP(15) < 15 then exclude.

Persons under the age of 15 are also excluded through many of the other restrictions on the data, where the data are often reported only for those 15 and older.

### **Permanent residents**

The 1991 Census was the first to include non-permanent residents (Statistics Canada 1994, p. 167). They are persons who hold a student or employment authorization or a Minister’s Permit, or who are refugee claimants. Because the focus here is on labour market earnings of those who have conventional employment options, and to facilitate consistency with previous censuses, non-permanent residents were excluded from the data set.

If 91IMMPOPP(23) = 3 then exclude.

### **Positive labour market earnings**

Because the comparisons are of female and male earnings, the analysis was restricted to those who had positive labour market earnings. For reasons discussed in the text, the dependent variable was expressed in terms of implied weekly earnings so as to control for differences in weeks worked. This “implied weekly earnings” was calculated as annual earnings from wages and salaries (WAGESP, Code 97) and self-employment (SELFIP, Code 98) in 1990 divided by the usual weeks worked in 1990 (WKSWKP, Code 90). A measure of usual weekly hours worked in 1990 was not available, presumably because this would be difficult for a respondent to recall. A measure of the usual hours worked in the week prior to the enumeration week in 1991 (HRSWKP) was available. However, using this to calculate an implied hourly wage would have been subject to considerable error, given that weekly earnings refer to 1990 and weekly hours refer to 1991.



## **Non-agricultural industries**

Because of the unusual nature of hours of work and pay in agriculture, observations were excluded from this sector.

If 91IND80P(94) = 1 then exclude.

### **Exclude if certain information not available**

After the previously discussed exclusions, a few observations were missing information on such factors as age, education, immigration status or marital status. These observations were excluded.

If 91AGEP(15) = 98 then exclude.

If 91DGREEP(75) < 1 then exclude.

If 91IMMPOPP(23) < 1 then exclude.

If 91 MARSTLP(17) < 1 then exclude.

## **Common historical specification across 1970, 1980, and 1990**

As with the 1990 analysis, the data restrictions for the historical analysis involved exclusions to ensure that the analysis was restricted to those who had conventional options to obtain labour market earnings. In the historical specifications, exclusions were also necessitated by the need to have a common specification across the three census years. Certain compromises and judgement calls had to be made since the variables were not usually common across the three census years. This appendix describes those judgement calls.

The historical analysis was restricted to the following people: those 15 years of age and over; those who worked for pay or profit as wage and salary earners; those whose major source of income was wages and salaries; those who worked between 35 and 44 hours per week and 49 to 52 weeks per year; those who did not work in primary, construction or unspecified occupations or industries. The rationale for these restrictions, and the procedures for implementing them, are as follows.

### **Age 15 and over**

Persons under the age of 15 were excluded because legally they would normally be required to be in school as opposed to working full time and full year.

IF 71AGE(10) < 15 then exclude.

IF 81AGE(17) < 15 then exclude.

IF 91AGE(15) < 15 then exclude.

### **Individuals working for pay or profit**

Because the focus is on labour market earnings, the analysis was restricted to people working for pay or profit (that is, excluding unpaid family members). Military personnel were included only because they could not be separated out in the 1991 Census. They could be separated out in both the 1971 and 1981 Censuses, but doing so would create comparability problems across the three censuses.

If 71LFCODE(28)  $\neq$  1 and LFCODE  $\neq$  2 then exclude.  
If 81LFACT71(30)  $\neq$  2 and 81LFACT71  $\neq$  3 then exclude.  
If 91 COWP(86) = 1 and 91WAGESP(97) = 0 then exclude.

### **Wage- and salary-earners**

Because of the focus on labour market earnings, the analysis excluded the self-employed. In this restriction, those under the age of 15 and those who did not work in the census year were also excluded.

If 71TYPEWORK(35)  $\neq$  1 [wage and salary earners] then exclude.  
If 81COW(41)  $\neq$  1 [paid workers] then exclude.  
If 91 COWP(86)  $\neq$  1 [paid workers and unpaid family workers] then exclude.

Note: In the 1991 Census, unpaid family workers have been excluded by the prior restriction to individuals working for pay or profit, that is,

If 91WAGESP(97) = 0 then exclude.

### **Major source of income is wages or salary**

Because of the focus on labour market earnings, the analysis was restricted to those whose major source of income was wages and salaries. In the 1971 Census, this variable was explicitly given as MAJSINC(55). In the 1981 and 1991 Censuses, it was not explicitly given. It was constructed by first creating a variable, giving the major source of income of the individual. Then the observations were excluded if the major source of the individual's income was not wages or salaries.

If 71MAJSINC(55)  $\neq$  2 then exclude.  
81MSOURCE = MAXIMUM (WAGES, SELFEMP, FAMAL, OASGI, UICBN, GOVTI, INVST, RETIR). IF 81MSOURCE  $\neq$  WAGES then exclude.  
91MSOURCE = MAXIMUM (WAGESP, SELFIP, FAMALP, CHDCRP, OASGIP, CQPPBP, UICBNP, GOVTIP, INVSTP, RETIRP, OTINCP). IF 91MSOURCE  $\neq$  WAGES then exclude.

### **Persons working 35 to 44 hours per week and 49 to 52 weeks per year**

So that male-female earnings differences are being compared across groups that are relatively homogeneous with respect to working time, the analysis was restricted to persons who worked a "normal" work week, defined here as 34 to 44 hours per week, and who worked "full year," defined here as 49 to 52 weeks per year.

If 71USUALHRS(32)  $<$  4 or  $>$  5 then exclude.  
If 81HRSWK(32)  $<$  35 or  $>$  44 then exclude.  
If 91HRSWKP(88)  $<$  35 or  $>$  44 then exclude.  
If 71NUMWEEKS(30)  $\neq$  6 then exclude.  
If 81WKS WK(34)  $<$  49 then exclude.  
If 91WKS WK(87)  $<$  49 then exclude.

### **Annual earnings at least \$8,500 per year**

Given that the focus of the historical analysis is on full-time, full-year persons whose major source of income is wages and salaries, the analysis was restricted to persons whose annual earnings would likely be above the minimum wage in 1990 dollars. This implies annual earnings of approximately \$8,500 or more in 1990 dollars.

### **Exclude certain occupations, industries, persons who did not work**

Certain occupations and industries (for example, Agriculture, Other Primary, Construction, Other) were excluded because, especially in the earlier census, they tended to include few female wage-earners. As well, the person's occupation or industry was sometimes designated as "Other." The 1971 occupation and industry classes were used in the historical comparisons, since they were common across the three census years. In 1971, the major occupation group "Religion" was in a separate occupation category, Category 4, and was thereby excluded by excluding that category. In 1981 and 1991, that occupation group was in the "Other" occupation category and thereby was excluded when that whole category was excluded.

The occupation exclusion procedures were:

If 71OCCUPAT(34) = 4 [Religion] or 11 [Farming, Horticulture and Animal Husbandry] or 12 [Other Primary] or 15 [Construction] or 17 [Other Occupations] or 18 [Not stated] or 00 [population under 15 years, persons who did not work in 1970] then exclude.

If 81OCC71(38) = 10 [Farming, Horticulture and Animal Husbandry] or 11 [Other Primary] or 14 [Construction] or 16 [Other Occupations] or 17 [Not stated] or 00 [persons under 15 years, persons who did not work since January 1, 1980] then exclude.

If 91OCC71(93) = 10 [Farming, Horticulture and Animal Husbandry] or 11 [Other Primary] or 14 [Construction] or 16 [Other Occupations] or 17 [Not stated] or 99 [persons under 15 years, persons who did not work since January 1, 1990] then exclude.

The industry exclusion procedures were:

If 71INDUST(33) = 1 [Agriculture] or 2 [Forestry] or 3 [Fishing and Trapping] or 4 [Mines, Quarries and Oil Wells] or 6 [Construction] or 12 [not determined] or 00 [population under 15 years, persons who did not work in 1970] then exclude.

If 81INDUST(40) = 1 [Agriculture] or 2 [Other Primary] or 4 [Construction] or 19 [unspecified or undefined] or 00 [population under 15 years, persons who did not work since January 1, 1980] then exclude.

If 91IND70P(95) = 1 [Agriculture] or 2 [Other Primary] or 4 [Construction] or 17 [unspecified or undefined] or 99 [population under 15 years, persons who did not work since January 1, 1990] then exclude.

## APPENDIX 5.2

### WAGE GAP DECOMPOSITION PROCEDURE

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Based on the individual worker as the unit of observation, separate wage equations can be estimated for males and for females:

$$(1) \bar{W}_m = \bar{X}_m b_m \text{ for males}$$

$$(2) \bar{W}_f = \bar{X}_f b_f \text{ for females}$$

where  $W$  is the log of wages,  $X$  is a vector of human capital and other wage-determining characteristics,  $b$  is a vector of estimated regression coefficients showing the return to each of the characteristics,  $m$  denotes males and  $f$  denotes females. For simplicity of exposition, the individual subscripts and the error terms are omitted.

In regression analysis, the mean of the dependent variable equals the regression coefficients times the mean values of the explanatory variables. That is,

$$(3) \bar{W}_m = \bar{X}_m b_m$$

$$(4) \bar{W}_f = \bar{X}_f b_f$$

The hypothetical wage that females would receive if they had their own characteristics that is,  $X_f$  but were paid according to the male pay structure for those characteristics (that is,  $b_m$ ) can be denoted as

$$(5) \bar{W}_f^* = \bar{X}_f b_m$$

The difference between the wage of males and this hypothetical wage of females is attributable to differences in the endowments of wage-determining characteristics between males and females, since both are paid according to the same pay structure, in this case, the male returns. That is,

$$(6) \bar{W}_m - \bar{W}_f^* = \bar{X}_m b_m - \bar{X}_f b_m = (\bar{X}_m - \bar{X}_f) b_m \text{ is due to differences in characteristics.}$$

The difference between females' actual wages and the hypothetical wages they would earn if they were paid according to the male pay structure is attributable to differences in their returns for the same wage-determining characteristics, in this case the female characteristics. That is,

$$(7) \bar{W}_f^* - \bar{W}_f = \bar{X}_f b_m - \bar{X}_f b_f = \bar{X}_f (b_m - b_f) \text{ is due to differences in returns.}$$

Adding equations (6) and (7) yields

$$(8) \bar{W}_m - \bar{W}_f = (\bar{X}_m - \bar{X}_f) b_m + \bar{X}_f (b_m - b_f)$$

That is, the average wage differential between females and males can be decomposed into two components: differences in the average value of the wage-determining characteristics ( $\bar{X}_m - \bar{X}_f$ ), evaluated according to the male returns,  $b_m$ ; and differences in the pay structure between the two sectors,  $(b_m - b_f)$ , evaluated with the female endowments of wage-determining characteristics,  $\bar{X}_f$ . The latter term  $\bar{X}_f(b_m - b_f)$  is of policy interest, since it is often labelled as discrimination because it reflects the pure wage difference between females and males with the same endowments of wage-determining characteristics. The first term,  $(\bar{X}_m - \bar{X}_f)b_f$  is of different policy interest, since it reflects differences in the endowments of wage-determining characteristics—for example, differences in their levels of education or occupational distribution. Many of these endowments are subject to a degree of policy influence.

The above decomposition could be done in alternative ways, for example, by recasting Equation 5 as the hypothetical wage that males would receive if they were paid according to female pay structure. This would yield an alternative decomposition of Equation 8, whereby the differences in the characteristics would be evaluated according to the female wage structure, and the differences in the returns would be evaluated using the mean values of the male characteristics as weights. The decomposition outlined above, however, is preferred because the policy issue is usually discussed with an eye to ensuring that female workers are paid the same as comparable male workers. That is, the male wage structure is the norm for comparison purposes.

This decomposition is a partial equilibrium analysis in that it assumes that the male wage structure would not change if females were given the same pay structure. Obviously, if such a restructuring of pay occurred *en masse*, the male pay itself would be affected, and a more general equilibrium analysis would be required to determine the ultimate impact.

### APPENDIX 5.3

#### VARIABLE DEFINITIONS, 1990 SPECIFICATION

Variable	Field	Code
<b>Age</b>		
Age	15	years
Age squared	15	years squared
<b>Vocational training</b>		
No vocational training	74	1
Vocational training	74	2-7
<b>Degree, certificate or diploma</b>		
No degree, certificate or diploma	75	1
High school graduate	75	2
Trade certificate or diploma	75	3
Other non-university certificate	75	4
University diploma below bachelor level	75	5
Bachelor's degree(s)	75	6
University degree above bachelor's	75	7
Degree in medicine, dentistry, veterinary medicine or optometry	75	8
Master's degree(s)	75	9
Doctoral degree	75	10
<b>Marital status</b>		
Never married, single	17	4
Common law	9	2, 5
Married	17	2
Separated	17	3
Widowed	17	5
Divorced	17	1
<b>Languages known</b>		
English only	51	1
French only	51	2
Both English and French	51	3
Neither English nor French	51	4
No non-official languages known	55	4
Some non-official languages known	55	1, 2, 3
<b>Immigrant status</b>		
Non-immigrant	23	1
Immigrant	23	2
<b>Visible minority status</b>		
Not visible minority	27	2
Visible minority	27	1
<b>Aboriginal origins</b>		
Non-Aboriginal	28; 45	2 or 5
Aboriginal	28; 45	1; or 1, 2, 3, 4

# APPENDIX 5.3 (CONTINUED)

## VARIABLE DEFINITIONS, 1990 SPECIFICATION

Variable	Field	Code
<b>Full-time or part-time status</b>		
Part-time, <30 hours per week	87	2
Full-time, 30 hours or more per week	87	1
<b>Full-year or part-year status</b>		
Part-year, <49 weeks per year	90	1-48
Full-year, 49-52 weeks per year	90	49-52
<b>Non-labour market income</b>		
Paid worker	86	1
Self-employed, incorporated	86	2
Self-employed, no paid help, unincorporated	86	3
Self-employed with paid help, incorporated	86	4
<b>Province</b>		
Ontario	1	35
Newfoundland	1	10
Prince Edward Island	1	11
Nova Scotia	1	12
New Brunswick	1	13
Quebec	1	24
Manitoba	1	46
Saskatchewan	1	47
Alberta	1	48
British Columbia	1	59
Yukon and Northwest Territories	1	60
<b>Census area</b>		
Non-census metropolitan area	2	999
Toronto	2	933
Montréal	2	462
Vancouver	2	535
Other census metropolitan area	2	All other
<b>Occupation</b>		
<b>Sales and Service Occupations I</b>	91	13
Senior Managers	91	1
Middle and Other Managers	91	2
Professionals	91	3
Semi-professionals and Technicians	91	4
Supervisors	91	5
Foremen/Forewomen	91	6
Administrative and Senior Clerical Occupations	91	7
Sales and Service Occupations III	91	8
Skilled Crafts and Trades	91	9
Clerical Occupations	91	10
Sales and Service Occupations II	91	11
Semi-skilled Manual Workers	91	12
Other Manual Workers	91	14

### APPENDIX 5.3 (CONCLUDED)

#### VARIABLE DEFINITIONS, 1990 SPECIFICATION

Variable	Field	Code
<b>Industry</b>		
<b>Retail Trade</b>	94	8
Other Primary	94	2
Manufacturing	94	3
Construction	94	4
Transportation and Storage	94	5
Communication and Other Utilities	94	6
Wholesale Trade	94	7
Finance, Insurance and Real Estate	94	9
Business Services	94	10
Federal Government Services	94	11
Other Government Services	94	12
Educational Services	94	13
Health and Social Services	94	14
Accommodation, Food and Beverage Services	94	15
Other Services	94	16

**Notes:** The reference variables appear in bold, unshaded type.

For Sales and Services Occupations, the three levels shown in roman numerals denote skill levels; Level III is highest.

**Source:** Census of Canada, Individual Public Use Micro-data Files, 1991.

### APPENDIX 5.4

#### VARIABLE DEFINITIONS, COMMON SPECIFICATION, 1970, 1980, 1990 CENSUSES

Variable	1970		1980		1990	
	Field	Code	Field	Code	Field	Code
<b>Age</b>	10	years	17	years	15	years
<b>Age<sup>2</sup></b>	10	years <sup>2</sup>	17	years <sup>2</sup>	15	years <sup>2</sup>
<b>Vocational training</b>						
<b>No vocational training</b>	22	0	48	0, 1	74	1
<b>Vocational training</b>	22	1, 2	48	2-7	74	2-7
<b>Degree, certificate or diploma</b>						
<b>No high school diploma</b>	20	1-5	49	1	75	1
<b>High school graduate</b>	20	6, 7	49	2	75	2
<b>Some postsecondary</b>	20	8, 9	49	3, 4, 5	75	3, 4, 5
<b>Bachelor's degree</b>	20	10	49	6	75	6
<b>Postbachelor's</b>	20	11	49	7	75	7
<b>Postgraduate degree</b>	20	12	49	8, 9, 10	75	8, 9, 10
<b>Marital status</b>						
<b>Single</b>	8	1	21	4	18	4
<b>Married</b>	8	2	21	2	18	2
<b>Separated, widowed, divorced</b>	8	3, 4, 5	21	3, 5, 1	18	3, 5, 1



# APPENDIX 5.4 (CONCLUDED)

## VARIABLE DEFINITIONS, COMMON SPECIFICATION, 1970, 1980, 1990 CENSUSES

Variable	1970		1980		1990	
	Field	Code	Field	Code	Field	Code
<b>Languages known</b>						
English only	18	1	53	1	51	1
French only	18	2	53	2	51	2
English and French	18	3	53	3	51	3
Neither English nor French	18	4	53	4	51	4
<b>Immigrant status</b>						
Non-immigrant	12	0	57	0	23	1
Immigrant	12	1-9	57	1-13	23	2
<b>Province</b>						
Atlantic provinces	1	10-13	1	10-13	1	10-13
Quebec	1	24	1	24	1	24
Ontario	1	35	1	35	1	35
Prairie provinces	1	46-48	1	46-48	1	46-48
British Columbia	1	59	1	59	1	59
<b>Hours worked per week</b>						
35-39	32	4	32	35-39	88	35-39
40-44	32	5	32	40-44	88	40-44
<b>Occupation</b>						
Clerical Occupations	34	8	38	7	93	7
Managerial, Administrative and Related Occupations	34	1	38	1	93	1
Occupations in Natural Sciences, Engineering and Mathematics	34	2	38	2	93	2
Occupations in Social Sciences and Related Fields	34	3	38	3	93	3
Teaching and Related Occupations	34	5	38	4	93	4
Occupations in Medicine and Health	34	6	38	5	93	5
Artistic, Literary, Recreational and Related Occupations	34	7	38	6	93	6
Sales Occupations	34	9	38	8	93	8
Service Occupations	34	10	38	9	93	9
Processing Occupations	34	13	38	12	93	12
Product Fabricating, Assembling and Repairing Occupations	34	14	38	13	93	13
Transport Equipment Operating Occupations	34	16	38	15	93	15
<b>Industry/sector</b>						
Government	33	11	40	18	95	11,12
Manufacturing	33	5	40	3	95	3
Transportation, Communications and Utilities	33	7	40	5, 6, 7	95	5, 6
Trade	33	8	40	8, 9	95	7, 8
Finance, Insurance and Real Estate	33	9	40	10	95	9
Community, Business and Personal Services	33	10	40	11-17	95	10, 13-16

Source: Census of Canada, Individual Public Use Micro-data Files, 1991.

## APPENDIX 5.5

### t STATISTICS, 1990 SPECIFICATION

Variable	Female	Male
<b>Age</b>		
15-24	...	...
25-34	30.81	31.88
35-44	35.86	41.93
45-54	33.37	43.69
55-64	25.90	32.11
65+	6.56	8.66
<b>Vocational training</b>		
No vocational training	...	...
Vocational training	0.60	-3.99
<b>Degree, certificate or diploma</b>		
No degree, certificate or diploma	...	...
High school graduate	16.45	17.75
Trade certificate or diploma	7.14	12.06
Other non-university certificate	11.60	14.26
University diploma below bachelor level	15.67	10.43
Bachelor's degree(s)	27.04	27.66
University degree above bachelor's	17.32	16.11
Degree in medicine, dentistry, veterinary medicine or optometry	17.28	33.22
Master's degree(s)	20.92	25.05
Doctoral degree	10.68	19.33
<b>Marital status</b>		
Never married, single	...	...
Common law	8.66	15.34
Married	9.11	34.42
Separated	4.85	11.40
Widowed	4.76	4.90
Divorced	7.37	10.69
<b>Languages known</b>		
English only	...	...
French only	-2.69	-4.83
Both English and French	0.86	0.04
Neither English nor French	-4.58	-2.69
No non-official languages	...	...
Some non-official languages	-2.03	-4.69
<b>Immigrant status</b>		
Non-immigrant	...	...
Immigrant	-2.74	-4.07
<b>Visible minority status</b>		
Not visible minority	...	...
Visible minority	-6.82	-15.92
<b>Aboriginal origins</b>		
Non-Aboriginal	...	...
Aboriginal	-3.66	-7.38

# APPENDIX 5.5 (CONTINUED)

## t STATISTICS, 1990 SPECIFICATION

Variable	Female	Male
<b>Full-year or part-year status</b>		
Part-year, <49 weeks per year	...	...
Full-year, 49-52 weeks per year	-11.90	-14.86
<b>Full-time or part-time status</b>		
Part-time, <30 hours per week	...	...
Full-time, 30 hours or more per week	90.23	71.48
<b>Class of worker</b>		
Paid worker	...	...
Self-employed, incorporated	-1.57	-13.22
Self-employed, no paid help, unincorporated	-25.64	-27.90
Self-employed with paid help, incorporated	-5.45	-9.01
<b>Province</b>		
Ontario	...	...
Newfoundland	-0.43	-4.00
Prince Edward Island	0.10	-3.59
Nova Scotia	-5.95	-8.64
New Brunswick	-4.49	-6.87
Quebec	-2.05	-2.53
Manitoba	-4.00	-7.80
Saskatchewan	-4.15	-7.86
Alberta	-0.14	-2.03
British Columbia	2.34	3.43
Yukon and Northwest Territories	5.13	3.87
<b>Census area</b>		
Non-census metropolitan area	...	...
Toronto	19.52	16.11
Montréal	7.93	5.18
Vancouver	6.79	5.19
Other census metropolitan area	9.61	9.67
<b>Occupation</b>		
Sales and Service Level I	...	...
Senior Managers	12.01	29.01
Middle and Other Managers	23.75	31.66
Professionals	30.69	25.71
Semi-professionals and Technicians	12.34	15.61
Supervisors	12.91	10.58
Foremen/Forewomen	3.24	16.49
Administrative and Senior Clerical Occupations	14.74	9.81
Sales and Service Level III	9.34	17.53
Skilled Crafts and Trades	-2.12	18.21
Clerical Occupations	9.96	2.53
Sales and Service Level II	-2.60	12.86
Semi-skilled Manual Workers	-0.95	10.15
Other Manual Workers	-4.41	3.21

## APPENDIX 5.5 (CONCLUDED)

### f STATISTICS, 1990 SPECIFICATION

Variable	Female	Male
<b>Industry</b>		
<b>Retail Trade</b>	...	...
Other Primary	11.49	27.90
Manufacturing	13.62	24.64
Construction	7.89	18.53
Transportation and Storage	11.04	20.20
Communication and Other Utilities	17.72	23.34
Wholesale Trade	8.55	14.03
Finance, Insurance and Real Estate	14.56	14.51
Business Services	9.33	18.09
Federal Government Services	18.13	19.44
Other Government Services	12.70	17.37
Educational Services	8.76	10.24
Health and Social Services	16.16	6.20
Accommodation, Food and Beverage Services	-7.53	-15.19
Other Services	-9.92	-3.90

**Notes:** The reference variables appear in bold, unshaded type.

For Sales and Services Occupations, the three levels shown in roman numerals denote skill levels; Level III is highest.

.. figures not available

... figures not applicable

Source: Census of Canada, Individual Public Use Micro-data Files, 1991.

## APPENDIX 5.6

### f STATISTICS, EARNINGS REGRESSIONS, 1970, 1980, 1990 (DEPENDENT VARIABLE, LOG ANNUAL EARNINGS)

Variable	1970		1980		1990	
	Female	Male	Female	Male	Female	Male
<b>Age</b>						
15-24	...	...	...	...	...	...
25-34	17.71	20.03	32.19	33.92	27.37	29.11
35-44	21.84	31.27	35.91	50.65	37.57	42.42
45-54	20.69	30.15	36.01	51.64	36.71	47.43
55-64	17.74	22.82	30.87	40.26	28.93	37.87
65+	6.97	2.41	5.63	5.10	8.72	10.36
<b>Vocational training</b>						
No vocational training	...	...	...	...	...	...
Vocational training	7.81	9.23	-5.26	-5.60	-2.20	-4.77
<b>Degree, certificate or diploma</b>						
No high school diploma	...	...	...	...	...	...
High school graduate	12.74	15.34	12.69	21.29	11.28	14.68
Some postsecondary	13.31	14.72	14.67	18.43	13.00	17.69
Bachelor's degree	21.17	28.23	28.48	38.11	31.02	33.79
Post-bachelor's	2.38	3.76	17.21	24.82	21.01	20.81
Postgraduate degree	20.69	32.59	26.98	41.88	31.55	37.17

# APPENDIX 5.6 (CONTINUED)

## t STATISTICS, EARNINGS REGRESSIONS, 1970, 1980, 1990 (DEPENDENT VARIABLE, LOG ANNUAL EARNINGS)

Variable	1970		1980		1990	
	Female	Male	Female	Male	Female	Male
<b>Marital status</b>						
Single	...	...	...	...	...	...
Married	-5.02	18.73	-1.98	32.64	-0.07	29.96
Separated, widowed, divorced	-2.93	8.87	0.40	12.30	1.96	12.37
<b>Languages known</b>						
English only	...	...	...	...	...	...
French only	-5.46	-10.15	-7.79	-9.93	-6.22	-8.96
English and French	-0.85	-2.21	-0.65	-0.73	1.26	0.25
Neither English nor French	-4.45	-6.45	-6.80	-9.76	-6.28	-8.12
<b>Immigrant status</b>						
Non-immigrant	...	...	...	...	...	...
Immigrant	-4.40	-8.01	-7.10	-10.68	-6.45	-11.18
<b>Province</b>						
Atlantic provinces	...	...	...	...	...	...
Quebec	11.74	9.67	18.59	12.43	7.31	6.73
Ontario	14.69	14.14	17.54	18.20	16.81	16.97
Prairies	5.29	3.35	17.06	16.33	6.35	5.71
British Columbia	10.56	12.40	23.19	27.83	11.05	13.89
<b>Hours worked per week</b>						
35-39	...	...	...	...	...	...
40-44	-4.48	-3.23	-4.49	-1.84	-1.91	3.52
<b>Occupation</b>						
Clerical Occupations	...	...	...	...	...	...
Managerial, Administrative and Related Occupations	12.03	28.50	34.21	45.86	36.74	36.83
Occupations in Natural Sciences, Engineering and Mathematics	4.74	17.21	16.31	28.92	20.49	27.07
Occupations in Social Sciences and Related Fields	6.88	6.41	10.60	11.25	10.22	8.03
Teaching and Related Occupations	19.40	10.84	32.28	25.07	27.01	22.32
Occupations in Medicine and Health	13.61	3.61	30.87	7.59	26.74	10.19
Artistic, Literary, Recreational and Related Occupations	5.24	6.89	5.65	5.18	5.09	6.54
Sales Occupations	-5.76	16.51	-1.31	20.07	5.91	13.77
Service Occupations	-11.01	1.01	-20.38	1.06	-19.10	3.08
Processing Occupations	-0.10	6.17	0.15	14.23	-0.63	9.35
Product Fabricating, Assembling and Repairing Occupations	-9.22	6.83	-11.83	10.41	-7.20	9.62
Transport Equipment Operating Occupations	2.14	0.40	1.14	4.24	0.74	3.02

# APPENDIX 5.6 (CONCLUDED)

## **t** STATISTICS, EARNINGS REGRESSIONS, 1970, 1980, 1990 (DEPENDENT VARIABLE, LOG OF ANNUAL EARNINGS)

Variable	1970		1980		1990	
	Female	Male	Female	Male	Female	Male
<b>Industry sector</b>						
<b>Government</b>						
Manufacturing	-6.92	-3.69	-10.61	-4.62	-11.96	-6.61
Transportation, Communications and Utilities	-0.33	2.70	3.32	6.63	1.73	0.44
Trade	-12.64	-11.73	-25.53	-19.47	-29.89	-21.53
Finance, Insurance, Real Estate	-9.76	-5.78	-9.72	-5.33	-13.41	-8.12
Community, Business and Personal Services	-11.43	-18.95	-18.33	-27.54	-21.02	-28.03
Intercept	551.48	608.21	897.90	901.56	709.51	654.69

**Notes:** The reference categories for categorical variables are indicated in bold, unshaded type. Variables are statistically significant at the 0.01 and 0.05 level when their *t* statistics, respectively, are greater than 2.58 and 1.96 based on two-tailed tests.

... figures not applicable

**Source:** Census of Canada, Individual Public Use Micro-data Files, 1971, 1981 and 1991.

## OCCUPATIONAL DISTRIBUTION

Membership in an occupation has its privileges, in the form of monetary rewards as well as non-monetary rewards, such as prestige. So the occupational distribution of women in the labour force is important because of the prestige found in some occupations, as well as monetary considerations.

Women's and men's different occupational distributions are an important factor in the earnings gap. In fact, such differences are regarded as greater determinants of the gap than are wage differences within the same narrowly defined occupation, especially within the same establishment (Gunderson 1989, p. 51).

For that and other reasons, legislative initiatives such as equal employment opportunity legislation and employment equity are thought to have more potential to narrow the pay gap than would equal pay legislation requiring equal pay for substantially similar work within the same establishment. Similarly, pay equity legislation (that is, comparable worth or equal pay for work of equal value) is thought to have more potential than conventional equal pay legislation precisely because pay equity can deal with the pay differences that arise between female-dominated and male-dominated occupations.

Women's and men's occupational distribution is also of policy interest because it can be influenced by other factors and decisions. Some of these may be controlled, or at least influenced, by public policies. Streaming in educational institutions, for example, may influence whether women become doctors or nurses, executives or secretaries, scientists or lab technicians. Family responsibilities, especially those associated with child care, may influence occupational "choices." Nursing and teaching, for example, have often been regarded as extension of the nurturing and caring role women often play in the household.

Phrases such as “occupational segregation” and “pink-collar ghetto” are often applied to female-dominated lower-paid jobs. “Non-traditional employment” is used to describe (usually blue-collar) jobs that are predominantly occupied by men, but that women are moving into. “Glass ceilings” are barriers to upward mobility that are invisible, but nevertheless stop upward progress. Phrases such as “mommy track” are used to describe a parallel track of work that tends to require less time and commitment to a job as would, presumably, the “daddy track.”

In many cases, being segregated or even directed into particular jobs early in one’s career can set a lifetime pattern. Some jobs are “dead end,” offering little training or opportunities for upward mobility. They are often boring and routine, and induce workers into boring and routine work habits that push them in a downward productivity spiral. Initial conditions and starting points matter in the labour market, just as in other aspects of behaviour.

Clearly, the variety of phrases used to describe women’s occupational distribution highlight the considerable attention the issue receives in policy circles and the popular media.

## 6.1 SOME BASIC CONCEPTS

In this chapter, women’s and men’s occupational distribution are compared using data from the 1991 Census. Historical comparisons are also provided based on the 1971, 1981 and 1991 Censuses,<sup>1</sup> with particular emphasis on whether the women’s occupational distribution has converged towards men’s.

Two basic concepts are used. The first is the *occupational distributions* of the female and male work forces; that is, how the total female and male work forces respectively are divided up across different occupations. The distributions sum to 100% of the work force.

The second concept is the proportion of the work force of each occupation that is female or male. This is the *gender composition*, or incidence of females or males in each occupation. This concept is used in pay equity legislation, for example, when the pay in “female-dominated” occupations is compared with the pay of “male-dominated” occupations of the same value, where value is determined by job evaluation systems. Gender dominance is often defined as 70% or more of one gender in a particular occupation (Gunderson and Weiner 1990, p.125).

Both concepts are useful; they highlight different but related phenomena. The distribution concept, for example, highlights where large portions of, say, the female labour force may work. This could occur because those occupations are predominantly female, or because they are such large occupation groups, whether female- or male-dominated, that they involve a large portion of the female work force. Conversely, an occupation could be predominantly or even exclusively female, yet employ only a small fraction of the female work force, simply because it is a small occupation group that employs few people.

Both the incidence and distribution concepts will be used and illustrated throughout the chapter. The occupation categorizations are based on the experienced labour force—a concept that excludes those who have never worked or who have not worked over the previous six months. The purpose of these exclusions is to assign an occupation only to those who have a current usual occupation.

Two different sets of occupational codes are used.<sup>2</sup> The first is the 1971 Occupational Classification. This series has the virtue of being available for the 1971, 1981 and 1991 Censuses, and hence can be used for the historical comparisons across those years. Because it was



structured from occupations that were common in 1971, however, it may not capture all of the newer occupations that have emerged since then.

The second series is the 1991 Standard Occupational Classification. This is a more recent series, and hence reflects many of the newer occupations. However, it was not coded for the 1971 Census, so it cannot be used in the historical comparisons. Therefore, the 1971 Occupational Classification codes are used for the historical comparisons, and the 1991 Standard Occupational Classification codes are used for the 1991 Census. Trade-offs must be made between historical continuity and current relevance.

A summary measure of the differences in the distribution of the female and male work forces is provided by the Index of Occupational Dissimilarity (Duncan and Duncan 1955). This number is the proportion of the total work force, female and male, that would have to change occupations for the female and male work forces to be distributed in the same fashion across all occupation groups. It is calculated as half of the average of the absolute differences between the male and female occupation distributions. The absolute differences are given in the subsequent tables that give the female and male distributions.

## 6.2 1991 CENSUS

### 6.2.1 Occupational distribution

About half the proportion of the female work force compared with the male work force was in Management Occupations in 1991 (see Table 6.1)—about 6% compared with about 12% of the male work force. The relative disparity is greatest at the higher end, among senior management and specialist managers. The distributions are similar for Managers in Retail Trade, Food and Accommodation Services.

TABLE 6.1

**OCCUPATIONAL DISTRIBUTION OF EXPERIENCED LABOUR FORCE, 10 BROAD OCCUPATIONAL CATEGORIES AND 47 MAJOR GROUPS, 1991 STANDARD OCCUPATIONAL CLASSIFICATION, PERCENTAGE OF EXPERIENCED LABOUR FORCE IN EACH OCCUPATION, 1991**

Broad Categories and Major Groups	Female %	Male %	Absolute difference %
<b>Management Occupations</b>	<b>6.41</b>	<b>12.48</b>	<b>6.02</b>
Senior Management Occupations	0.37	1.47	1.10
Specialist Managers	1.28	2.89	1.61
Managers in Retail Trade, Food and Accommodation Services	2.84	3.74	0.90
Other Managers Not Elsewhere Classified	1.91	4.33	2.42
<b>Business, Finance and Administrative Occupations</b>	<b>31.62</b>	<b>9.05</b>	<b>22.57</b>
Professional Occupations in Business and Finance	1.31	1.58	0.27
Finance and Insurance Administrative Occupations	2.09	0.51	1.58
Secretaries	7.91	0.09	7.82
Administrative and Regulatory Occupations	1.96	0.80	1.16
Clerical Supervisors	1.00	0.57	0.43
Clerical Occupations	17.34	5.50	11.84

TABLE 6.1 (CONTINUED)

**OCCUPATIONAL DISTRIBUTION OF EXPERIENCED LABOUR FORCE, 10 BROAD OCCUPATIONAL CATEGORIES AND 47 MAJOR GROUPS, 1991 STANDARD OCCUPATIONAL CLASSIFICATION, PERCENTAGE OF EXPERIENCED LABOUR FORCE IN EACH OCCUPATION, 1991**

Broad Categories and Major Groups	Female %	Male %	Absolute difference %
<b>Natural and Applied Sciences and Related Occupations</b>	<b>1.79</b>	<b>7.09</b>	<b>5.30</b>
Professional Occupations in Natural and Applied Science	1.01	3.62	2.61
Technical Occupations Related to Natural and Applied Science	0.78	3.48	2.70
<b>Health Occupations</b>	<b>8.70</b>	<b>1.90</b>	<b>6.80</b>
Professional Occupations in Health	0.83	0.92	0.09
Nurse Supervisors and Registered Nurses	3.71	0.16	3.55
Technicians and Related Occupations in Health	2.07	0.50	1.57
Assisting Occupations in Support of Health Services	2.09	0.31	1.78
<b>Occupations in Social Science, Education, Government Service and Religion</b>	<b>8.30</b>	<b>4.95</b>	<b>3.35</b>
Judges, Lawyers, Psychologists, Social Workers, Ministers of Religion, and Policy and Program Officers	1.75	1.69	0.06
Teachers and Professors	5.19	2.78	2.41
Paralegals, Social Services Workers and Occupations in Education and Religion Not Elsewhere Classified	1.36	0.48	0.88
<b>Occupations in Art, Culture, Recreation and Sports</b>	<b>2.83</b>	<b>2.00</b>	<b>0.83</b>
Professional Occupations in Art and Culture	1.24	0.83	0.41
Technical Occupations in Art, Culture, Recreation and Sport	1.59	1.17	0.42
<b>Sales and Service Occupations</b>	<b>30.45</b>	<b>19.56</b>	<b>10.89</b>
Sales and Service Supervisors	0.70	0.56	0.14
Wholesale, Technical, Insurance, Real Estate Sales Specialists and Retail, Wholesale and Grain Buyers	1.73	3.12	1.39
Retail Salespersons and Sales Clerks	5.76	2.92	2.84
Cashiers	3.38	0.36	3.02
Chefs and Cooks	1.47	1.33	0.14
Occupations in Food and Beverage Service	3.42	0.79	2.63
Occupations in Protective Services	0.59	2.89	2.30
Occupations in Travel and Accommodation, Including Attendants in Recreation and Sport	0.87	0.50	0.37
Childcare and Home Support Workers	4.02	0.17	3.85
Other Sales and Service Occupations Not Elsewhere Classified	8.49	6.93	1.58
<b>Trades, Transport and Equipment Operators and Related Occupations</b>	<b>2.20</b>	<b>26.27</b>	<b>24.07</b>
Contractors and Supervisors in Trades and Transportation	0.12	2.65	2.53
Construction Trades	0.13	4.08	3.95
Stationary Engineers, Power Station Operators and Electrical Trades and Telecommunications Occupations	0.09	2.08	1.99
Machinists, Metal Forming, Shaping and Erecting Occupations	0.06	1.31	1.25
Mechanics	0.08	4.30	4.22
Other Trades Not Elsewhere Classified	0.61	1.02	0.41
Heavy Equipment and Crane Operators, Including Drillers	0.03	1.35	1.32
Transportation Equipment Operators and Related Workers, Excluding Labourers	0.59	5.07	4.48
Trades Helpers, Construction and Transportation Labourers and Related Occupations	0.49	4.41	3.92

TABLE 6.1 (CONCLUDED)

**OCCUPATIONAL DISTRIBUTION OF EXPERIENCED LABOUR FORCE, 10 BROAD OCCUPATIONAL CATEGORIES AND 47 MAJOR GROUPS, 1991 STANDARD OCCUPATIONAL CLASSIFICATION, PERCENTAGE OF EXPERIENCED LABOUR FORCE IN EACH OCCUPATION, 1991**

Broad Categories and Major Groups	Female %	Male %	Absolute difference %
<b>Occupations Unique to Primary Industry</b>	<b>2.59</b>	<b>7.26</b>	<b>4.67</b>
Occupations Unique to Agriculture, Excluding Labourers	2.11	4.21	2.10
Occupations Unique to Forestry Operations, Mining, Oil and Gas Extraction and Fishing, Excluding Labourers	0.13	1.67	1.54
Primary Production Labourers	0.35	1.37	1.02
<b>Occupations Unique to Processing, Manufacturing and Utilities</b>	<b>5.12</b>	<b>9.48</b>	<b>4.36</b>
Supervisors in Manufacturing	0.16	0.85	0.69
Machine Operators in Manufacturing	2.68	4.89	2.21
Assemblers in Manufacturing	0.88	1.77	0.89
Labourers in Processing, Manufacturing and Utilities	1.40	1.98	0.58
<b>Total % distribution, experienced labour force (rounded)</b>	<b>100.0</b>	<b>100.0</b>	...
Total numbers of experienced labour force	6,830,990	7,839,245	...
<b>Index of Occupational Dissimilarity, 10 Broad Occupation Groups</b>	...	...	<b>44.44</b>
<b>Index of Occupational Dissimilarity, 47 Major Groups</b>	...	...	<b>48.49</b>
<b>Index of Occupational Dissimilarity, 139 Minor Groups</b>	...	...	<b>53.40</b>
<b>Index of Occupational Dissimilarity, 519 Unit Groups</b>	...	...	<b>57.10</b>

Notes: Broad categories appear in bold, shaded type.

... figures not applicable

Source: Census of Canada, 1991, special tabulations.

A much larger portion of the female work force (32% compared with 9% of the male work force) worked in white-collar jobs in Business, Finance and Administrative Occupations. This reflects the large portion of the female work force in secretarial and clerical jobs. It also highlights the importance of looking at the more specific occupation groups.

Only a small portion of the female work force worked in natural and applied sciences, while a larger portion (especially larger relative to males) were in health occupations. The few males in those occupations also tended to be in the upper echelons of the professions. A substantial portion of the female work force, 5%, worked as Teachers and Professors.

Reflecting the new service economy, large portions of both the female and male work forces worked in Sales and Service Occupations. Almost one-third of the female work force and almost one-fifth of the male work force were in those jobs. As with other broad occupation groups, within those broad occupations females tended to work disproportionately in the lower-wage occupations. This is true in these Sales and Service Occupations groups: Retail Salespersons and Sales Clerks; Cashiers; Occupations in Food and Beverage Service; and Childcare and Home Support Workers.

A large portion of the male work force, about 26%, worked in the Trades, Transport and Equipment Operators and Related Occupations group, compared with only 2% of the female

work force. Larger portions of the male work force also worked in Occupations Unique to Primary Industry and in Occupations Unique to Processing, Manufacturing and Utilities.

As shown at the bottom of the table, the Index of Occupational Dissimilarity of 44 for the 10 Broad Occupational Categories indicates that 44% of the male or female work forces would have had to change their broad occupation groups to ensure that the distribution of their respective work forces would have been the same across the broad occupation groups. That portion rises steadily as the occupation groups are more narrowly defined, illustrating that, when the broad groups are used, there are wide disparities between the distributions of female and male work forces *within* broader occupation groups.

## 6.2.2 Distribution across employment equity occupations

Again, the substantial differences in females' and males' occupational distributions stand out in Table 6.2.<sup>3</sup>

Relative to males, females disproportionately worked in the white-collar Administrative and Senior Clerical group, and in the groups Sales and Service Levels I and II. Relative to females, males disproportionately worked in higher-level groups as Senior Manager, Middle and Other Managers, as Foremen, and in Skilled Crafts and Trades, Semi-skilled Manual Workers, and Other Manual Workers.

**TABLE 6.2**

**OCCUPATIONAL DISTRIBUTION OF EXPERIENCED LABOUR FORCE, 14 EMPLOYMENT EQUITY GROUPS (PERCENTAGE OF LABOUR FORCE IN EACH OCCUPATION), 1991**

Employment Equity Occupation Groups	Female %	Male %	Absolute difference %
Senior Managers	0.37	1.47	1.10
Middle and Other Managers	6.03	10.96	4.93
Professionals	15.04	11.57	3.47
Semi-professionals and Technicians	5.80	5.64	0.16
Supervisors	1.70	1.12	0.58
Foremen/Forewomen	2.40	7.95	5.55
Administrative and Senior Clerical Personnel	11.96	1.41	10.55
Sales and Service Level III	4.16	4.85	0.69
Skilled Crafts and Trades	1.02	13.60	12.58
Clerical Personnel	17.34	5.50	11.84
Sales and Service Level II	17.26	6.94	10.32
Semi-Skilled Manual Workers	4.45	15.31	10.86
Sales and Service Level I	10.42	7.53	2.89
Other Manual Workers	2.03	6.16	4.13
Total, all Broad Occupation Groups (rounded)	100.00	100.00	...
Total experienced labour force	6,830,990	7,839,245	...
Index of Occupational Dissimilarity	...	...	39.27

**Notes:** For Sales and Services Occupations, the three levels shown in roman numerals denote skill levels; Level III is highest.

... figures not applicable

**Source:** Census of Canada, 1991, special tabulations.

The Index of Occupational Dissimilarity of 39 shows that almost 40% of the male or female work force would have had to change occupations for there to be an identical occupational distribution between females and males in the 14 employment equity occupation groups. This is slightly less than the 44% that would have had to change in the 10 broad occupation groups discussed previously.<sup>4</sup>

### 6.2.3 Gender dominance

The other way to portray the occupational patterns of the female and male work forces is to examine the proportion of females and males in each occupation. This corresponds to the gender dominance concept often used in pay equity legislation to designate an occupation as female-dominated, male-dominated or mixed. An occupation is considered to be gender-dominated when a given proportion, perhaps 70% or more, of workers in that occupation are from one gender. That cut-off will be used here to denote an occupation as either female-dominated or male-dominated.

Approximately 55% of the experienced labour force was male and 45% was female, as indicated in the last row of Table 6.3. That standard should be kept in mind when examining the gender dominance of particular occupations. That is, an occupation would be exactly gender-neutral if it were 55% male and 45% female, not 50%–50%.

**TABLE 6.3**  
**PROPORTION OF FEMALES AND MALES IN EACH OCCUPATION, 10 BROAD OCCUPATIONAL CATEGORIES**  
**AND 47 MAJOR 1991 STANDARD OCCUPATIONAL CLASSIFICATION GROUPS, 1991**

Broad Categories and Major Groups	Female	Male
<b>Management Occupations</b>	<b>29.54</b>	<b>70.46</b>
Senior Management Occupations	17.10	82.90
Specialist Managers	26.44	73.56
Managers in Retail Trade, Food and Accommodation Services	38.24	61.76
Other Managers Not Elsewhere Classified	26.43	73.57
<b>Business, Finance and Administrative Occupations</b>	<b>73.98</b>	<b>26.02</b>
Professional Occupations in Business and Finance	40.24	59.76
Finance and Insurance Administrative Occupations	76.78	23.22
Secretaries	98.56	1.44
Administrative and Regulatory Occupations	66.66	33.34
Clerical Supervisors	59.13	40.87
Clerical Occupations	71.97	28.03
<b>Natural and Applied Sciences and Related Occupations</b>	<b>17.02</b>	<b>82.98</b>
Professional Occupations in Natural and Applied Science	18.48	81.52
Technical Occupations Related to Natural and Applied Science	15.45	84.55
<b>Health Occupations</b>	<b>78.89</b>	<b>21.11</b>
Professional Occupations in Health	42.23	57.77
Nurse Supervisors and Registered Nurses	94.99	5.01
Technicians and Related Occupations in Health	77.03	22.97
Assistant Occupations in Support of Health Services	84.52	15.48

**TABLE 6.3 (CONTINUED)****PROPORTION OF FEMALES AND MALES IN EACH OCCUPATION, 10 BROAD OCCUPATIONAL CATEGORIES AND 47 MAJOR 1991 STANDARD OCCUPATIONAL CLASSIFICATION GROUPS, 1991**

<b>Broad Categories and Major Groups</b>	<b>Female</b>	<b>Male</b>
<b>Occupations in Social Science, Education, Government Service and Religion</b>	<b>57.70</b>	<b>42.30</b>
Judges, Lawyers, Psychologists, Social Workers, Ministers of Religion, and Policy and Program Officers	45.80	54.20
Teachers and Professors	60.29	39.71
Paralegals, Social Services Workers and Occupations in Education and Religion Not Elsewhere Classified	69.62	30.38
<b>Occupations in Art, Culture, Recreation and Sports</b>	<b>53.53</b>	<b>46.47</b>
Professional Occupations in Art and Culture	55.06	44.94
Technical Occupations in Art, Culture, Recreation and Sport	52.38	47.62
<b>Sales and Service Occupations</b>	<b>55.89</b>	<b>44.11</b>
Sales and Service Supervisors	50.46	49.54
Wholesale, Technical, Insurance, Real Estate Sales Specialists and Retail, Wholesale and Grain Buyers	31.12	68.88
Retail Salespersons and Sales Clerks	61.63	38.37
Cashiers	88.56	11.44
Chefs and Cooks	47.34	52.66
Occupations in Food and Beverage Service	77.87	22.13
Occupations in Protective Services	14.33	85.67
Occupations in Travel and Accommodation, Including Attendants in Recreation and Sport	58.54	41.46
Childcare and Home Support Workers	95.15	4.85
Other Sales and Service Occupations Not Elsewhere Classified	49.95	50.05
<b>Trades, Transport and Equipment Operators and Related Occupations</b>	<b>6.37</b>	<b>93.63</b>
Contractors and Supervisors in Trades and Transportation	3.56	96.44
Construction Trades	2.59	97.41
Stationary Engineers, Power Station Operators and Electrical Trades and Telecommunications Occupations	3.26	96.74
Machinists, Metal Forming, Shaping and Erecting Occupations	3.60	96.40
Mechanics	1.45	98.55
Other Trades Not Elsewhere Classified	32.84	67.16
Heavy Equipment and Crane Operators, Including Drillers	1.66	98.34
Transportation Equipment Operators and Related Workers, Excluding Labourers	8.63	91.37
Trades Helpers, Construction and Transportation Labourers and Related Occupations	8.29	91.71
<b>Occupations unique to Primary Industry</b>	<b>22.50</b>	<b>77.50</b>
Occupations unique to Agriculture, Excluding Labourers	28.97	71.03
Occupations unique to Forestry Operations, Mining, Oil and Gas Extraction and Fishing, Excluding Labourers	5.75	94.25
Primary Production Labourers	17.29	82.71

**TABLE 6.3 (CONCLUDED)****PROPORTION OF FEMALES AND MALES IN EACH OCCUPATION, 10 BROAD OCCUPATIONAL CATEGORIES AND 47 MAJOR 1991 STANDARD OCCUPATIONAL CLASSIFICATION GROUPS, 1991**

Broad Categories and Major Groups	Female	Male
<b>Occupations unique to Processing, Manufacturing and Utilities</b>	<b>30.54</b>	<b>69.46</b>
Supervisors in Manufacturing	13.13	86.87
Machine Operators in Manufacturing	30.88	69.12
Assemblers in Manufacturing	28.73	71.27
Labourers in Processing, Manufacturing and Utilities	36.62	63.38
<b>Total, experienced labour force</b>	<b>44.87</b>	<b>55.13</b>

**Note:** Broad categories appear in bold, shaded type.

... figures not applicable

*Source:* Census of Canada, 1991, special tabulations.

Based on those criteria, Management is a male-dominated occupation; in 1991, its ranks were 70% male and 30% female. Furthermore, the male dominance was greater (83%) in Senior Management Occupations. Natural and Applied Sciences and Related Occupations were also male-dominated; this applies to both professional and technical groups.

Business, Finance and Administrative Occupations were female-dominated (74%). However, within that broad occupational category, the higher-end minor groups such as Professional Occupations in Business and Finance were disproportionately male, at 60% male and 40% female, while Secretaries occupations were heavily female-dominated (98%). Similarly, the Clerical Supervisor groups were more mixed (roughly 60% female and 40% male) while the conventional Clerical Occupations were female-dominated (72%).

The broad Health Occupations were also female-dominated at almost 80%; this dominance was strongest in groups such as Nurse Supervisors and Registered Nurses (95%) and Assistant Occupations in Support of Health Services (85%). The Professional Occupations in Health group was disproportionately male (58%).

Occupations in the Social Science, Education, Government Service and Religion group were more mixed at 58% female and 42% male at the broad level, and this applies to the major sub-groups. Although not shown in this table, an examination at the more disaggregate occupation levels (the 81 Minor Groups and 496 Unit Groups) shows considerable gender dominance within the more narrowly defined groups. For example, the Unit Group of Judges was 85% male-dominated, while Social Workers was 74% female-dominated. Similarly, the Occupation Group University Professors was 72% male, while Elementary School and Kindergarten Teachers was 82% female.

Sales and Service Occupations were mixed at the broad aggregate level, but again, within those Broad Groups, gender dominance was more common. For example, the occupation Cashiers was 89% female-dominated, Childcare and Home Support Workers was 95% female-dominated, and Occupations in Protective Services were 86% male-dominated.

The remaining broad occupation categories were male-dominated. This also tends to apply at the more disaggregate level of the 47 Major Standard Occupational Classification groups. Trades,

Transport and Equipment Operators and Related Occupations was 94% male-dominated, Occupations Unique to Primary Industry was 78% male-dominated, and Occupations Unique to Processing, Manufacturing and Utilities was marginally male-dominated at 69%.

Clearly, there is considerable gender dominance in particular occupations in the Canadian work force. Furthermore, that dominance is often masked at the broader occupation level, when sub-groups that are male-dominated average out with sub-groups that are female-dominated to yield what appears to be a mixed occupational group.

### 6.3 EMPLOYMENT EQUITY GROUPS

Of the 14 employment equity occupation groups<sup>5</sup> shown in Table 6.4, six were male-dominated (Senior Managers, Middle and Other Managers, Foremen/Forewomen, Skilled Crafts and Trades, Semi-skilled Manual Workers, and Other Manual Workers), two were female-dominated (Administrative and Senior Clerical Occupations, and Clerical Occupations), and the remaining six were mixed. Sales and Service Level II was close to female-dominated at 67%.

**TABLE 6.4**

**PROPORTION OF MALES AND FEMALES IN EACH OCCUPATION, 14 EMPLOYMENT EQUITY GROUPS, 1991**

Employment Equity Occupation Groups	Female	Male
Senior Managers	17.10	82.90
Middle and Other Managers	30.94	69.06
Professionals	51.40	48.60
Semi-professionals and Technicians	45.58	54.42
Supervisors	55.25	44.75
Foremen/Forewomen	19.72	80.28
Administrative and Senior Clerical Occupations	87.37	12.63
Sales and Service Level III	41.14	58.86
Skilled Crafts and Trades	5.78	94.22
Clerical Occupations	71.97	28.03
Sales and Service Level II	66.93	33.07
Semi-skilled Manual Workers	19.14	80.86
Sales and Service Level I	52.98	47.02
Other Manual Workers	21.19	78.82
Total experienced labour force	44.87	55.13

**Note:** For Sales and Services Occupations, the three levels shown in roman numerals denote skill levels; Level III is highest.

**Source:** Census of Canada, 1991, special tabulations.

### 6.4 LARGEST OCCUPATIONS OF THE FEMALE WORK FORCE, 1991

Table 6.5 shows the nine largest occupations of the female work force, ranked in descending order according to their percentage of the female work force (Column 1). As indicated by the cumulative entry of Column 2, these nine occupations, which constitute less than 20% of the 47 Major Occupation Groups, accounted for almost 60% of the female work force. Most of those occupations were at least 70% female-dominated (Column 3).



**TABLE 6.5****LARGEST OCCUPATIONS OF FEMALE WORK FORCE (BASED ON 47 MAJOR STANDARD OCCUPATIONAL CLASSIFICATION GROUPS, 1991 SOC), 1991**

Major Groups	% of female work force	Cumulative % of female work force	% female in occupation
	(1)	(2)	(3)
Clerical Occupations	17.34	17.29	71.97
Other Sales and Service Occupations Not Elsewhere Classified	8.49	25.87	49.95
Secretaries	7.91	33.74	98.56
Retail Salespersons and Sales Clerks	5.76	39.55	61.63
Teachers and Professors	5.19	44.71	60.29
Childcare and Home Support Workers	4.02	48.76	95.15
Nurse Supervisors and Registered Nurses	3.71	52.45	94.99
Occupations in Food and Beverage Services	3.42	55.92	77.87
Cashiers	3.38	59.35	88.56

Sources: Column 1 from Table 6.1; Column 2 calculated from Column 1; Column 3 from Table 6.3.

Almost two-thirds of the female work force was clustered into one-fifth of the Major Occupation Groups, most of which were female-dominated. As well, many of the occupations would typically be ranked at the lower end of the occupation distribution. Clearly, much of the female work force remains clustered in what are often traditionally labelled female jobs—clerks, secretaries, sales and service workers, teachers, child care workers, nurses and cashiers.

## 6.5 CHANGES OVER TIME, 1971, 1981, 1991

### 6.5.1 Indices of Occupational Dissimilarity

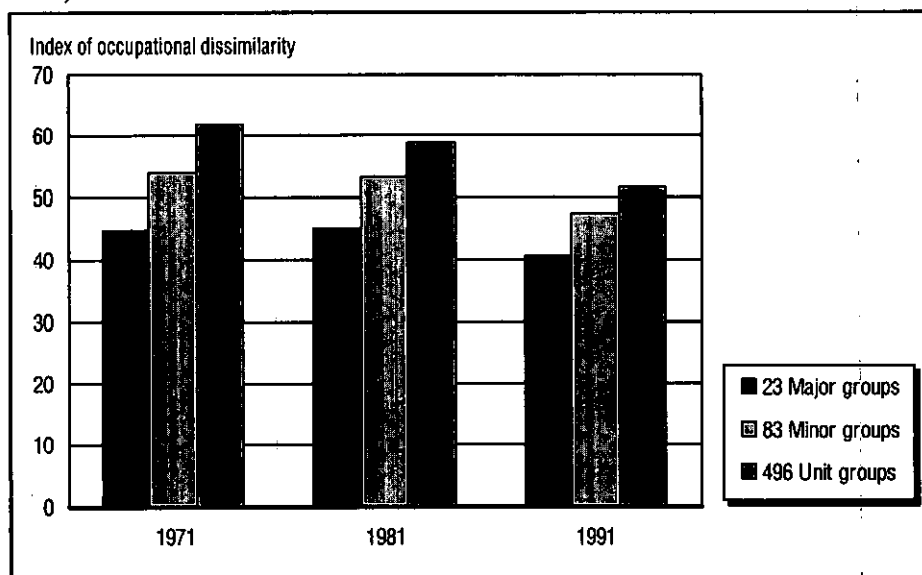
Is this occupational clustering declining or increasing over time? Figure 6.1 illustrates the Index of Occupational Dissimilarity<sup>6</sup> for the three census years and for three Standard Occupational Classification occupation levels.

Over time, occupational dissimilarity has slowly fallen. The decline was faster over the 1980s. The level of occupational dissimilarity is always greater at the most disaggregated level—the 496 unit groups—reflecting the dissimilarity that can prevail in the more aggregated groups. In the 23 Major Groups, there may be less occupational dissimilarity. This is because males who are clustered in one of the minor or unit groups within a major group may average out a cluster of females in a different minor or unit group within the same major group.

Among the disaggregate 496 unit groups, in 1971, 62% of females or males would have had to change occupations for there to be an identical occupation distribution between the sexes. By 1981, 59% would have had to change, and by 1991, less than 52% would have had to change. However, despite the clear decline in occupational segregation, especially over the 1980s, considerable differences remain in women's and men's occupational distribution.

**FIGURE 6.1**

**INDICES OF OCCUPATIONAL DISSIMILARITY, BASED ON 1971 OCCUPATIONAL CLASSIFICATION, 1971, 1981 AND 1991**



Source: Calculations described in text based on data from Census of Canada, 1971, 1981, and 1991.

## **6.6 OCCUPATIONAL DISTRIBUTIONS, 1971, 1981, 1991**

The proportion of the female work force in Managerial, Administrative and Related Occupations<sup>7</sup> grew steadily from only 2% of the female work force in 1971 to 4% in 1981 and nearly 8% in 1991 (see Table 6.6). This represents a near-quadrupling of the distribution of the female work force in those higher-level groups over that period. Some of this is the result of an increase in the portion of the total work force classified in that group; males doubled the proportion of their work force in that occupation over the same period. But because of the steeper growth, by 1991 the female distribution neared the male distribution of just under 10%.

Some of this, in turn, may reflect a change in organizational classifications, especially in female-dominated jobs. For example, with downsizing and growing numbers of casual workers in retail sales, the remaining full-time regular employees may have been reclassified as managerial.

**TABLE 6.6**

**OCCUPATIONAL DISTRIBUTION OF EXPERIENCED LABOUR FORCE, 23 MAJOR OCCUPATIONAL GROUPS, BASED ON 1971 OCCUPATIONAL CLASSIFICATION MANUAL, PERCENTAGE OF LABOUR FORCE IN EACH OCCUPATION, 1971, 1981 AND 1991**

Major Groups	1971			1981			1991		
	Female	Male	Difference	Female	Male	Difference	Female	Male	Difference
Managerial, Administrative and Related Occupations	1.97	5.54	3.57	4.17	8.55	4.38	7.72	9.97	2.25
Occupations in Natural Sciences, Engineering and Mathematics	0.58	3.83	3.25	1.17	4.84	3.67	1.81	5.81	4.00
Occupations in Social Sciences and Related Fields	1.00	0.87	0.13	2.04	1.25	0.79	2.92	1.51	1.41
Occupations in Religion	0.13	0.35	0.22	0.18	0.33	0.16	0.10	0.31	0.21
Teaching and Related Occupations	7.13	2.44	4.69	5.99	2.77	3.22	6.04	2.77	3.27
Occupations in Medicine and Health	8.20	1.48	6.72	8.31	1.62	6.69	8.67	1.86	6.80
Artistic, Literary, Recreational and Related Occupations	0.74	1.03	0.29	1.36	1.39	0.04	1.63	1.67	0.04
Clerical and Related Occupations	31.75	7.65	24.10	35.08	6.82	28.26	30.31	6.86	23.45
Sales Occupations	8.37	10.02	1.65	9.63	9.49	0.14	10.02	10.03	0.01
Service Occupations	15.13	9.21	5.92	15.42	9.55	5.87	15.82	10.24	5.59
Farming, Horticulture and Animal Husbandry Occupations	3.61	7.15	3.54	2.22	5.61	3.39	2.24	4.88	2.64
Fishing, Hunting, Trapping and Related Occupations	0.02	0.47	0.45	0.05	0.53	0.48	0.10	0.52	0.42
Forestry and Logging Occupations	0.05	1.16	1.11	0.11	1.07	0.96	0.10	0.92	0.82
Mining and Quarrying, Including Oil and Gas Field Occupations	0.01	1.04	1.03	0.03	1.03	1.00	0.03	0.78	0.75
Processing Occupations	2.01	4.86	2.85	2.16	5.14	2.98	1.61	3.77	2.16
Machining and Related Occupations	0.46	4.01	3.55	0.43	4.00	3.57	0.26	3.08	2.82
Product Fabricating, Assembling and Repair Occupations	5.07	8.55	3.48	4.67	9.84	5.17	2.98	8.53	5.55
Construction Trades Occupations	0.17	9.94	9.77	0.32	10.55	10.23	0.35	10.11	9.75
Transport Equipment Operating Occupations	0.28	5.83	5.55	0.61	5.98	5.37	0.70	5.63	4.94
Materials Handling and Related Occupations Not Elsewhere Classified	1.37	2.92	1.55	1.13	2.63	1.50	0.78	2.10	1.32

**TABLE 6.6 (CONCLUDED)**

**OCCUPATIONAL DISTRIBUTION OF EXPERIENCED LABOUR FORCE, 23 MAJOR OCCUPATIONAL GROUPS, BASED ON 1971 OCCUPATIONAL CLASSIFICATION MANUAL, PERCENTAGE OF LABOUR FORCE IN EACH OCCUPATION, 1971, 1981 AND 1991**

Major Groups	1971			1981			1991		
	Female	Male	Difference	Female	Male	Difference	Female	Male	Difference
Other Crafts and Equipment Operating Occupations	0.46	1.68	1.22	0.62	1.58	0.96	0.54	1.46	0.92
Occupations Not Elsewhere Classified	0.73	2.58	1.85	0.64	2.07	1.43	1.08	3.21	2.13
Occupations Not Stated	10.78	7.38	3.40	3.67	3.36	0.31	4.20	3.97	0.22
<b>Total</b>	<b>100</b>	<b>100</b>	<b>...</b>	<b>100</b>	<b>100</b>	<b>...</b>	<b>100</b>	<b>100</b>	<b>...</b>

... figures not applicable

Source: Census of Canada, 1991, special tabulations.

A similar upward trend occurred in the female distribution in Occupations in Natural Sciences, Engineering and Mathematics and in Occupations in Social Sciences and Related Fields. In these groups the female distribution tripled between 1971 and 1991, while the male distribution increased only slightly. In Occupations in Natural Sciences, Engineering and Mathematics, however, the gap remained wide. In 1991, less than 2% of the female work force worked in those occupations compared with nearly 6% of the male work force.

There was also a substantial rise in the distribution of the female work force in non-traditional female jobs. These include primary occupations like Fishing, Hunting, Trapping, and Related Occupations, Forestry and Logging Occupations, Mining and Quarrying, Including Oil and Gas Field Occupations, as well as Construction Trades Occupations and Transport Equipment Operating Occupations. In many of these occupations, the distribution of the female work force doubled or tripled, although they still only accounted for a very small portion of the female work force. In most of these occupations the distribution of the male work force stayed constant or declined.

In summary, over the 1970s and 1980s, the distribution of the female work force expanded most in two areas: higher-end managerial and administrative, natural science, engineering and mathematics occupations; and many non-traditional occupations.<sup>8</sup> Since these tend to be occupations that were disproportionately occupied by men, these inroads by women helped narrow the gap in the occupation distribution between females and males. However, since these occupation groups tend to be fairly small, no large changes resulted in the overall occupational distributions of women and men. Substantial differences remain.

## 6.7 GENDER DOMINANCE, 1971, 1981, 1991

Since two-thirds of the Canadian work force was male in 1971 (see the first row in Table 6.7), and given the 70% criterion for gender dominance in an occupational group, it is fair to say that the whole Canadian work force was close to being male-dominated.

**TABLE 6.7**

**PROPORTION OF FEMALES AND MALES IN EACH OCCUPATION, 23 MAJOR OCCUPATION GROUPS, BASED ON 1971 OCCUPATIONAL CLASSIFICATION MANUAL, 1971, 1981 AND 1991**

Major Groups	1971		1981		1991	
	Female	Male	Female	Male	Female	Male
<b>Total, all occupations</b>	<b>34.33</b>	<b>65.67</b>	<b>40.42</b>	<b>59.58</b>	<b>44.86</b>	<b>55.14</b>
Managerial, Administrative and Related Occupations	15.66	84.34	24.85	75.15	38.65	61.35
Occupations in Natural Sciences, Engineering and Mathematics	7.31	92.69	14.12	85.88	20.20	79.80
Occupations in Social Sciences and Related Fields	37.35	62.65	52.51	47.49	61.11	38.89
Occupations in Religion	15.73	84.29	26.48	73.52	21.49	78.51
Teaching and Related Occupations	60.44	39.56	59.48	40.52	63.99	36.01
Occupations in Medicine and Health	74.32	25.68	77.63	22.37	79.09	20.91
Artistic, Literary, Recreational and Related Occupations	27.21	72.79	39.78	60.22	44.32	55.68
Clerical and Related Occupations	68.45	31.55	77.72	22.28	78.24	21.76
Sales Occupations	30.37	69.63	40.78	59.22	44.85	55.15
Service Occupations	46.19	53.81	52.29	47.71	55.71	44.29
Farming, Horticulture and Animal Husbandry Occupations	20.86	79.14	5.62	94.38	27.19	72.81
Fishing, Hunting, Trapping and Related Occupations	1.93	98.07	6.26	93.74	13.21	86.79
Forestry and Logging Occupations	2.10	97.90	2.16	97.84	8.28	91.72
Mining and Quarrying, Including Oil and Gas Field Occupations	0.64	99.36	22.16	77.84	2.87	97.13
Processing Occupations	17.79	82.21	6.81	93.19	25.77	74.23
Machining and Related Occupations	5.68	94.32	24.37	75.63	6.32	93.68
Product Fabricating, Assembling and Repair Occupations	23.68	76.32	2.00	98.00	22.12	77.88
Construction Trades Occupations	0.90	99.10	6.48	93.52	2.77	97.23
Transport Equipment Operating Occupations	2.42	97.58	22.64	77.36	9.16	90.84
Materials Handling and Related Occupations Not Elsewhere Classified	19.65	80.35	21.08	78.92	23.18	76.82
Other Crafts and Equipment Operating Occupations	12.44	87.56	17.37	82.63	22.99	77.01
Occupations Not Elsewhere Classified	12.96	87.04	42.58	57.42	21.48	78.52
Occupations Not Stated	43.30	56.70	..	..	46.21	53.79

.. figures not available

Source: Census of Canada, 1991, special tabulations.

In the 20 years following, the Canadian work force changed from a little more than one-third female to 45% female, reflecting the dramatic increase in women's labour force participation.

The increases in proportions of women in various occupations were most dramatic in the same fields that saw the steepest rise in female occupational distribution over the period. In Managerial, Administrative and Related Occupations and in Occupations in the Natural Sciences, Engineering and Mathematics, women more than doubled their representation. They nearly doubled their representation in Occupations in Social Sciences and Related Fields. The proportion of women also rose dramatically in a wide range of non-traditional occupations: Fishing, Hunting, Trapping, and Related Occupations; Forestry and Logging Occupations; Mining and Quarrying, Including Oil and Gas Field Occupations; Construction Trades Occupations, Transport Equipment Operating Occupations; and Other Crafts and Equipment Operating Occupations. In most of these groups, however, the increases started from a small female base. Thus, many of these occupations were still male-dominated in 1991.

The occupations in which women dramatically increased their representation between 1971 and 1991 are for the most part the same occupations where the distribution of the female work force also increased the most. This highlights that the changing distribution of the female work force mirrors their changing representation in particular occupations, not just a growth in those occupations from both the male and female work forces.

## **6.8 SUMMARY OF OCCUPATIONAL PATTERN AND CHANGES**

Summary patterns are extremely difficult to portray, given the complicated detail in this area. However, the following generalizations emerge.

Considerable differences in women's and men's occupational distribution prevail today. Relative to males, females work in disproportionate numbers in white-collar administrative and clerical jobs, and in sales and service jobs. Relative to females, males disproportionately work in higher-level, white-collar managerial jobs, as foremen in the blue-collar skilled crafts and trades, and as semi-skilled and other manual workers.

Depending upon the aggregation level of the occupation group, approximately 50% of the male or female work force would have to change occupations for the female and male occupation distributions to be the same. The proportion that would have to change is somewhat higher, 57%, when disaggregate unit groups are used, and lower, 44%, when more aggregate broad occupations are used. This highlights that the broad aggregates can mask considerable dissimilarity within an aggregate grouping.

There is also considerable gender dominance (that is, 70% or more of either gender) in certain occupations in the Canadian work force. Furthermore, that dominance is often masked at the broader occupation level when sub-groups that are female-dominated and sub-groups that are male-dominated average each other out, yielding what appears to be a mixed occupational group at the aggregate level.

Almost two-thirds of the female work force is clustered into one-fifth of the Major Occupation Groups; most of these groups are female-dominated. As well, many of the occupations are ones that would typically be ranked at the lower end of the occupation spectrum—clerical, secretarial, sales, service and childcare workers and cashiers. Others, such as teaching and nursing, are often traditionally labelled female jobs.

Since 1971, the differences in the occupational distribution of the female and male work forces has narrowed. Most of the change took place in the 1980s.

Using the disaggregate 496 unit groups, in 1971, 62% of females or males would have had to change occupations for the two genders to have an identical occupation distribution. By 1981, 59% would have had to change, and by 1991, 52% would have had to change. Clearly, the distribution gap narrowed, especially over the 1980s. However, considerable differences remain in females' and males' occupational distributions.

Over the 1970s and 1980s, the distribution of the female work force expanded most in two main areas: the higher-end managerial and administrative occupations, the natural sciences, engineering and mathematics; and in many non-traditional occupations. These tended to be male-dominated occupations, so these inroads by women helped narrow the differences in the females' and males' occupation distributions that occurred over that period. However, since these occupation groups tend to have relatively few workers, no large changes resulted in women's and men's occupational distributions. These differences remain substantial.

The female work force's continued occupational segregation highlights the potential importance of policies designed to reduce that occupational segregation or its effects. These policies include equal employment opportunity and employment equity, as well as pay equity, which enables comparison across different occupations.

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## ENDNOTES

1. Discussions of occupational segregation in Canada in earlier periods are given in Boyd (1984, 1990, 1991), Boyd, Mulvihill and Myles (1991), Fox and Fox (1987), and Manley (1995).
2. See Census of Canada 1991 Public Use Micro-data File, Individuals. Data Documentation, No. 48-039E. Final Edition, p. 130 and 134. The occupation code refers to the kind of work respondents did during the reference week—the week prior to enumeration day, June 4, 1991—as determined by their kind of work and the description of the most important duties of the job. If they did not have a job during the week prior to enumeration, the data relate to the job of longest duration since January 1, of the previous year—1990 for the 1991 Census. Those with two or more jobs were to report the information for the job at which they worked the most hours.
3. Table 6.2 is a variant of the broader occupation groups of Table 6.1. It is based on the 14 employment equity occupation groups that were designed to better reflect skill levels within the more conventional broad occupation groups. For example, the broad Standard Occupational Classification group Sales and Service Occupations is broken into three levels in the 14 employment equity groups.  
For employment equity purposes, this would make it more feasible to require equal female and male representation within each occupation group, since the tasks within groups would be more alike. It may be more reasonable to assume that the tasks done by females and males in, for example, Sales and Service Level 1 jobs are similar than to assume that the tasks done by females and males in the broad Sales and Service Occupations group are similar.
4. One may have expected an even larger index, given that the 14 employment equity groups are more disaggregated than the 10 broad occupation groups. As discussed previously, the 14 employment equity groups were designed in part to differentiate levels within the broad occupation groups so as to make the employment equity groups more alike in their tasks. In such circumstances, we would expect the female and male distributions to be more alike, given the greater similarity of the tasks in the 14 employment equity groups. That they are not similar (that is, that the Index of Dissimilarity is not zero) highlights the considerable differences within the employment equity groups, even though they are designed to be more homogenous than are the broad groups.
5. For a complete listing of employment equity groups, see Human Resources Development Canada (1996) and Harvey and Blakely (1996).
6. As discussed above, the index gives the proportion of the female or male work force that would have to change occupations for both work forces to have the same occupational distribution. A smaller number indicates less occupational dissimilarity, and a zero indicates complete similarity.
7. The occupation groups cited in this section are from the 1971 Occupational Classification Manual.
8. For a more detailed analysis of the specific issue of women in non-traditional occupations see Hughes (1995) and references cited therein.



## INDUSTRIAL DISTRIBUTION

*Occupation*, discussed in the previous chapter, refers to the nature of work performed—that is, the basic content of a job. The concept of *industry*, used in this chapter, refers to the type of economic activity of the establishment in which the individual works. The two concepts may be related, as when a construction worker works in the construction industry. However, they may be unrelated, as when a manager or a clerical worker works in the construction industry or any other industry.

With respect to female and male labour market behaviour, the occupation dimension does attract more attention than the industry dimension. Pay equity legislation, for example, is designed to enable pay comparisons across female- and male-dominated occupations of equal value, as determined by a job evaluation procedure. Equal employment opportunity legislation and employment equity legislation are designed, in part, to promote women's occupational advancement. The occupation dimension is important, in part, because these policies are designed to be applied within an organization, and an organization usually employs people in different occupations.

However, an organization usually exists within a single industry. Thus, if females are segregated into low-paying occupations within an organization, pay equity legislation could require equal pay with male-dominated occupations in the organization. Equal employment opportunity legislation could require that they have equal opportunity for promotion to a better-paying occupation. Employment equity legislation could require that they be employed in certain occupations in accordance with their representation in the external work force.

In contrast, if the organization were in a female-dominated, low-paying industry, none of those policies could improve these women's wages or employment opportunities because of the industry in which they work.

The concept of female-dominated jobs tends to apply more to occupations (for example, nursing) than to industries (for example, health care) although both occupations and industries can be gender-dominated. "Occupational prestige" is associated with the occupational hierarchy; there is less of a corresponding concept of "industrial prestige." One could be a high-paid professional in the agriculture industry, or a low-paid cleaner in the business finance industry. The prestige tends to be associated with the occupation more than the industry.

Also, as jobs become less secure, and people feel that they have less job security with a particular employer, they tend to develop an identification with, and allegiance to, their occupation. Their skills are usually associated with their particular occupation, and can be used for different employers or in different industries.

While occupation may be more important than industry for examining many aspects of female labour market behaviour, the industry dimension is also associated with many key practical and policy issues. As indicated in Chapter 5, the industry in which a person works is an important determinant of their earnings. This remains true even after controlling for a wide range of human capital and other variables that also influence earnings.

Some industries, for example, are associated with efficiency wage premiums—premiums that organizations voluntarily pay to elicit positive work behaviour such as commitment, loyalty, and low turnover. Although efficiency wages are costly to employers, they help employers save on the costs of turnover, supervision and monitoring, and discipline. They are wage premiums that "pay for themselves."

The notion of "good jobs" and "bad jobs" also has an industry dimension. Good jobs are usually well-paid, and offer good working conditions, benefits and opportunities for occupational advancement. Bad jobs have the opposite characteristics, and often perpetuate the negative work habits that keep individuals locked in such jobs. Women are often crowded into lower-paying bad jobs, and such industrial segregation depresses their earnings.

Unionization rates vary considerably by industry, and the impact of unions tends to be different for females and males. Women are less likely to be unionized than men, and hence are less likely to see the wage gains associated with union membership. Interestingly, the union wage premium tends to be higher for women than for men, and this tends to offset women's lower unionization rate. So, on the whole, unions have little impact on the female-male wage gap (Doiron and Riddell 1994).

The public sector is important for the female work force because it employs so many women, often in better-paying jobs. Most pay equity initiatives apply to the public sector; when they also apply to the private sector, the evidence suggests that they tend not to have as large an impact as in the public sector, even though wage discrimination tends to be greater in the private sector than the public.

Furthermore, public sector wage premiums tend to be larger for females than males, and for low-wage workers (who disproportionately are female). Hence, public sector wage restraint disproportionately falls on females (Gunderson 1995).

The industry in which a person works has other important implications. Various policies and forces have different impacts on different industries. This is true with respect to, for example, trade liberalization, global competition, technological change, deregulation and privatization. Industrial restructuring has its legacy in the evolution of economies from agriculture and other

primary industries to manufacturing and now to services. Terms like “de-industrialization,” the “service economy,” the “information economy,” “industrial policy,” and “industrial strategy” attest to the importance of the industry dimension of employment in popular parlance, in the media, and in policy circles. These issues are now coming to the public sector, as evidenced by phrases like “reinventing government” and “retrenchment.” Phenomena like contracting out and privatization are especially common in that sector. The pressures on different industries can have important implications for the female work force: trade liberalization can affect low-wage industries often dominated by females; technological change and the computer have revolutionized office functions; the shift to the service economy involves low-wage jobs that are often female-dominated, or high-paying financial, administrative and professional services that are male-dominated; and public sector restructuring can disproportionately affect females.

Displaced workers who permanently lose their job are often displaced to other industries, especially since much of the industrial restructuring is from declining to expanding industries. Part of their substantial earnings loss that typically ensues is attributed to the loss of industry-specific human capital—that is, training and experience that is of use only in a specific industry. The fact that much of that knowledge is not transferable attests to the importance of the industry dimension, in this case with respect to the accumulation of human capital.

The importance of the industry as the unit of analysis is also recognized in policy circles, especially with respect to labour adjustment strategies. Beginning in the 1980s in Canada, sectoral councils have been established involving joint labour-management initiatives to deal with issues such as labour adjustment, training, and industry standards. The intent is to tap into industry knowledge and expertise to deal with that sector’s common problems. Such joint labour-management co-operative initiatives had their origins in the aerospace industry in Quebec in 1983, and at the national level in the steel industry in 1985. Since that time approximately 20 sectoral councils have been established, with government support, at the national level in such industries as automotive repair and service, aviation maintenance, automotive parts, electronics, software, horticulture, grocery products, trucking, textiles and wood products. Such sectoral councils are a closely watched Canadian innovation to deal with adjustment and other human resource issues at the industry level.

The importance of the industry as the unit of analysis is also recognized in academic research. In the area of industrial relations and human resource management, for example, Chaykowski and Verma (1992) have focused on separate industry studies to analyse how different industries have responded to changing circumstances.

## 7.1 SOME BASIC INDUSTRY CONCEPTS

The discussion of the industry dimension of female labour market behaviour in this chapter follows a similar pattern to that of the occupation dimension discussed in the previous chapter. The industrial structure of the female and male work forces are compared based on the 1991 Census. Historical comparisons are also made based on the 1971, 1981 and 1991 Censuses, with particular emphasis on whether the industrial distribution of the female work force converged towards that of the male work force.

As with the occupational comparisons, two different but related concepts are used. The first is the *distribution* of the female and male work forces—how they are divided up among the

different industries (the distributions sum to 100% for the female and male work forces). The second is the gender *composition*, or proportion of females and males in each industry (the proportions sum to 100% within each industry).

The distribution concept highlights the industries where large portions of the female work force are employed. This could occur because an industry is predominantly female (the composition concept in action) or because it is simply a large industry group that employs many females or males. An industry may be predominantly male, but because it is large it may also employ a large portion of the female work force. Conversely, the industry could be predominantly female (the composition concept at work), but employs only a small portion of the female work force (the distribution concept at work) simply because the industry is small and does not employ many workers of either gender.

The industry data<sup>1</sup> are based on the experienced labour force, which excludes those who have never worked or who have not worked in the six months previous to the census. This enables everyone to be assigned to an industry that reflects their current industrial status.

The historical comparisons for 1971, 1981 and 1991, are based on the 1970 Standard Industrial Classification (SIC) codes, since this is the only classification common to all three census years. Because they were based on classifications that were common in 1970, they may not fully reflect the new industrial structure that has emerged. The analysis of the 1991 Census is based on the 1980 Standard Industrial Classification codes. Since that classification was not available for the 1971 data, it could not be used in the historical comparisons.

In both the historical and current analysis, different levels of industrial aggregation are used. The more aggregate groupings are obviously easier to present, but the more disaggregate groupings are often necessary to portray the differences that can prevail within aggregate groupings.

As with the occupation data of the previous chapter, in this chapter Indices of Industrial Dissimilarity are presented for the different levels of industry aggregation. The index gives the proportion of the total work force, female and male, that would have to change industries for the female and male work forces to have the same industrial distribution. It is calculated as half of the average absolute difference between the female and male industry distributions. The absolute difference for each industry is given in the last column of the tables that give the female and male distributions.

## **7.2 THE 1991 CENSUS**

### **7.2.1 Industrial distribution**

There is a simple criterion for comparing the industrial distribution of the female and male work forces (as shown in Table 7.1); the work force of one gender has a disproportionately high distribution in a particular industry if its distribution is twice that—or more—of the other gender.

TABLE 7.1

**INDUSTRIAL DISTRIBUTION OF EXPERIENCED LABOUR FORCE, 18 DIVISIONS AND 75 MAJOR 1980 STANDARD INDUSTRIAL CLASSIFICATION GROUPS, PERCENTAGE OF EXPERIENCED LABOUR FORCE IN EACH INDUSTRY, 1991**

Industry Divisions and Major Groups	Female	Male	Absolute difference
<b>Agriculture and Related Services</b>	<b>2.79</b>	<b>4.38</b>	<b>1.59</b>
Agricultural Industries	2.53	4.18	1.65
Service Industries Incidental to Agriculture	0.26	0.19	0.07
<b>Fishing and Trapping</b>	<b>0.12</b>	<b>0.51</b>	<b>0.39</b>
Fishing and Trapping	0.12	0.51	0.39
<b>Logging and Forestry</b>	<b>0.25</b>	<b>1.16</b>	<b>0.91</b>
Logging	0.10	0.81	0.71
Forestry Services	0.15	0.35	0.20
<b>Mining (Including Milling), Quarrying and Oil Well Industries</b>	<b>0.43</b>	<b>2.06</b>	<b>1.58</b>
Mining	0.12	0.95	0.83
Crude Petroleum and Natural Gas	0.26	0.52	0.26
Quarries and Sand Pits	0.02	0.13	0.11
Service Industries Incidental to Mineral Extraction	0.08	0.46	0.38
<b>Manufacturing</b>	<b>9.69</b>	<b>18.70</b>	<b>9.01</b>
Food	1.43	1.98	0.55
Beverage	0.10	0.36	0.26
Tobacco Products	0.03	0.04	0.01
Rubber Products	0.07	0.24	0.17
Plastic Products	0.29	0.48	0.19
Leather and Allied Products	0.17	0.10	0.07
Primary Textile	0.11	0.17	0.06
Textile Products	0.25	0.23	0.02
Clothing	1.47	0.40	1.07
Wood	0.24	1.47	1.23
Furniture and Fixture	0.21	0.56	0.35
Paper and Allied Products	0.32	1.36	1.04
Printing, Publishing and Allied Industries	1.23	1.31	0.08
Primary Metals	0.18	1.32	1.14
Fabricated Metal Products (except Machinery and Transportation Equipment)	0.43	1.68	1.25
Machinery (except Electrical Machinery)	0.22	0.83	0.61
Transportation Equipment	0.82	2.57	1.75
Electrical and Electronic Products	0.76	1.17	0.41
Non-metallic Mineral Products	0.16	0.64	0.48
Refined Petroleum and Coal Products	0.06	0.19	0.13
Chemical and Chemical Products	0.56	0.91	0.35
Other Manufacturing	0.58	0.69	0.11
<b>Construction</b>	<b>1.63</b>	<b>10.54</b>	<b>8.91</b>
Building, Developing and General Contracting	0.45	2.88	2.43
Industrial and Heavy (Engineering) Construction	0.15	1.09	0.94
Trade Contracting	0.97	6.33	5.36
Service Industries Incidental to Construction	0.11	0.23	0.12

TABLE 7.1 (CONTINUED)

**INDUSTRIAL DISTRIBUTION OF EXPERIENCED LABOUR FORCE, 18 DIVISIONS AND 75 MAJOR 1980 STANDARD INDUSTRIAL CLASSIFICATION GROUPS, PERCENTAGE OF EXPERIENCED LABOUR FORCE IN EACH INDUSTRY, 1991**

Industry Divisions and Major Groups	Female	Male	Absolute difference
<b>Transportation and Storage</b>	<b>1.78</b>	<b>5.98</b>	<b>4.20</b>
Transportation	1.66	5.67	4.01
Pipeline Transport	0.04	0.10	0.06
Storage and Warehousing	0.07	0.21	0.14
<b>Communication and Utilities</b>	<b>2.62</b>	<b>3.98</b>	<b>1.36</b>
Communication	2.07	2.42	0.35
Other Utilities	0.55	1.56	1.01
<b>Wholesale Trade</b>	<b>2.90</b>	<b>5.47</b>	<b>2.57</b>
Farm Products, Wholesale	0.06	0.08	0.02
Petroleum Products, Wholesale	0.12	0.25	0.13
Food, Beverage, Drug and Tobacco, Wholesale	0.55	0.86	0.31
Apparel and Dry Goods, Wholesale	0.16	0.12	0.04
Household Goods, Wholesale	0.13	0.17	0.04
Motor Vehicles, Parts and Accessories, Wholesale	0.14	0.45	0.31
Metals, Hardware, Plumbing, Heating and Building Materials, Wholesale	0.43	1.07	0.64
Machinery, Equipment and Supplies, Wholesale	0.77	1.64	0.87
Other Products, Wholesale	0.54	0.84	0.30
<b>Retail Trade</b>	<b>12.52</b>	<b>11.54</b>	<b>0.98</b>
Food, Beverage and Drug, Retail	4.75	3.01	1.74
Shoe, Apparel, Fabric and Yarn, Retail	2.11	0.48	1.63
Household Furniture, Appliances and Furnishings, Retail	0.58	0.92	0.34
Automotive Vehicles, Parts and Accessories, Sales and Service	1.35	4.30	2.95
General Retail Merchandising	2.95	0.96	1.99
Other Retail Stores	2.48	1.59	0.89
Non-store Retail	0.29	0.27	0.02
<b>Finance and Insurance</b>	<b>8.07</b>	<b>2.41</b>	<b>5.66</b>
Deposit Accepting Intermediary Industries	3.83	1.00	2.83
Consumer and Business Financing Intermediary Industries	0.18	0.13	0.05
Investment Intermediary Industries	0.21	0.17	0.04
Insurance	1.67	0.91	0.76
Other Financial Intermediary Industries	0.19	0.21	0.02
<b>Real Estate Operator and Insurance Agent Industries</b>	<b>1.79</b>	<b>1.52</b>	<b>0.27</b>
Real Estate Operator (Except Developers)	0.56	0.56	0.00
Insurance and Real Estate Agent	1.23	0.96	0.27
<b>Business Services</b>	<b>5.68</b>	<b>5.61</b>	<b>0.07</b>
Business Service	5.68	5.61	0.07
<b>Government Services</b>	<b>7.39</b>	<b>8.16</b>	<b>0.77</b>
Federal Government	2.87	3.32	0.45
Provincial and Territorial Government	2.43	1.99	0.44
Local Government	2.07	2.83	0.76
International and Other Extra-territorial Government	0.02	0.01	0.01



**TABLE 7.1 (CONCLUDED)**

**INDUSTRIAL DISTRIBUTION OF EXPERIENCED LABOUR FORCE, 18 DIVISIONS AND 75 MAJOR 1980 STANDARD INDUSTRIAL CLASSIFICATION GROUPS, PERCENTAGE OF EXPERIENCED LABOUR FORCE IN EACH INDUSTRY, 1991**

Industry Divisions and Major Groups	Female	Male	Absolute difference
<b>Educational Services</b>	<b>9.44</b>	<b>4.72</b>	<b>4.72</b>
Educational Service	9.44	4.72	4.72
<b>Health and Social Service</b>	<b>16.02</b>	<b>3.25</b>	<b>12.77</b>
Health and Social Service	16.02	3.25	12.77
<b>Accommodation, Food and Beverage Services</b>	<b>6.50</b>	<b>2.76</b>	<b>3.60</b>
Accommodation Service	1.88	1.04	0.84
Food and Beverage Service	6.50	3.74	2.76
<b>Other Services</b>	<b>8.40</b>	<b>5.21</b>	<b>3.19</b>
Amusement and Recreational Service	1.42	1.42	0.00
Personal and Household Service	3.75	0.75	3.00
Membership Organization Industries	1.15	0.81	0.34
Other Services	2.08	2.21	0.13
<b>Total % distribution, experienced labour force (rounded)</b>	<b>100.0</b>	<b>100.0</b>	<b>...</b>
Total numbers of experienced labour force	6,830,990	7,839,245	...
<b>Index of Industrial Dissimilarity, 18 industry divisions</b>	<b>...</b>	<b>...</b>	<b>31.25</b>
<b>Index of Industrial Dissimilarity, 75 major groups</b>	<b>...</b>	<b>...</b>	<b>36.43</b>
<b>Index of Industrial Dissimilarity, 246 unit groups</b>	<b>...</b>	<b>...</b>	<b>39.37</b>

... figures not applicable

Source: Census of Canada, 1991, special tabulations.

Based on that criterion, the female work force was disproportionately distributed in the divisions Finance and Insurance Industries, Educational Service Industries, and Health and Social Service Industries. The female distribution was also high in Accommodation, Food and Beverage Service Industries, and Other Service Industries, albeit not quite twice the male distribution in those industries.

Conversely, the male work force was disproportionately distributed in primary industries (8.1% in Agriculture and Related Service Industries, Fishing and Trapping Industries, Logging and Forestry Industries, and Mining Quarrying and Oil Well Industries, compared with 3.6% of the female work force), as well as in Manufacturing Industries, Construction Industries, and Transportation and Storage Industries.

This comparison at the broad aggregate level—specifically the division level—indicates that females disproportionately worked in the service sector, and males in blue-collar industries. The Index of Industrial Dissimilarity indicates that 31% of the female or male work force would have had to change their industry division (the broadest classification level) for there to have been gender equality in the industrial distribution of the whole work force. This is considerably smaller

than the 44% of the male or female work force that would have had to change their broad *occupation* group for there to have been gender neutrality in the occupational distribution of the work force (as discussed in Chapter 6). Although precise comparisons are not possible,<sup>2</sup> this does suggest that differences in the occupational distribution of the female and male work forces are more prominent than differences in their industrial distribution.

Table 7.1 shows the gender differences in the industrial distribution of the work force at the more disaggregate level, the 75 major SIC groups. The 18 aggregate industry divisions are repeated to highlight that these aggregate groups can mask considerable differences that can occur among major groups and smaller levels of aggregation. For example, in the Manufacturing Industries division, where the distribution of the male work force was almost twice that of the female work force, the female distribution was higher in major groups such as Leather and Allied Products, Textile Products, and Clothing, and was almost as high in the major groups Food, Tobacco Products, and Printing and Publishing. Conversely, the female distribution was extremely low relative to male in major groups such as Wood, Paper and Allied Products, Primary Metals, Fabricated Metal Products, and Non-metallic Mineral Products.

Similarly, within the Retail Trade division, where the distributions of the female and male work forces are similar, the female distribution was disproportionately high in the major groups Shoe, Apparel, Fabric, and Yarn Retail, and General Retail Merchandising, and the male distribution was high in Automotive Vehicles, Parts and Accessories, Sales and Service.

It is certainly important to look within the broader industry divisions to see the industrial distributions of the female and male work forces. The Index of Industrial Dissimilarity increases as it is calculated across more narrowly defined industry groups (see the bottom of Table 7.1). To achieve gender equality in the industrial distribution of the work force, 31% of the female or male work force would have had to change to another of the 18 industry divisions, while at the level of the 246 unit groups more than 39% would have had to change. Clearly, changes at both the unit group and division levels would have been necessary to achieve gender equality in the distribution of the work force.

Of particular note, males were disproportionately distributed in industries that have been identified as paying efficiency wage premiums—wage premiums that exist even after controlling for the effect of other determinants of wages. Such industries are found in Agriculture and Related Services, Fishing and Trapping, Logging and Forestry, Mining, Quarrying and Oil Well Industries, the heavier industries in the Manufacturing group (such as Paper and Allied Products), Construction, Transportation and Storage, and Communications and Utilities.

In contrast, females were disproportionately employed in major industry groups that pay low wages, even after the other wage determinants are controlled for:<sup>3</sup> Clothing; Leather and Allied Products; Textile Products; Personal Services; Accommodation Services; Food and Beverage Services; and Retail Trade, as discussed above.

### **7.2.2 Gender dominance**

The *distribution* of the female and male work forces indicates the proportion of each work force that is in each industry. However, the concept of an industry's *gender composition* refers to the proportion of that industry's work force that is female or male—that is, the incidence of females or males in the industry. An industry could be, say, female-dominated but, if it were a small

industry, still have a small proportion of the female work force. Conversely, it could be a gender-mixed industry and yet, if it were a large industry, have a large distribution of the female work force.

In discussing industries' gender compositions, it is important to keep in mind that Canada's work force is approximately 55% male and 45% female. The gender composition of a particular industry should be compared with this standard, not one of 50-50 gender neutrality.

In the discussion of gender dominance of occupations in Chapter 6, gender dominance was defined as 70% or more of one gender, in part because that is a common criterion in pay equity legislation. With respect to industry designations, there are no comparable legislative standards; nevertheless, 70% can still be used as a comparison standard.

Based on that standard, Fishing and Trapping, Logging and Forestry, Mining, Quarrying and Oil Well Industries, Manufacturing, Construction, and Transportation and Storage were male-dominated divisions (see Table 7.2). Only Health and Social Services was female-dominated, at that broadest level of aggregation. Although they did not meet the 70% cut-off, the divisions Finance and Insurance, Education, Accommodation, Food and Beverage Services, and Other Services were disproportionately female.

**TABLE 7.2**

**PROPORTION OF FEMALES AND MALES IN EACH INDUSTRY, 18 INDUSTRY DIVISIONS, 1980 STANDARD INDUSTRIAL CLASSIFICATION, 1991**

<b>Industry Divisions</b>	<b>Female</b>	<b>Male</b>
Agriculture and Related Services	34.14	65.86
Fishing and Trapping	16.34	83.66
Logging and Forestry	14.91	85.09
Mining, Quarrying and Oil Well Industries	15.92	84.08
Manufacturing	29.66	70.34
Construction	11.49	88.51
Transportation and Storage	19.48	80.52
Communication and Other Utilities	34.83	65.17
Wholesale Trade	30.16	69.84
Retail Trade	50.59	49.41
Finance and Insurance	67.19	32.81
Real Estate and Insurance Agent Industries	48.96	51.04
Business Services	45.17	54.83
Government	42.44	57.56
Education	61.92	38.08
Health and Social Services	80.03	19.97
Accommodation, Food and Beverage Services	58.81	41.19
Other Services	56.75	43.25
Total, all industry divisions (rounded)	44.87	55.13
<b>Total experienced labour force</b>	<b>6,830,990</b>	<b>7,839,245</b>

*Source:* Census of Canada, 1991, special tabulations.

At the level of the 75 major groups, gender composition varied greatly (see Table 7.3, which also repeats the proportions for the 18 major industry groups shown in Table 7.2). For example, within many of the divisions that had a high proportion of males, the proportion of females was much greater in the major groups that provide services to those industries. This was the case with

service industries incidental to Agriculture and Related Services. Within male-dominated Manufacturing, the proportion of females was more than 50% in the major groups Leather and Allied Products, and Clothing. Within wholesale trade, the proportion of females was disproportionately high in Apparel and Dry goods, and within Retail Trade it was disproportionately high in the major group Shoe, Apparel, Fabric and Yarn.

**TABLE 7.3**

**PROPORTION OF FEMALES AND MALES IN EACH INDUSTRY, 18 DIVISIONS AND 75 MAJOR 1980  
STANDARD INDUSTRIAL CLASSIFICATION GROUPS, 1991**

Industry Divisions and Major Industry Groups	Female	Male
<b>Agriculture and Related Services</b>	<b>34.14</b>	<b>65.86</b>
Agricultural Industries	32.92	67.08
Service Industries Incidental to Agriculture	53.00	47.00
<b>Fishing and Trapping</b>	<b>16.35</b>	<b>83.65</b>
Fishing and Trapping	16.35	83.65
<b>Logging and Forestry</b>	<b>14.91</b>	<b>85.09</b>
Logging	9.11	90.89
Forestry Services	25.90	74.10
<b>Mining (Including Milling), Quarrying and Oil Well Industries</b>	<b>15.92</b>	<b>84.08</b>
Mining	9.34	90.66
Crude Petroleum and Natural Gas	28.92	71.08
Quarries and Sand Pits	11.82	88.18
Service Industries Incidental to Mineral Extraction	12.32	87.68
<b>Manufacturing</b>	<b>29.66</b>	<b>70.34</b>
Food	37.03	62.97
Beverages	19.25	80.75
Tobacco Products	37.57	62.43
Rubber Products	18.63	81.37
Plastic Products	33.19	66.81
Leather and Allied Products	59.02	40.98
Primary Textiles	34.10	65.90
Textile Products	46.55	53.45
Clothing	75.13	24.87
Wood	11.95	88.05
Furniture and Fixture	23.11	76.89
Paper and Allied Products	15.93	84.07
Printing, Publishing and Allied Industries	43.36	56.64
Primary Metal	10.03	89.97
Fabricated Metal Products (Except Machinery and Transportation Equipment)	17.39	82.61
Machinery (Except Electrical Machinery)	18.01	81.99
Transportation Equipment	20.51	79.49
Electrical and Electronic Products	34.42	65.58
Non-metallic Mineral Products	16.78	83.22
Refined Petroleum and Coal Products	19.82	80.18
Chemical and Chemical Products	33.25	66.75
Other Manufacturing	40.29	59.71

TABLE 7.3 (CONTINUED)

**PROPORTION OF FEMALES AND MALES IN EACH INDUSTRY, 18 DIVISIONS AND 75 MAJOR 1980  
STANDARD INDUSTRIAL CLASSIFICATION GROUPS, 1991**

Industry Divisions and Major Industry Groups	Female	Male
<b>Construction</b>	<b>11.49</b>	<b>88.51</b>
Building, Developing and General Contracting	11.29	88.71
Industrial and Heavy (Engineering) Construction	10.29	89.71
Trade Contracting	11.08	88.92
Service Industries Incidental to Construction	27.05	72.95
<b>Transportation and Storage</b>	<b>19.48</b>	<b>80.52</b>
Transportation	19.28	80.72
Pipeline Transport	24.02	75.98
Storage and Warehousing	22.70	77.30
<b>Communications and Utilities</b>	<b>34.63</b>	<b>65.37</b>
Communications	41.05	58.95
Other Utilities	22.10	77.90
<b>Wholesale Trade</b>	<b>30.16</b>	<b>69.84</b>
Farm Products, Wholesale	37.79	62.21
Petroleum Products, Wholesale	28.30	71.70
Food, Beverage, Drug and Tobacco, Wholesale	34.24	65.76
Apparel and Dry Goods, Wholesale	52.71	47.29
Household Goods, Wholesale	37.99	62.01
Motor Vehicles, Parts and Accessories, Wholesale	20.24	79.76
Metals, Hardware, Plumbing, Heating and Building Materials, Wholesale	24.56	75.44
Machinery, Equipment and Supplies, Wholesale	27.78	72.22
Other Products, Wholesale	34.35	65.65
<b>Retail Trade</b>	<b>50.59</b>	<b>49.41</b>
Food, Beverage and Drug, Retail	56.20	43.80
Shoe, Apparel, Fabric and Yarn, Retail	77.97	22.03
Household Furniture, Appliances and Furnishings, Retail	33.93	66.07
Automotive Vehicles, Parts and Accessories, Sales and Service	20.37	79.63
General Retail Merchandising	71.50	28.50
Other Retail Store	56.00	44.00
Non-store Retail	46.77	53.23
<b>Finance and Insurance</b>	<b>67.19</b>	<b>32.81</b>
Deposit Accepting Intermediary Industries	75.77	24.23
Consumer and Business Financing Intermediary Industries	53.30	46.70
Investment Intermediary Industries	50.24	49.76
Insurance	60.00	40.00
Other Financial Intermediary Industries	41.62	58.38
<b>Real Estate Operator and Insurance Agent Industries</b>	<b>48.96</b>	<b>51.04</b>
Real Estate Operator (Except Developers)	44.94	55.06
Insurance and Real Estate Agents	51.04	48.96
<b>Business Services</b>	<b>45.17</b>	<b>54.83</b>
Business Services	45.17	54.83

**TABLE 7.3 (CONCLUDED)**

**PROPORTION OF FEMALES AND MALES IN EACH INDUSTRY, 18 DIVISIONS AND 75 MAJOR 1980  
STANDARD INDUSTRIAL CLASSIFICATION GROUPS, 1991**

Industry Divisions and Major Industry Groups	Female	Male
<b>Government Services</b>	<b>42.44</b>	<b>57.56</b>
Federal Government	41.28	58.72
Provincial and Territorial Government	49.86	50.14
Local Government	37.30	62.70
International and Other Extra-territorial Government	51.61	48.39
<b>Educational Services</b>	<b>61.92</b>	<b>38.08</b>
Educational Services	61.92	38.08
<b>Health and Social Services</b>	<b>80.03</b>	<b>19.97</b>
Health and Social Services	80.03	19.97
<b>Accommodation, Food and Beverage Services</b>	<b>58.91</b>	<b>41.09</b>
Accommodation Services	59.47	40.53
Food and Beverage Services	58.62	41.38
<b>Other Services</b>	<b>56.75</b>	<b>43.25</b>
Amusement and Recreational Services	44.73	55.27
Personal and Household Services	80.18	19.82
Membership Organization Industries	53.41	46.59
Other Services	43.38	56.62
<b>Total % distribution, experienced labour force (rounded)</b>	<b>44.87</b>	<b>55.13</b>
<b>Total numbers of experienced labour force</b>	<b>6,830,990</b>	<b>7,839,245</b>

Source: Census of Canada, 1991, special tabulations.

### 7.2.3 Largest industries of the female work force in 1991

The importance of services to women's employment is illustrated in Table 7.4. Half of the female work force worked in less than 10% (that is, 7 of 75) of the major groups, most of which are service industries. Each of the seven major groups shown employed more than 3% of the female work force in 1991.

More than one-quarter of the female work force was in two major groups: Health and Social Services; and Educational Services. Each of these major groups also employed a high proportion of females (see the last column of Table 7.4).

TABLE 7.4

**LARGEST INDUSTRIES OF FEMALE WORK FORCE, BASED ON 75 MAJOR 1980 STANDARD INDUSTRIAL CLASSIFICATION GROUPS, 1991**

Major industry	% of female work force	Cumulative % of female work force	% female in occupation
	(1)	(2)	(3)
Health and Social Services	16.02	16.02	80.03
Educational Services	9.44	25.46	61.92
Food and Beverage Services	6.50	31.96	58.62
Business Services	5.68	37.64	45.17
Food, Beverage and Drug Industries, Retail	4.75	42.39	56.20
Deposit Accepting Intermediary Industries	3.83	46.22	75.77
Personal and Household Services	3.75	49.97	80.18

Sources: Column 1 from Table 7.1; Column 2 calculated from Column 1; Column 3 from Table 7.3.

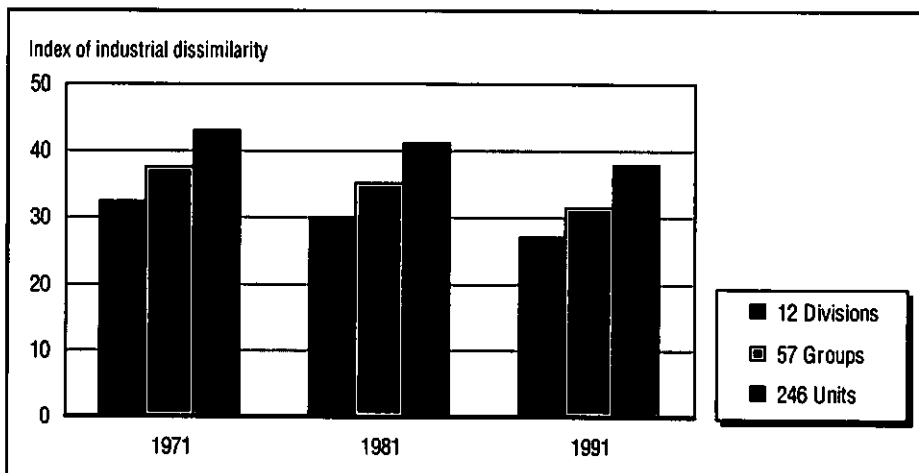
## 7.3 CHANGES OVER TIME, 1971, 1981, 1991

### 7.3.1 Index of Industrial Dissimilarity

The Index of Industrial Dissimilarity slowly but steadily declined between 1971 and 1991 (see Figure 7.1). This is the case at all three levels of industry disaggregation found in the 1970 Standard Industrial Classification. The index is always greater at disaggregate levels such as the 246 unit groups, and highlights the dissimilarity that can prevail *within* the more aggregate groups.

FIGURE 7.1

**INDICES OF INDUSTRIAL DISSIMILARITY, BASED ON 1970 STANDARD INDUSTRIAL CLASSIFICATION, 1971, 1981 AND 1991**



Source: Calculations described in text based on data from Table 7.6.

Based on the 246 unit groups, in 1971, 43.2% of females or males would have had to change their industry for there to be an identical industrial distribution between the sexes. By 1981, 41.2% would have had to change, and by 1991, 37.9% would have had to change.

### 7.3.2 Industrial distributions, 1971, 1981, 1991

The distribution of both of the female and male work forces declined in the primary industries (Agriculture and Related Services, Logging and Forestry, and Mining, Quarrying and Oil Well Industries) as well as in manufacturing (see Table 7.5). Over the same period, the distribution of both work forces in Services jumped dramatically. This reflects the fundamental restructuring that has been occurring in Canadian industry—a restructuring affecting both females and males.

**TABLE 7.5**

**INDUSTRIAL DISTRIBUTION OF EXPERIENCED LABOUR FORCE, 12 MAJOR INDUSTRY DIVISIONS, 1970 STANDARD INDUSTRIAL CLASSIFICATION (PERCENTAGE OF LABOUR FORCE IN EACH OCCUPATION), 1971, 1981 AND 1991**

Major Industry Divisions	1971			1981			1991		
	Female	Male	Difference	Female	Male	Difference	Female	Male	Difference
Agriculture	3.77	6.52	2.76	2.42	5.09	2.67	2.66	4.29	1.63
Forestry	0.11	1.25	1.14	0.23	1.25	1.03	0.24	1.11	0.87
Fishing and Trapping	0.03	0.43	0.40	0.07	0.47	0.40	0.11	0.47	0.36
Mining (Including Milling), Quarrying and Oil Well Industries	0.32	2.29	1.97	0.61	2.52	1.92	0.46	1.98	1.52
Manufacturing	13.67	22.99	9.33	12.76	22.37	9.60	9.43	18.10	8.66
Construction	0.89	9.04	8.15	1.46	9.53	8.07	1.53	9.99	8.46
Transportation, Communications and Utilities	3.85	9.83	5.98	4.52	10.02	5.50	4.48	9.37	4.89
Trade	15.74	14.17	1.57	17.51	15.49	2.02	16.38	16.06	0.31
Finance, Insurance and Real Estate	6.22	3.07	3.15	7.81	3.39	4.42	7.53	3.82	3.71
Services	39.72	15.27	24.44	42.23	18.87	23.36	45.64	22.87	22.77
Public Administration	5.52	8.41	2.89	6.75	7.81	1.06	7.18	7.89	0.71
Unspecified	10.17	6.72	3.45	3.63	3.19	0.45	4.36	4.04	0.32
Total, all occupations	100	100	...	100	100	...	100	100	...
Total number ('000)	2,961	5,666	8,627	4,853	7,152	12,005	6,429	7,900	14,239
Index of Industrial Dissimilarity, 12 divisions	...	...	32.62	...	...	30.25	...	...	27.11
Index of Industrial Dissimilarity 57 groups	...	...	37.60	...	...	35.30	...	...	31.56
Index of Industrial Dissimilarity, 246 units	...	...	43.21	...	...	41.15	...	...	37.86

... figures not applicable

Source: Census of Canada, 1991, special tabulations.



The slow convergence in the industrial distribution of the female and male work forces that was illustrated previously by the declining Indexes of Industrial Dissimilarity has been broad-based, occurring in most industries. This is illustrated by the fact that between 1971 and 1991, the *difference* between the industrial distributions of the female and male work forces declined in all industries except Construction and Finance, Insurance and Real Estate, which saw only modest increases.

### 7.3.3 Gender composition, 1971, 1981, 1991

The proportion of females throughout the work force increased steadily, from 34% in 1971 to 40% in 1981 to 45% in 1991 (see Table 7.6, second-last row). That gain was widespread, occurring in each of the 12 major industrial divisions over each decade. It was particularly pronounced in industries where there were few women to begin with, namely Forestry and Logging, Fishing and Trapping, Mining, Quarrying and Oil Well Industries, and Construction. It was also rapid in Public Administration, which went from 26% female in 1971 to 43% female by 1991.

**TABLE 7.6**

**PROPORTION OF FEMALES AND MALES IN EACH INDUSTRY, 12 MAJOR INDUSTRY DIVISIONS, 1970  
STANDARD INDUSTRIAL CLASSIFICATION, 1971, 1981 AND 1991**

Major Industry Divisions	1971		1981		1991	
	Female	Male	Female	Male	Female	Male
Agriculture	23.19	76.81	24.37	75.63	33.50	66.50
Forestry	4.51	95.49	11.01	88.99	14.84	85.16
Fishing and Trapping	3.54	96.48	9.43	90.57	15.84	84.16
Mining (Including Milling), Quarrying and Oil Well Industries	6.74	93.26	14.03	85.97	15.97	84.02
Manufacturing	23.70	76.30	27.91	72.09	29.78	70.22
Construction	4.88	95.12	9.40	90.60	11.10	88.90
Transportation, Communications and Utilities	16.98	83.02	23.43	76.57	28.01	71.99
Trade	36.73	63.27	43.41	56.59	45.34	54.66
Finance, Insurance and Real Estate	51.45	48.55	60.99	39.01	61.59	38.42
Services	57.61	42.39	60.29	39.71	61.88	38.12
Public Administration	25.54	74.46	36.96	63.04	42.55	57.45
Unspecified	44.17	55.83	43.62	56.38	46.77	53.22
Total, all occupational groups	34.33	65.67	40.42	59.58	44.86	55.14
Total numbers ('000)	2,961	5,666	4,853	7,152	6,429	7,900

Source: Census of Canada, 1991, special tabulations.

## 7.4 SUMMARY OF INDUSTRIAL DISTRIBUTION PATTERNS AND CHANGES

Women and men are distributed in considerably different patterns across industries. Relative to males, females disproportionately work in the service sector, especially in the divisions Health and Social Services, Education, Finance and Insurance, Accommodation, Food and Beverage Services, and Other Services. Relative to females, males disproportionately work in the primary industries, as well as Manufacturing, Construction, and Transportation and Storage.

Industries that disproportionately employ males tend to pay positive efficiency wage premiums, while industries that disproportionately employ females tend to pay low wages, even when the effects of other wage-influencing factors are controlled for.

In 1991, between 31% and 39% of females or males would have had to change their industry for gender equality to prevail in the industrial distribution of the two work forces. The lower figure applies to the more aggregate 18 industry divisions, while the higher figure applies to the disaggregate 246 unit groups. This also shows the considerable dissimilarity in the distribution of the female and male work forces within the major groups. This dissimilarity in industrial distribution is considerably smaller than the occupational dissimilarity, which ranges from 44% to 57%.

Based on the criterion that an industry is gender-dominated if its ranks are 70% or more of either gender, Health and Social Services were female-dominated. Though they fell short of the 70% cut-off, the industry divisions Finance and Insurance, Education, Accommodation, Food and Beverage Services, and Other Services were disproportionately female. The divisions representing primary industries, as well as Manufacturing, Construction and Transportation and Storage were male-dominated.

Within divisions, however, considerable variation may prevail. Some of the narrower major groups were female-dominated, although the division they are part of was mixed or even male-dominated. This was the case with the major groups Service Industries Incidental to Agriculture, the Leather and Clothing major groups within the aggregate Manufacturing division, Apparel and Dry Goods within Wholesale Trade, and Shoe, Apparel, and Fabric and Yarn within Retail Trade.

Almost half of the female work force is in less than 10% of the major groups, most of which are service industries. More than one-quarter of the female work force is in Health and Social Services or Educational Services.

There has been a decline in the distribution of both of the female and male work forces in the primary industries and Manufacturing, and a substantial rise in services, reflecting the restructuring that has been occurring in Canadian industry.

Overall, the differences in the industrial distribution of the female and male work forces have gradually narrowed. This convergence has occurred across most industries.

The proportion of females in the overall work force has increased steadily from 34% in 1971 to 40% in 1981, to 45% in 1991. That gain occurred in all the industrial divisions over each decade. It was particularly pronounced in industries where women's initial representation was low, and in Public Administration and Defence.<sup>4</sup>

The policy implications of the differences in the industrial distribution of the female and male work forces are not as direct as those of the differences in occupational distribution. Equal employment opportunity legislation and employment equity are designed to encourage women's

occupational advancement, and pay equity is designed to reduce pay differences between male-dominated and female-dominated occupations, not industries.

Nevertheless, there is an industrial dimension to the dramatic changes that have been occurring in the Canadian economy, including restructuring from manufacturing to services, trade liberalization, technological changes, unionization, and retrenchment in the public sector. The industrial dimensions of these changes will affect the female and male work forces differently, and this should be taken into account in policies that can affect these changes.



## ENDNOTES

1. See Statistics Canada, 1991 Census Public Use Micro-data File: "Individuals," Data Documentation, no. 48-039E, June 1994, p. 136 and 138. The industry code refers to the general nature of the business carried out in the establishment where the person worked, as indicated by the name of the employer (or the person's own business name if self-employed) and the kind of business, industry or service engaged in by this establishment. The reference week is the week prior to enumeration day (for example, June 4, 1991). If the person was not employed in the week prior to enumeration, the information was to relate to the person's job of longest duration of service since January 1, or the previous year (for example, 1990 for the 1991 Census). Respondents with two or more jobs were to report the information for the job of which they worked the most hours.
2. Precise comparisons are impossible, in part because of differences in the number of broad industry and occupation groups that are being compared.
3. Gera and Grenier 1991, pp. 6-8.
4. This industry division appears only in the 1970 Standard Industrial Classification.

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The unemployment rate is one of the most often-cited economic indicators. It is a measure of economic hardship for individuals and their families, as well as a measure of unused potential and wasted resources. It is also a broad economic barometer for the state of the economy as a whole, and the degree of slack or tightness in labour markets.

The unemployment rate is a count of workers who are unemployed but are looking for work and are usually available for work. The unemployment rate does not count those who have given up looking for work, or others who do not participate in the labour force.

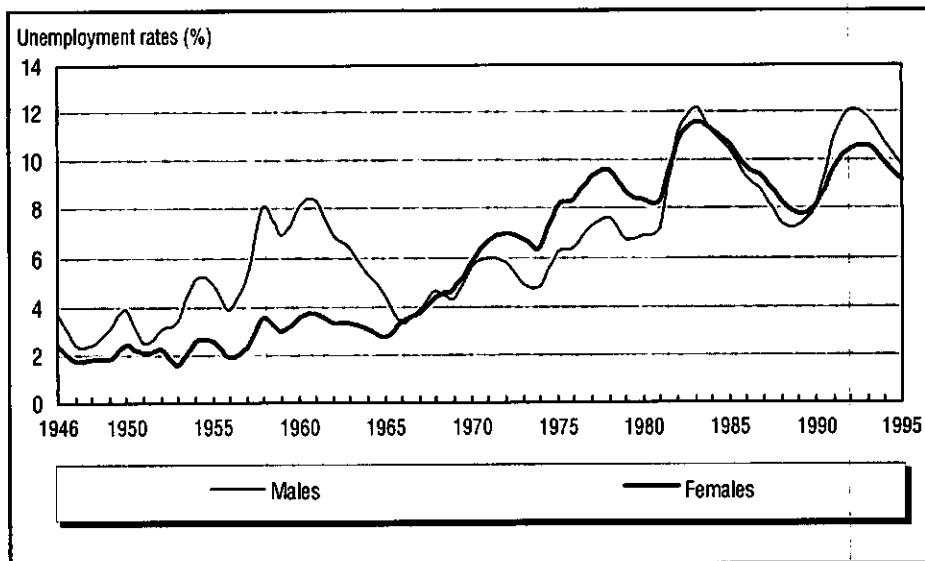
The issue of unemployment has taken on increased policy importance because unemployment has continually ratcheted upwards in the post-war period (see Figure 8.1). The unemployment rate for females and males fluctuates with the business cycle, rising during recessions and then falling in periods of prosperity—but never back to pre-recession levels. During each decade, or partial decade in the case of 1946–1950 and 1991–1995, women's and men's unemployment rates ratcheted up. The change was particularly dramatic for females, whose unemployment rate jumped from an average of 3.8% in the 1960s to 7.9% in the 1970s. Since then it has increased to 9.6% in the 1980s and 10.0% in the 1990s. Each sex has taken its turn with the highest unemployment rate (see Figure 8.1).

As women participate more in the labour market, their unemployment experience is converging upwards towards that of males. This increase in the female unemployment rate relative to the male rate, at a time when both are generally rising, may reflect many factors. Women, as they become more attached to the labour force, may be less likely to completely drop out of the labour force if jobs are not available. They may also be under more pressure to join the labour force if their spouses' earnings and employment prospects decline; this has been the case since the early 1970s. Since they tend to occupy low-wage jobs, women's employability may be

more sensitive to wage-fixing through measures such as minimum wage laws. Often women are last to be hired and first to be laid off, and are used as a reserve labour pool to absorb cyclical fluctuations. This will push up the female unemployment rate increasingly as the restructuring of the economy takes effect.

**FIGURE 8.1**

**UNEMPLOYMENT RATES, FEMALES AND MALES, CANADA, 1946 TO 1995**



Source: Special data request, Statistics Canada, Household Surveys Division.

Furthermore, the labour market segmentation of women means that their scope for searching for other jobs may be greatly narrowed. Males displaced from blue-collar manufacturing jobs can “bump down” or search for jobs in the female-dominated service sector, perhaps displacing some women in those jobs. However, females who are already segregated into female-dominated occupations and industries find it more difficult to “bump up” or search for jobs in male-dominated sectors.<sup>1</sup>

In addition to the steady increase of both the male and female unemployment rates, there has been a shift in the composition of unemployment towards more long-term unemployment.<sup>2</sup> Unemployment is not simply widespread short-term joblessness. Instead, it is increasingly concentrated in the hands of a few who experience chronic long-term unemployment. This is disturbing because it means that the hardship of unemployment is not simply a temporary phenomenon shared among many. Instead, a relatively small group of long-term unemployed risk being marginalized.

The problem is particularly severe in light of evidence that unemployment is associated with a wide range of severe social and psychological problems. These include physical illness and disease, mental illness, mortality, suicide, crime, and family violence.<sup>3</sup> Clearly, unemployment



does not only represent underutilized human resources. It also has social and psychological consequences that can have severe economic and non-economic impacts for unemployed individuals and their families as well as society at large.

Unemployment has attracted additional attention in recent years because Canadian unemployment rates have increased substantially relative to U.S. rates. Since the early 1980s, Canadian rates have run approximately two to four percentage points higher.<sup>4</sup> In the 1970s, Canadian rates were only slightly higher, and throughout the 1950s and 1960s, Canadian and U.S. rates were similar.

The precise reasons for the unemployment gap between Canada and the United States, and the relative importance of the different factors, are still being actively researched. While final answers are not yet available, known contributing factors include Canada's deeper and longer recessions, more generous unemployment insurance benefits, and more extensive unionization and minimum wage legislation, which can reduce employment by setting wages above the competitive norm. As well, a portion of the unemployment gap can be attributed to slight differences in the way the two countries' labour force surveys are conducted (Macredie 1996).

The extent to which unemployment insurance<sup>5</sup> in Canada contributes to the unemployment rate has also been heavily debated and researched. Sorting out cause and effect in this area is particularly difficult, because changes in the unemployment insurance system itself can be a response to changes in overall unemployment that are induced by other factors.

Unemployment insurance may enhance the unemployment rate in several ways: by encouraging people to search for jobs while unemployed rather than employed; by encouraging and enabling them to search longer while unemployed; by reducing the mobility from high-unemployment regions or sectors to those with low unemployment; by discouraging wage concessions to reduce the likelihood of being unemployed; and by encouraging people to enter the labour force, or to remain in the labour force, in order to accrue eligibility for subsequent unemployment benefits.

Employers' actions could also facilitate higher unemployment. For example, there may be less pressure on employers to reduce seasonal or temporary work if unemployment insurance supports the costs of the period of unemployment.

These factors suggest that unemployment insurance<sup>6</sup> contributes to a higher unemployment rate. However, it might also reduce unemployment. For example, the extended job search facilitated by unemployment insurance could lead to better matches between workers and their jobs, which could reduce subsequent job losses or separations. Furthermore, unemployment benefit receipts could boost purchasing power in the economy, and hence aggregate demand.

Other policy issues are tied to matters of unemployment. Work-sharing has been suggested as a way to reduce unemployment. Reducing the working time of some may make room in the labour force for others. Policies in this direction include reductions in overtime and long hours, early retirement policies, and facilitation of leaves and other voluntary reductions in working time.

Issues of wage flexibility are also tied to unemployment. It is puzzling that decreases in the demand for labour tend to be absorbed by reductions in employment (that is, quantities) rather than by reductions in wages (that is, prices). This is especially curious, since small reductions in wages spread over a large, risk-averse work force are likely to generate less risk and hardship than would the possibility of an all-or-nothing outcome—cutting jobs instead of wages.

There are many reasons why decreases in the demand for labour may be absorbed by a few layoffs rather than by all workers absorbing small wage reductions. Unemployment is supported by unemployment insurance, while wage (or hours) reductions are not. Most persons who are already employed by the firm ("insiders") have little risk of being unemployed, so they have little incentive to accept wage reductions to enhance the employability of "outsiders." Employees may not know if the firm is simply bluffing about negative demand shocks. Compelling the firm to lay off workers in the face of such shocks deters bluffing, since layoffs are also costly to the firm, while wage reductions are not. Employers themselves may be reluctant to lower wages, even though there may be a long lineup of unemployed who would accept the jobs at lower wages. Such efficiency wage premiums may have other positive effects on work behaviour, especially when there are plenty of unemployed ready and able to take the job. Governments may also be concerned that wage reductions could reduce aggregate demand more than could periods of unemployment, the effect of which could be offset by income support such as unemployment insurance. These are some of the reasons that reductions in the demand for labour tend to be absorbed by unemployment rather than by wage reductions.

In the context of the broader picture portrayed above, this chapter examines female-male unemployment differences. The focus is on the determinants of the current female and male unemployment rates, as well as on the differences between these rates. The way in which female and male unemployment rates have changed over time is also analysed. Prior to describing these issues, some basic concepts are discussed.

## **8.1 BASIC CONCEPTS**

The unemployment rate is defined as the number of unemployed divided by the entire labour force, where the labour force is the number employed and unemployed. In the 1991 Census, a person was unemployed if, during the week prior to enumeration on June 4, 1991, they:

- were without work, actively looked for work in the past four weeks and were available for work;
- were laid off, expected to return to their job and were available for work; or
- had definite arrangements to start a new job in four weeks or less and were available for work.

These concepts are essentially the same as those used in the Labour Force Survey, which is conducted monthly in approximately 59,000 households.<sup>7</sup>

Those who normally have a job but are not working because of unusual circumstances (for example, illness, personal or family responsibilities, bad weather, a strike, or a vacation) are counted as employed. This is because they normally have a job, even though they were not working during the enumeration week.

The more difficult judgement call applies to those who are not employed and have also given up looking for work because they believe that no work is available. These "discouraged workers," who are marginally attached to the labour force, would be recorded as out of the labour force because they are neither working nor looking for work. They are not recorded as unemployed because they are not actively seeking work, although they would accept a job if one came available. For this reason, the unemployment rate may understate the true degree of economic

hardship, because it does not count discouraged workers as unemployed. This hidden unemployment phenomenon may be especially prominent in periods of high unemployment. Other sources of hidden unemployment include those still awaiting recall after layoff. While such workers are not recorded in the official unemployment rates, there is information on the magnitude of the phenomenon (for example, Akyeampong 1987, 1992).

The main source of information on unemployment is the Labour Force Survey, conducted monthly by Statistics Canada. The census, however, has much more detailed information, given the much larger number of persons enumerated. This enables more detailed and disaggregate analysis of unemployment, and facilitates relating unemployment to a wide range of personal, financial, demographic, and other labour market variables. However, the census is infrequently conducted and the data are only available well afterwards.

Information on the unemployed can also be obtained from data on Employment Insurance (EI) claimants, although these numbers are seldom discussed (Levesque 1989). These numbers need not be the same as those from the Labour Force Survey, however, because they can record different phenomena. Some individuals could be collecting EI benefits but not be recorded as unemployed according to the Labour Force Survey, because they are legitimately collecting EI benefits and not looking for work (for example, they may be on maternity or sick leave, or idle from regular seasonal work), or because they are illegitimately collecting EI benefits and not looking for work. In contrast, individuals can be recorded as unemployed in the Labour Force Survey and not collecting EI benefits because they are ineligible or not covered, their benefits are exhausted, or they are simply not registered. Clearly, the two concepts measure different things, hence they yield different numbers. Each measure can also capture different groups of unemployed.

With these basic concepts in mind, the remainder of the chapter analyses the census data on unemployment, with particular emphasis on female–male comparisons. The chapter follows a similar format to Chapter 3, which discusses labour force participation. Female and male unemployment rates from the 1991 Census are first compared and related to various factors believed to influence them. Regression estimates for females and males of the determinants of the probability of unemployment are then compared. These regression estimates show the independent impact of each factor, after controlling for the effect of other determinants. Historical comparisons are then made across the 1971, 1981 and 1991 Census years, based both on simple tabulations and on regression estimates. The chapter ends with a summary and some concluding observations.

## **8.2 1991 UNEMPLOYMENT RATES BY GENDER AND OTHER CHARACTERISTICS<sup>6</sup>**

At the time of the 1991 Census, the female unemployment rate, at 10.2%, was almost identical to the male rate, 10% (see Table 8.1). Clearly, at this aggregate level, this aspect of labour market behaviour was the same for both males and females.

**TABLE 8.1**  
**UNEMPLOYMENT RATES, BY VARIOUS CATEGORIES, 1991**

Category	Female %	Male %	Female:male ratio
<b>Average unemployment rate</b>	<b>10.2</b>	<b>10.0</b>	<b>1.02</b>
<b>Age</b>			
15-24	14.3	16.3	0.88
25-34	11.4	11.0	1.04
35-44	8.3	7.7	1.08
45-54	7.6	7.1	1.07
55-64	8.8	8.4	1.05
65+	6.5	5.4	1.20
<b>Vocational training</b>			
No vocational training	11.0	10.8	1.02
Vocational training	8.5	8.2	1.04
<b>Degree, certificate or diploma</b>			
No degree, certificate or diploma	13.8	13.9	0.99
High school graduate	10.3	10.1	1.02
Trade certificate or diploma	10.1	9.5	1.06
Other non-university certificate	8.1	7.2	1.13
University diploma below bachelor level	6.1	6.5	0.94
Bachelor's degree(s)	7.1	5.2	1.37
University degree above bachelor's	5.8	4.4	1.32
Degree in medicine, dentistry, veterinary medicine or optometry	3.9	1.1	3.55
Master's degree(s)	6.8	4.2	1.62
Doctorate degree	2.9	3.2	0.91
<b>Marital status</b>			
Never married, single	12.0	15.7	0.76
Common law	12.4	13.3	0.93
Married	9.0	6.5	1.38
Separated	12.5	13.1	0.95
Widowed	9.2	10.0	0.92
Divorced	10.2	12.9	0.79
<b>Languages known</b>			
English only	9.7	9.5	1.02
French only	12.7	13.6	0.93
Both English and French	10.0	9.3	1.08
Neither English nor French	21.6	18.0	1.20
No non-official languages known	10.0	10.0	1.00
Some non-official languages known	11.0	10.0	1.10
<b>Immigrant status</b>			
Non-immigrant	10.0	10.2	0.98
Immigrant	11.1	9.3	1.19
<b>Visible minority status</b>			
Not visible minority	9.9	9.8	1.01
Visible minority	13.8	12.3	1.12

**TABLE 8.1 (CONCLUDED)**  
**UNEMPLOYMENT RATES, BY VARIOUS CATEGORIES, 1991**

Category	Female %	Male %	Female: male ratio
<b>Aboriginal origins</b>			
Non-Aboriginal	10.0	9.7	1.03
Aboriginal	16.8	21.0	0.80
<b>Province</b>			
Ontario	8.4	8.5	0.99
Newfoundland	28.9	29.3	0.99
Prince Edward Island	13.0	10.3	1.26
Nova Scotia	13.4	11.9	1.13
New Brunswick	15.7	16.1	0.98
Quebec	12.0	11.7	1.03
Manitoba	7.5	8.6	0.87
Saskatchewan	6.8	6.3	1.08
Alberta	8.0	7.6	1.05
British Columbia	10.9	9.6	1.14
Yukon and Northwest Territories	14.2	13.4	1.06
<b>Census area</b>			
Non-census metropolitan area	11.9	11.5	1.03
Toronto	8.5	8.6	0.99
Montréal	11.7	11.0	1.06
Vancouver	9.6	8.7	1.10
Other census metropolitan area	8.6	8.6	1.00

.. figures not available

... figures not applicable

Source: Census of Canada, Individual Public Use Micro-data Files, 1991.

### 8.2.1 Age

Among both females and males, the unemployment rate generally declines continuously with age. For males over 65, for example, the unemployment rate of 5.4% was one-third of the rate of youths aged 15 to 24, which was 16.3%. The exceptions to this pattern were females and males aged 55 to 64, whose unemployment rates were slightly higher than those of persons aged 35 to 44 or 45 to 54. Presumably, this reflects the layoffs that were hitting those age groups, and the fact that they were still not dropping out of the labour force despite the lack of jobs.

The highest unemployment rate for both genders was in the youngest age bracket, 15 to 24. Interestingly, that is the only age bracket for which the women's unemployment rate was below the men's. In all other age brackets, the ratio of female-to-male unemployment, shown in the last column of Table 8.1, is greater than unity.

### **8.2.2 Education**

Among both women and men, the unemployment rate was lower for persons with vocational training, and still lower for those with progressively more education. The latter impact is pronounced. For example, both women and men with less than a high school certificate had unemployment rates of just under 14%. Being a high-school graduate only reduces the unemployment rate to the overall average of around 10%. Having a university diploma or a bachelor's degree reduces the unemployment rate to between 5% and 7%, which is one-third to one-half of the rate of those without a high-school certificate. Having an advanced degree generally helps even more, especially a professional degree or a doctorate.

However, there are interesting variations in the extent to which this tendency occurs; the ratio of female/male unemployment, shown in the last column of Table 8.1, often varies from unity. For example, the ratio is well above unity for various higher educated groups, including those with: a bachelor's degree; a university degree above the bachelor's level; a degree in medicine, dentistry, veterinary science or optometry; and a master's degree. The reasons for this are not obvious, especially because it does not carry through to the most advanced level—those with a doctorate.

### **8.2.3 Marital status**

Unemployment rates for both women and men vary considerably by marital status. They are very high for single, never-married persons, particularly males. They are lowest for married persons, especially for married males, whose unemployment rate of 6.5% is less than half of the rate of 15.7% for single, never-married males.

While the unemployment rate for married females, 9.0%, is below the average female rate of 10.2%, it is considerably higher than married males' rate of 6.5%. This is the only marital status category for which the female rate exceeds the male rate; for all other marital categories the female unemployment rate is below the male rate, and the ratio of female-to-male unemployment is less than unity. The higher unemployment rate for married females compared with married males may reflect the possibility that women move to places where their husbands have jobs but where there may not be suitable or paired jobs for them. Furthermore, women with an employed husband may be more likely to prolong their job search, remaining on the unemployment rolls longer.

### **8.2.4 Language**

Unemployment rates were highest for women and men who spoke neither English nor French—the women's rate was approximately twice the average, and one of the highest rates reported in Table 8.1. Unemployment also ran above the average for both women and men who spoke French only. Unemployment rates were close to the average among those who know some languages other than Canada's official languages.

### **8.2.5 Immigrant status**

Immigrants' rates were similar to those of non-immigrants, although among female immigrants they were slightly higher, 11%. Rates were somewhat higher for visible minorities. This was especially true of visible minority women, who had an unemployment rate of 13.8%. Both female and male unemployment rates are extremely high for those of Aboriginal ancestry, especially for males, who have one of the highest unemployment rates of all groups, 21%.

### **8.2.6 Province**

There was wide variation in provincial unemployment rates for both women and men. In 1991, rates were lowest in the Prairie provinces (Saskatchewan, Alberta and Manitoba) and Ontario. They were about average in British Columbia and a little above average in Prince Edward Island, Quebec, Nova Scotia, the Yukon and Northwest Territories, and especially New Brunswick. The real outlier was Newfoundland, with an unemployment rate of around 29%, the highest of any category in the table.

While the general regional pattern prevailed for both males and females, there were some notable gender differences as shown by the ratios of female-to-male unemployment that deviated considerably from unity. Specifically, female unemployment rates were unusually high relative to male rates in Prince Edward Island, Nova Scotia, and British Columbia, and they were low relative to male rates in Manitoba.

### **8.2.7 Census metropolitan areas**

Unemployment rates tended to be slightly lower in census metropolitan areas than elsewhere. The exception is Montréal, where the rate was about the same as areas of the country outside census metropolitan areas.

## **8.3 1991 REGRESSION ESTIMATES OF DETERMINANTS OF UNEMPLOYMENT**

The previous analysis focused on how unemployment rates varied by personal and environmental factors such as age, education, marital status, and region. This is useful because it tells us the gross relationship between unemployment and each of these factors. However, that relationship may reflect a combination of factors. For example, a negative relationship between age and education may reflect the impact of age, but it may also reflect the fact that younger people tend to have higher levels of education, and it is the impact of higher education, not age, that leads to lower unemployment. In regression analysis, the estimated regression coefficients indicate the separate and independent impact of the variables, after controlling for the effect of the other variables included in the regression.

The regression coefficients of Table 8.2 give the effect on the probability of unemployment of being in a particular category relative to the omitted reference category. (The omitted reference categories do not have regression coefficients.) The independent variables are the same as those used in Table 8.1, which gave the average unemployment rate according to each of these variables. The *t* statistics, which indicate whether the relationship is statistically significant, are given in Appendix 8.4. Since the relationships are usually statistically significant, the *t* statistics

are seldom discussed in the text, unless they merit such consideration. Since the dependent variable in this case is dichotomous or binary coded (that is, 1 if unemployed, 0 otherwise), then procedures like logit analysis are formally appropriate, as with the participation equations discussed in Chapter 3. The logit results are presented in Appendix 8.6. Because they are similar to the regression results, the regression results are discussed in the text because they are simpler to present.

**TABLE 8.2**

**UNEMPLOYMENT EQUATIONS, 1991 SPECIFICATION, (ORDINARY LEAST-SQUARES LINEAR PROBABILITY ESTIMATES)**

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Age</b>				
15-24	18.8	...	16.7	...
25-34	29.2	-2.5	28.2	-0.9
35-44	27.0	-6.0	25.8	-2.6
45-54	16.3	-7.2	17.3	-3.2
55-64	7.3	-6.5	9.8	-2.3
65+	1.5	-8.7	2.2	-4.6
<b>Vocational training</b>				
No vocational training	68.0	...	68.7	...
Vocational training	32.0	0.1	31.3	0.2
<b>Degree, certificate or diploma</b>				
No degree, certificate or diploma	27.0	...	32.2	...
High school graduate	28.6	-3.7	23.4	-4.3
Trade certificate or diploma	9.5	-4.5	16.1	-3.4
Other non-university certificate	18.1	-5.7	11.6	-6.2
University diploma below bachelor level	2.9	-7.2	1.7	-6.3
Bachelor's degree(s)	9.9	-6.4	9.4	-7.6
University degree above bachelor's	1.6	-6.5	1.5	-7.3
Degree in medicine, dentistry, veterinary science or optometry	0.3	-9.5	0.7	-10.1
Master's degree(s)	1.9	-5.6	2.8	-7.5
Doctorate degree	0.2	-9.3	0.7	-7.7
<b>Marital status</b>				
Never married, single	25.5	...	27.7	...
Common law	8.9	1.3	8.4	-2.0
Married	54.8	0.0	58.0	-7.5
Separated	2.8	3.8	2.0	-0.9
Widowed	2.3	0.9	0.6	-4.3
Divorced	5.8	2.3	3.3	-1.1
<b>Languages known</b>				
English only	66.7	...	67.9	...
French only	12.7	0.1	11.7	1.1
Both English and French	19.8	-0.6	19.9	-0.7
Neither English nor French	0.7	7.9	0.6	5.7
No non-official languages known	81.3	...	80.7	...
Some non-official languages known	18.7	0.6	19.3	0.9



**TABLE 8.2 (CONCLUDED)**

**UNEMPLOYMENT EQUATIONS, 1991 SPECIFICATION, (ORDINARY LEAST-SQUARES LINEAR PROBABILITY ESTIMATES)**

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Immigrant status</b>				
Non-immigrant	81.8	...	81.0	...
Immigrant	18.2	1.7	19.0	0.8
<b>Visible minority status</b>				
Not visible minority	91.1	...	91.6	...
Visible minority	8.9	4.0	8.4	3.5
<b>Aboriginal origins</b>				
Non-Aboriginal	96.9	...	97.1	...
Aboriginal	3.1	6.2	2.9	10.0
<b>Province</b>				
Ontario	38.5	...	37.4	...
Newfoundland	1.8	20.0	1.9	20.6
Prince Edward Island	0.5	4.7	0.5	1.2
Nova Scotia	3.0	5.3	3.2	3.5
New Brunswick	2.4	7.1	2.5	7.7
Quebec	24.3	4.4	24.7	3.2
Manitoba	4.0	-1.4	4.0	-1.1
Saskatchewan	3.5	-1.7	3.6	-2.8
Alberta	9.6	-0.8	9.9	-1.5
British Columbia	12.1	3.1	12.0	1.4
Yukon and Northwest Territories	0.3	2.3	0.3	0.2
<b>Census area</b>				
Non-census metropolitan area	36.9	...	39.4	...
Toronto	15.7	-1.6	14.7	-0.7
Montréal	11.6	-1.4	11.4	-1.1
Vancouver	6.4	-3.5	6.1	-2.2
Other census metropolitan area	29.4	-1.1	28.5	-0.4
<b>Summary statistics</b>				
Intercept		15.6		18.0
Sample size		96,749		117,659
R <sup>2</sup>		0.03		0.05
Average unemployment rate		10.2		10.0

.. figures not available

... figures not applicable

Source: Census of Canada, Individual Public Use Micro-data Files, 1991.

Table 8.2 also gives the mean values for each of the independent variables. For categorical variables as used throughout the table, these are simply the proportion of persons in each category. This is useful information to have because a variable could have, say, a large impact on the probability of unemployment, but it may not be important since few people are in that category.

While the regression coefficients give the effect on the probability of unemployment, of being in a particular category relative to the reference category, those impacts should be judged relative to the average probability of being unemployed—the average unemployment rate, which was 10.2% for females and 10.0% for males.

### **8.3.1 Age**

The probability of unemployment generally drops steadily with each higher age bracket, as shown by the negative regression coefficients in Table 8.2. For example, females aged 35 to 44 had an unemployment probability that was 6.0 less than females aged 15 to 24. Females age 45 to 64 had an even lower probability of 7.2 less than females age 15 to 24, which also means that they had an unemployment probability that was 1.2 (that is, 7.2 minus 6.0) lower than the 35-to-44 age group. These probabilities of unemployment for the age groups spanning 35 to 64, which were 6.0 to 7.2 lower than the youngest age group, 15 to 24, are substantial, given that the average probability of unemployment was 10.2% for females of all ages.

A similar pattern prevails for males, although the magnitudes are much smaller. Males in the age groups that span 35 to 64 had probabilities of unemployment that were 2.3% to 3.2% less than males in the youngest age group 15 to 24 (about half of the magnitude for females). In essence, among both females and males, the probability of being unemployed tends to decline with age, and the magnitude of that decline is about twice as great for females than for males.

### **8.3.2 Education**

There is no significant difference in the unemployment probability of females or males with vocational training as opposed to those with no vocational training. The probabilities do generally decline steadily, however, with higher levels of education, and the magnitudes are substantial.

For example, women's probability of unemployment, relative to women with less than high school education, was: 3.7% lower if they had graduated from high school; 4.5% lower if they had a trade certificate or diploma; 7.2% lower if they had a university diploma below the bachelor's level; 6.4% if they had a bachelor's degree; 6.5% if they had a degree above a bachelor's; 9.5% if they had a professional degree in medicine, dentistry, veterinary science, or optometry; 5.6% if they had a master's degree; and 9.3% if they had a doctorate.

Among males, a similar pattern prevails. Clearly, additional education tends to be associated with significantly lower probabilities of being unemployed.<sup>9</sup>

### **8.3.3 Marital status**

The effects of the marital status variables are quite different for females and males.

Among females, the probability of unemployment was the same or higher for every marital status relative to never-married, single females. Married women's probability of unemployment

was the same as that of the reference category, whereas married men's probability was 7.5% lower than that of never-married, single men.

In fact, among males the probability of unemployment was lower for every marital status category relative to being single and never married.

Clearly, being married substantially reduces the probability of being unemployed for males but not for females, while being separated or divorced increases the probability for females but slightly decreases it for males.

This may be because employers might be reluctant to lay off married men. As well, married men may be under financial pressure to accept job offers while unemployed, rather than waiting for a particular job.

#### **8.3.4 Language**

The probability of unemployment varied little by language status, with one exception; those who knew neither English nor French had a much higher unemployment probability. Relative to persons who knew English only, those who knew only French had a marginally higher unemployment probability. Bilingual people had a marginally lower probability—so marginal it was statistically insignificant for females and only barely significant for males.

This contrasts with the picture portrayed in the previous table, where the mean unemployment rate itself was substantially higher for those who spoke French only. That relationship tends to disappear after controlling for the impact of other variables that influence unemployment. Being a unilingual francophone is not by itself associated with substantially higher unemployment rates; rather, unilingual francophones are associated with other variables that lead to higher unemployment rates.

Knowing some non-official language is associated with a higher probability of unemployment, although the effect is small, less than 1% for females and males.

#### **8.3.5 Immigrant status**

After controlling for the effect of other determinants of unemployment, immigrants had a slightly higher unemployment probability relative to non-immigrants (1.7% higher for females and 0.8% higher for males).

Although the probability was only slightly higher for males, it is of the opposite sign to that of the gross relationship in Table 8.1, where male immigrants had a slightly lower unemployment rate (9.3%) than did non-immigrants (10.2%). This suggests that, in the aggregate, male immigrants had a slightly higher unemployment rate than non-immigrants because they are associated with other characteristics that give rise to a lower unemployment rate. Their immigrant status by itself tends to increase their probability of being unemployed, albeit by a small magnitude.

#### **8.3.6 Visible minority status**

The probability of being unemployed was still significantly higher for visible minority women and men, and especially for people of Aboriginal ancestry, after other variables are controlled for.

Interestingly, the magnitudes of these effects are almost the same as the difference in the average unemployment rates between the groups. For example, visible minority women had unemployment rates averaging 3.9 (that is, 13.8 minus 9.9) percentage points higher than non-visible minority women, and a near-identical (4.0%) higher unemployment probability compared with non-visible minority women, even after controlling for the effect of other determinants of unemployment. This suggests that it is their visible minority status per se that accounts for their higher average unemployment. Their other characteristics either do not affect their probability of being unemployed, or they cancel each other out.

### **8.3.7 Province**

Substantial differences in the probability of being unemployed prevailed across the provinces, even after controlling for the impact of other determinants of unemployment. Of particular note, the unemployment probability was 20.0% higher for females and 20.6% higher for males in Newfoundland relative to Ontario. Although of a lesser magnitude, the probabilities also tended to be higher in the Atlantic provinces, and to a lesser extent in Quebec. They tended to be slightly lower in the Prairie provinces.

### **8.3.8 Census metropolitan areas**

Relative to non-census metropolitan areas, the unemployment probability of those living in census metropolitan areas tended to be lower—considerably lower for females, and slightly lower for males. The impact was most pronounced in Vancouver, where the probability of being unemployed was 3.5% less for females and 2.2% less for males.

The extremely low  $R^2$  values highlight that the variables included in the regression analysis are only able to explain 3% of the variation in the women's unemployment probability and 5% of men's. This is even lower than the 4% and 10%  $R^2$  values, respectively, for females and males for weekly hours, and much lower than the  $R^2$  values of around 40% for labour force participation and earnings.

Unemployment, especially for females, may be more of a random event, unrelated to the variables included in the regression equations. As well, unemployment may be determined more by the peculiarities of each individual's circumstances than by the more general factors included in the regression. Whatever the reason for the low  $R^2$  values, we should be extremely modest in trying to explain variations in unemployment probabilities.

## **8.4 COMPARISONS ACROSS THE 1971, 1981 AND 1991 CENSUSES**

Tables 8.3, 8.4 and 8.5 show the ordinary least-squares estimates of the determinants of the probability of unemployment, separately for females and males, respectively for 1971, 1981 and 1991. The corresponding  $t$  statistics are given in Appendix 8.5. Since they are almost always significant at conventional levels, they are discussed in the text only when relevant.

Logistic regression was also used, as with the 1991 specification, because of the dichotomous nature of the dependent variable, which was coded 1 if the person was unemployed, 0 otherwise. The logistic regressions are given in Appendices 8.7, 8.8 and 8.9. The ordinary least-squares equations are discussed in the text, since they are simpler to present than the logit equations and the results are similar. (When this is not the case, it will be noted.)

For comparison over time, it was necessary to have a common specification across the three census years, which required a narrower set of variables and categories than was used in the full 1991 specification. Fortunately, the 1991 results from the narrower historical specification are similar to those from the full specification, which gives some confidence in the historical specification. The explicit decisions that were made to construct the common specification are set out in Appendix 8.3.

Since the emphasis is on how the determinants of female and male probabilities of being unemployed have changed over time, it is instructive to contrast the results across the three tables, both the mean values and regression coefficients. Comparisons of mean values are informative, since they show the changing composition of the female and male labour forces with respect to factors that influence their unemployment probabilities. Comparisons of regression coefficients are relevant, since they show how the relationship between the variables and the probability of being unemployed are changing. To make the presentation manageable, emphasis will be placed on those changes in the coefficients that are most substantial across the census years.

#### 8.4.1 Age

Among both females and males, the probability of being unemployed tends to drop substantially after age 15 to 24 (see Tables 8.3, 8.4 and 8.5). For females, the probabilities tend to decline slightly with each successive age group. Among males, the probabilities of being unemployed in the age groups spanning 25 to 64 tend to level off.

**TABLE 8.3**  
**UNEMPLOYMENT EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES,**  
**(ORDINARY LEAST-SQUARES LINEAR PROBABILITY ESTIMATES), 1971**

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Age</b>				
15-24	32.0	...	22.5	...
25-34	20.9	-7.6	23.8	-6.6
35-44	18.1	-9.8	20.6	-6.7
45-54	16.7	-9.5	18.1	-6.9
55-64	9.9	-10.9	11.9	-6.2
65+	2.4	-8.0	3.1	-2.9
<b>Vocational training</b>				
No vocational training	85.0	...	82.0	...
Vocational training	15.0	-0.4	18.0	0.0
<b>Degree, certificate or diploma</b>				
No high school diploma	57.2	...	65.1	...
High school graduate	29.3	-3.3	19.5	-2.7
Some postsecondary	8.2	-3.1	7.2	-1.6
Bachelor's degree	3.3	-5.8	3.5	-4.2
Post-bachelor's	0.2	1.6	0.4	-1.3
Postgraduate degree	1.8	-4.4	4.3	-4.2

TABLE 8.3 (CONCLUDED)

**UNEMPLOYMENT EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES,  
(ORDINARY LEAST-SQUARES LINEAR PROBABILITY ESTIMATES), 1971**

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Marital status</b>				
Single	33.3	...	26.0	...
Married	55.4	-1.3	69.5	-7.2
Separated, widowed, divorced	11.3	0.2	4.5	-0.9
<b>Languages known</b>				
English only	69.1	...	68.0	...
French only	12.5	0.8	11.9	3.7
English and French	17.0	0.7	19.2	1.4
Neither English nor French	1.4	-1.8	1.0	0.9
<b>Immigrant status</b>				
Non-immigrant	80.0	...	79.7	...
Immigrant	20.0	1.1	20.3	0.5
<b>Province</b>				
Atlantic provinces	7.0	...	8.1	...
Quebec	24.7	1.3	25.9	-0.6
Ontario	40.8	0.5	38.2	-2.1
Prairie provinces	17.1	-0.5	17.1	-3.0
British Columbia	10.5	2.6	10.7	0.4
Intercept	...	16.2	...	19.1
Sample size	...	30,343	...	57,032
R <sup>2</sup>	...	2.8	...	5.1
Average unemployment rate	...	8.9	...	7.4

**Notes:** The reference categories for categorical variables appear in bold, unshaded type. Statistical significance is not denoted, because the variables were almost always significant at conventional levels. The *t* statistics are given in Appendix 8.4.

.. figures not available

... figures not applicable

**Source:** Census of Canada, Individual Public Use Micro-data Files, 1971.

TABLE 8.4

UNEMPLOYMENT EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES,  
(ORDINARY LEAST-SQUARES LINEAR PROBABILITY ESTIMATES), 1981

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Age</b>				
15-24	29.8	...	23.8	...
25-34	27.9	-8.6	27.6	-6.5
35-44	18.8	-11.4	19.6	-8.1
45-54	14.0	-12.7	15.9	-8.4
55-64	8.0	-13.9	10.9	-7.6
65+	1.5	-16.5	2.2	-10.8
<b>Vocational training</b>				
No vocational training	73.6	...	73.0	...
Vocational training	26.4	0.4	27.0	1.2
<b>Degree, certificate or diploma</b>				
No high school diploma	38.6	...	43.0	...
High school graduate	26.1	-5.2	19.3	-4.2
Some postsecondary	26.4	-6.4	26.1	-4.6
Bachelor's degree	6.4	-7.5	7.1	-5.8
Post-bachelor's	1.1	-7.4	1.2	-6.1
Postgraduate degree	1.4	-7.5	3.3	-5.9
<b>Marital status</b>				
Single	30.3	...	28.6	...
Married	58.9	-1.8	66.0	-8.1
Separated, widowed, divorced	10.8	0.3	5.3	-2.4
<b>Languages known</b>				
English only	66.9	...	67.1	...
French only	13.5	3.3	12.6	4.3
English and French	18.7	1.1	19.7	1.0
Neither English nor French	0.9	1.6	0.6	3.1
<b>Immigrant status</b>				
Non-immigrant	81.2	...	80.9	...
Immigrant	18.8	0.3	19.1	0.4
<b>Province</b>				
Atlantic provinces	7.3	...	7.9	...
Quebec	24.9	-4.3	25.9	-4.6
Ontario	38.6	-8.3	36.5	-7.2
Prairie provinces	17.6	-11.4	18.2	-9.4
British Columbia	11.7	-7.1	11.6	-6.6

TABLE 8.4 (CONCLUDED)

**UNEMPLOYMENT EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES,  
(ORDINARY LEAST-SQUARES LINEAR PROBABILITY ESTIMATES), 1981**

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
Intercept	...	30.3	...	28.0
Sample size	...	99,774	...	144,275
$R^2$	...	0.05	...	0.07
Average unemployment rate	...	11.5	...	8.9

**Notes:** The reference category for categorical variables is indicated in bold, unshaded type. Statistical significance is not denoted, because the variables were almost always significant at conventional levels. The  $t$  statistics are given in Appendix 8.4.

.. figures not available

... figures not applicable

Source: Census of Canada, Individual Public Use Micro-data Files, 1981.

TABLE 8.5

**UNEMPLOYMENT EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES,  
(ORDINARY LEAST-SQUARES LINEAR PROBABILITY ESTIMATES), 1991**

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Age</b>				
15-24	18.7	...	16.7	...
25-34	29.2	-2.7	28.2	-1.3
35-44	27.0	-6.4	25.8	-3.5
45-54	16.3	-7.8	17.3	-4.5
55-64	7.3	-7.5	9.8	-3.8
65+	1.5	-10.0	2.2	-6.7
<b>Vocational training</b>				
No vocational training	68.0	...	68.6	...
Vocational training	32.0	1.0	31.4	1.0
<b>Degree, certificate or diploma</b>				
No high school diploma	27.0	...	32.1	...
High school graduate	28.6	-4.0	23.4	-4.6
Some postsecondary	30.5	-6.4	29.4	-5.8
Bachelor's degree	9.9	-6.9	9.4	-8.2
Post-bachelor's	1.6	-7.0	1.5	-7.9
Postgraduate degree	2.4	-6.9	4.2	-8.5



TABLE 8.5 (CONCLUDED)

**UNEMPLOYMENT EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES,  
(ORDINARY LEAST-SQUARES LINEAR PROBABILITY ESTIMATES), 1991**

Variable	Female		Male	
	Mean	Coefficient	Mean	Coefficient
<b>Marital status</b>				
<b>Single</b>	25.5	...	27.7	...
Married	63.6	0.3	66.4	-6.2
Separated, widowed, divorced	10.9	2.5	5.9	-0.7
<b>Languages known</b>				
<b>English only</b>	66.6	...	67.7	...
French only	12.8	-0.1	11.8	1.0
English and French	19.9	-1.0	20.0	-1.0
Neither English nor French	0.7	8.7	0.6	6.7
<b>Immigrant status</b>				
<b>Non-immigrant</b>	81.7	...	80.9	...
Immigrant	18.3	2.9	19.1	1.9
<b>Province</b>				
<b>Atlantic provinces</b>	7.3	...	7.7	...
Quebec	24.5	-5.5	24.9	-5.9
Ontario	38.8	-10.2	37.7	-9.4
Prairies	17.2	-10.9	17.6	-10.5
British Columbia	12.2	-7.7	12.1	-8.3
<b>Summary statistics</b>				
Intercept	...	25.7	...	28.0
Sample size	...	95,974	...	116,744
$R^2$	...	0.03	...	0.04
Average unemployment rate	...	10.2	...	10.0

**Notes:** The reference category for categorical variables is indicated in bold, unshaded type. Statistical significance is not denoted because the variables were almost always significant at conventional levels. The  $t$  statistics are given in Appendix 8.4.

.. figures not available

... figures not applicable

**Source:** Census of Canada, Individual Public Use Micro-data Files, 1991.

The most pronounced change over the three census years occurred in the 65-and-over age group. In 1971, the probability of unemployment, especially among men, approached the higher unemployment rate of the reference category, ages 15 to 24. (In other words, the negative coefficients for the 65-and-over groups were smaller than for most of the age groups between 25 to 55, indicating that the probability of unemployment became larger relative to those age groups.) In 1981 and 1991, however, this pattern was reversed. The largest negative coefficients occurred in the 65-and-over groups. So, in 1971 those 65 and over had a relatively high probability of being unemployed; in 1981 and 1991 they had the lowest probability of being unemployed.

While the precise reasons for this are beyond the scope of this analysis, it likely reflects the fact that by the 1980s and 1990s older workers who lost their jobs tended to leave the labour force rather than remain in it and look for work. This is supported by the results in Chapter 3, where the participation probabilities for those 65 and over were considerably lower in 1981 and 1991 than in 1971. Whether this greater tendency to drop out of the labour force reflects greater pension support and other income security for older workers, or the reduced chances of them finding work, remains an interesting question.

#### **8.4.2 Education**

In 1971, vocational training had no significant impact on women's or men's unemployment probabilities. By 1981 and 1991, however, it was associated with a slightly higher unemployment probability of about one percentage point. This positive relationship between vocational training and unemployment could reflect several factors: the inability of vocational training to stem the tide of rising unemployment that affected most groups; the need for higher-skilled training; or the possibility that unemployed persons were more likely to take vocational training.

Among both females and males, there is a strong relationship between higher levels of education and reductions in the probability of being unemployed across all three census years.

In 1971 and 1981, that relationship appears to be stronger for females than males, as exhibited by the generally larger negative coefficients for females compared with males. By 1991, however, the effect of higher education in reducing the probability of unemployment was slightly lower for females than males (that is, the negative coefficients were generally smaller for females than for males). For example, compared with those who had not graduated from high school, persons with a bachelor's degree had an unemployment probability that was 5.8 points lower for females and 4.2 for males in 1971, 7.5 for females and 5.8 for males in 1981, and 6.9 for females and 8.2 for males in 1991. By and large, then, those with bachelor's degrees had a significantly lower unemployment probability compared with those who had not graduated from high school.

Some of the lessening of the positive effect for females relative to males by 1991 may reflect the fact that females were disproportionately acquiring higher education such as bachelor's degrees. For example, the proportion of persons with a bachelor's degree (that is, mean values), respectively for females and males, was 3.3% and 3.5% in 1971, 6.4% and 7.1% in 1981, and 9.9% and 9.4% in 1991. The proportion of people with a bachelor's degree grew, but that tendency was stronger for females than males. This greater competition for jobs among females with a bachelor's degree may have reduced the otherwise positive impact of such a degree on the probability of unemployment.

### 8.4.3 Marital status

A strong gender difference prevails across the three years in the impact of marital status on the probability of unemployment. In all three years, married men had a probability of being unemployed that was approximately 6-to-8 percentage points lower than that of single, never-married men.

Among married women, the probabilities were only slightly lower than for single, never-married females in 1971 and 1981, and they were actually slightly higher by 1991. Similarly, women who were separated, widowed or divorced saw their unemployment probabilities continually increase relative to single, never-married females over the three census years. Clearly, marital status has a different impact on the women's probability of unemployment compared with men's. Marriage substantially reduced the probability for men, but had little impact on women's probability.

### 8.4.4 Language

Substantial changes have occurred with respect to the impact of language on the probability of being unemployed, especially over the 1980s. In 1991, the probability of unemployment was almost the same among both women and men who spoke French only compared with the reference category, those who spoke English only. This is in contrast to 1971 and 1981, when the probability of unemployment was usually much higher for those who spoke French only.

Similarly, by 1991, the probability of unemployment was slightly lower for bilingual women or men compared with those who spoke only English. This reversed the pattern in 1971 and 1981, where bilingual people had slightly higher unemployment probabilities than did those who spoke English only.

The largest change, however, was the huge increase over time in the unemployment probability of those who speak neither English nor French relative to those who speak only English. By 1991, the probability of unemployment was 8.7 percentage points higher for females who spoke neither English nor French, compared with females who spoke only English. The corresponding figure for males was 6.7. This was a dramatic increase over 1971 and 1981, when the probabilities of being unemployed were only slightly higher for those who could speak neither official language, and in fact were 1.8 percentage points lower for females who could speak neither language compared with females who could speak English only. Over the 1980s, bilingual people saw their unemployment probability fall relative to those who spoke English only. This was also especially true among those who spoke French only. Those who spoke neither of the official languages saw a substantial rise in their probability of being unemployed.

### 8.4.5 Immigrant status

Over the 1980s, female and male immigrants saw a substantial increase in their probabilities of unemployment relative to non-immigrants. In 1971 and especially in 1981, the probability of being unemployed was only marginally higher for immigrants than for non-immigrants—usually less than 1 percentage point higher. By 1991, however, the probability of being unemployed was 2.9 percentage points higher for female immigrants and 1.9 percentage points higher for male immigrants. Clearly, immigrants' unemployment situation, especially that of immigrant women, deteriorated over the 1980s.

#### **8.4.6 Province**

There were also substantial changes in the regional pattern of unemployment, mainly with respect to the Atlantic provinces. These began in the 1970s; in 1971, the probability of being unemployed tended to be higher for females and lower for males in most regions relative to the Atlantic provinces. By 1981, however, a stronger and more consistent pattern emerged—substantially lower unemployment probabilities associated with females and males in all regions compared with Atlantic Canada. In terms of the probability of being unemployed in 1981, the ranking of the regions from high to low was: the Atlantic provinces, Quebec, British Columbia, Ontario, and the Prairies. This same regional ranking persisted into 1991; unemployment probabilities for females and males were similar within each region—they differed by less than one percentage point.

### **8.5 SUMMARY AND CONCLUDING OBSERVATIONS**

The unemployment rate is a crucial economic indicator. It reflects the hardship suffered by individuals and their families, as well as unused human potential and wasted resources. The unemployment rate is also a barometer for the aggregate state of the economy and the degree of slack or tightness in labour markets.

It is also associated with a wide range of policy concerns: the continuous ratcheting up of unemployment, especially since the Second World War; the increased importance of long-term unemployment; the severe social and psychological effects of unemployment on individuals and society at large; the growing unemployment gap between Canada and the United States; the impact of unemployment insurance; the feasibility of sharing work to reduce unemployment; and the feasibility of using wage flexibility to reduce unemployment.

Since the Second World War, unemployment rates in Canada have exhibited considerable cyclical fluctuation, and a pronounced upward trend. After each cyclical unemployment rate peak, they tended to drop, but not to their pre-recession level, so that unemployment rates have ratcheted upwards each decade.

Prior to the mid-1960s, females' unemployment rates were consistently below those of males. In the second half of the 1960s, the two rates converged. Since then, they have exhibited a mixed pattern: slightly above male rates in the 1970s; very similar over much of the 1980s; and slightly below male rates in the late 1980s and 1990s.

In 1991, for both females and males the probability of being unemployed tended to drop steadily with age; the magnitude of that decline was about twice as great for females as for males.

The probability of unemployment does not seem to drop for persons with vocational training, although it does drop substantially for both women and men with higher levels of education.

Being married substantially reduces the probability of unemployment for males but not for females. Being separated, widowed or divorced increases the probability for females but slightly decreases it for males.

The probability of being unemployed does not vary much by language status, except that it is considerably higher for those who speak neither English nor French.

Immigrants have a slightly higher probability of unemployment than do non-immigrants, once the impact of other determinants of unemployment are controlled for.

Visible minorities and Aboriginals have a considerably higher probability of being unemployed. This is true for both females and males.

Probabilities of being unemployed are substantially higher in the Atlantic provinces, especially in Newfoundland, relative to the rest of Canada; this prevails for both women and men.

The probabilities of being unemployed tend to be lower in census metropolitan areas compared with non-census metropolitan areas, especially among females.

The patterns discussed above that prevailed in 1991 sometimes were similar to those that prevailed in 1971 and 1981, and sometimes they changed markedly over the three censuses.

With respect to the relationship between age and unemployment, the most pronounced change occurred with the 65-and-over age group. In 1971, their probability of unemployment increased relative to the age group 25 to 65. In 1981 and 1991, that relationship reversed. Their probability of unemployment fell substantially relative to the reference age group.

Higher education was associated with lower unemployment probabilities across the three census years. This association was especially strong for females in 1971 and 1981, although it weakened for them by 1991, perhaps reflecting the larger number of better-educated women competing for high-skill jobs.

Across the three census years, marriage substantially reduced men's unemployment probability, but it had little impact on women's.

Over the 1980s, there were reductions in the unemployment probability for bilingual persons, and for those who spoke only French, relative to those who spoke only English. However there were substantial increases in unemployment probabilities for those who spoke neither of the official languages.

Immigrants' unemployment situation, especially that of female immigrants, was similar to non-immigrants in 1971 and 1981, but deteriorated by 1991.

In 1971, the probability of being unemployed tended to be somewhat higher for females and lower for males in most regions, relative to the Atlantic provinces. In 1981 and 1991, however, both females and males had substantially lower unemployment probabilities in all of the regions, relative to Atlantic Canada. The ranking of the regions for unemployment probability, from high to low, was: the Atlantic provinces, Quebec, British Columbia, Ontario and the Prairie provinces. Females' and males' unemployment probabilities were similar in each region.

Since the 1970s women's unemployment situation has deteriorated in two respects: it has risen to approach the higher male rate; and both have ratcheted upwards with each successive recession. This has a substantial impact on the female work force, and policies that relate to unemployment should take that into account. The deteriorating employment situation is particularly acute for immigrant women, for women who speak neither official language, and for less-educated women. In essence, the growing unemployment problem hurts those already disadvantaged.



## ENDNOTES

1. Issues of gender and unemployment are discussed, for example, in Rubery (1988). Card and Riddell (1993) use data from the 1980 and 1987 Survey of Consumer Finances to show that much of the growth of relative unemployment among Canadian women during the 1980s can be attributed to the fact that when they are not employed they are increasingly likely to remain in the labour force as unemployed rather than drop out altogether. This also accounts for some of the rising gap between unemployment rates in Canada and the United States, since in the United States unemployed women are more likely to drop out of the labour force. Myatt and Murrell (1990) use Labour Force Survey data over the period 1976 to 1987, and conclude that most of the increasing female unemployment rate relative to the male rate can be attributed to minimum wage legislation, and very little can be attributed to labour force bottlenecks that inhibited absorbing the influx of women into the labour market.
2. See Corak (1993), Devereaux (1992) and Gera and McMullen (1991).
3. Canadian evidence, and reviews of other studies, are contained in D'Arcy (1986), D'Arcy and Siddique (1985), Catalano (1991), Jin, Shah and Svoboda (1994), Kirsh (1992), and Pautler and Lewko (1984).
4. See Card and Riddell (1993) and references cited therein.
5. The national unemployment insurance program was recently renamed Employment Insurance. In this discussion, however, the traditional, generic name for the program will be used.
6. An unemployment insurance program usually includes benefits for the unemployed, and often includes retraining programs, financial assistance and related services to help workers find a new job.
7. Given the similarity between the concepts of unemployment, it is not surprising that the unemployment rates from the census and the Labour Force Survey are almost identical. As shown below, the census unemployment rates, which refer to the week prior to the enumeration week of June 4, 1991, were 10.2% for females and 10.0% for males. The Labour Force Survey rates for all of June 1991 were 9.6% for females and 10.1% for males. *Source:* Statistics Canada, *Historical Labour Force Statistics*, Catalogue no. 71-201, 1995, pp. 224, 230.
8. Data exclusions and adjustments to provide comparability when 1971, 1981 and 1991 census data are used, are outlined in Appendix 8.1. Variable definitions are given in Appendix 8.2 for the 1991 specification, and Appendix 8.3 for the common 1971, 1981 and 1991 specification.
9. Based on data from the Labour Force Survey and the Survey of Consumer Finances, over the period 1979 to 1993, Crompton (1995) documents that labour market success, measured by employment, earnings and unemployment, has greatly deteriorated for young men and women with only a high school certificate.

1. 2. 3. 4.

5. 6. 7. 8.

9. 10.

11. 12.

13. 14. 15. 16.

17. 18. 19. 20.

21. 22. 23. 24.

25. 26. 27. 28.

29. 30. 31. 32.

33. 34. 35. 36.

37. 38. 39. 40.

41. 42. 43. 44.

45. 46. 47. 48.

49. 50. 51. 52.

53. 54. 55. 56.

57. 58. 59. 60.

61. 62. 63. 64.

65. 66. 67. 68.

69. 70. 71. 72.

73. 74. 75. 76.

77. 78. 79. 80.

81. 82. 83. 84.

85. 86. 87. 88.

89. 90. 91. 92.

93. 94. 95. 96.

97. 98. 99. 100.

101. 102. 103. 104.

105. 106. 107. 108.

109. 110. 111. 112.

113. 114. 115. 116.

117. 118. 119. 120.



## APPENDIX 8

### APPENDIX 8.1

#### DATA EXCLUSIONS AND COMPARABILITY ADJUSTMENTS

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The data exclusions used in this analysis of unemployment are the same as those used in Chapter 3 on the labour force participation decision, since unemployment is one of the states of labour force participation. For the 1991 Census data, it was possible to be very inclusive, since most of the census population could have participated in labour market activities as an unemployed person. The exception is those under the age of 15; they were excluded because they normally would be required to be in school instead of engaging in regular labour market activities. These persons were excluded via the labour force categorization itself. This is because the labour force participation decision was recorded only for those 15 and over, excluding institutional residents, who, in the week prior to enumeration on June 4, 1991 were employed, unemployed or not in the labour force.

With respect to the historical 1971, 1981 and 1991 comparisons, it was necessary to exclude some observations in particular years so as to have a common specification across the three census years.

Specifically, in the 1971 Census, data on the geographic code for persons in Prince Edward Island, Yukon and Northwest Territories were not available, since these areas did not meet the population requirement of 250,000 residents. To facilitate comparability across the three census years, persons in these regions were also excluded from the 1981 and 1991 Censuses in the historical analysis.

The 1991 Census marked the first time that a question on the number of children ever born alive was asked of all women—including never married—15 years of age and over. In previous censuses, the question was asked only of ever-married females 15 years of age and over. For comparability purposes, in the historical analysis involving the 1991 data, never-married females were recorded as having no children ever born. Specifically, if the females' legal marital status MARSTLP (Field 17) were coded as 4 for never married, then their fertility status FERTFHP (Field 19) was coded as 1 for no children ever born. This corresponds to the way such females would have been coded in the previous census.

## APPENDIX 8.2

### VARIABLE DEFINITIONS, 1991 SPECIFICATION

The census fields and codes used to define all of the variables used for the 1991 unemployment analysis are given in the Appendix 5.3, which also includes a comprehensive list of variables used in the earnings analysis but not used in this unemployment analysis. The only variables used in this chapter and not in Chapter 5 are:

Variable	Field	Code
Unemployment	84	3-10
No children	11	1
At least one child under 2, none over 5	11	2
No children under 2, some 2-5	11	3
Some children under 6, some over 5	11	4
No children under 6, some 6-14	11	5
No children under 15, some over 14	11	6

Source: Census of Canada, Individual Public Use Micro-data Files, 1991.

## APPENDIX 8.3

### VARIABLE DEFINITIONS, COMMON SPECIFICATION, 1971, 1981, 1991 CENSUSES

The census fields and codes used to define all of the variables used for the 1971, 1981 and 1991 historical unemployment analysis are given in Appendix 5.4, which also includes a comprehensive list of the variables used in the earnings analysis but not used in this unemployment analysis. The only variables used in this chapter and not in Chapter 5 are:

Variable	1971		1981		1991	
	Field	Code	Field	Code	Field	Code
Unemployment	28	4,5	30	5-7	84	3-10
Some children	27	2-15	25	1-9	19	2-8

Source: Census of Canada, Individual Public Use Micro-data Files, 1971, 1981 and 1991.

## APPENDIX 8.4

### † STATISTICS, UNEMPLOYMENT EQUATIONS, 1991 SPECIFICATION (ORDINARY LEAST-SQUARES LINEAR PROBABILITY ESTIMATES)

Variable	Female	Male
<b>Age</b>		
15-24	...	...
25-34	-7.67	-3.13
35-44	-16.95	-7.71
45-54	-18.26	-8.84
55-64	-13.59	-5.50
65+	-9.97	-7.10
<b>Vocational training</b>		
No vocational training	...	...
Vocational training	0.27	0.47
<b>Degree, certificate or diploma</b>		
No degree, certificate or diploma	...	...
High school graduate	-14.11	-18.11
Trade certificate or diploma	-6.94	-5.96
Other non-university certificate	-9.36	-10.56
University diploma below bachelor level	-11.59	-9.03
Bachelor's degree(s)	-16.23	-22.06
University degree above bachelor's	-8.27	-10.17
Degree in medicine, dentistry, veterinary science or optometry	-5.55	-9.85
Master's degree(s)	-7.51	-13.57
Doctorate degree	-4.07	-7.34
<b>Marital status</b>		
Never married, single	...	...
Common law	3.26	-5.70
Married	-0.14	-28.86
Separated	6.00	-1.38
Widowed	1.30	-3.78
Divorced	4.86	-2.05
<b>Languages known</b>		
English only	...	...
French only	0.24	2.44
Both English and French	-1.78	-2.16
Neither English nor French	6.83	5.01
No non-official languages known	...	...
Some non-official languages known	2.12	3.40
<b>Immigrant status</b>		
Non-immigrant	...	...
Immigrant	4.97	2.70

# APPENDIX 8.4 (CONCLUDED)

## **t** STATISTICS, UNEMPLOYMENT EQUATIONS, 1991 SPECIFICATION (ORDINARY LEAST-SQUARES LINEAR PROBABILITY ESTIMATES)

Variable	Female	Male
<b>Visible minority status</b>		
Not visible minority	...	...
Visible minority	9.68	9.59
<b>Aboriginal origins</b>		
Non-Aboriginal	...	...
Aboriginal	10.98	19.14
<b>Province</b>		
Ontario	...	...
Newfoundland	26.46	31.40
Prince Edward Island	3.36	0.94
Nova Scotia	9.07	6.76
New Brunswick	10.54	13.24
Quebec	8.77	7.17
Manitoba	-2.77	-2.45
Saskatchewan	-3.05	-5.71
Alberta	-2.07	-4.44
British Columbia	6.86	3.37
Yukon and Northwest Territories	1.34	0.11
<b>Census area</b>		
Non-census metropolitan area	...	...
Toronto	-4.45	-2.23
Montréal	-3.31	-2.88
Vancouver	-6.27	-4.46
Other census metropolitan area	-4.34	-1.69

**Notes:** The reference categories for categorical variables are indicated in bold, unshaded type. Variables are statistically significant at the 0.01 and 0.05 level when their *t* statistics, respectively, are greater than 2.58 and 1.96 based on two-tailed tests.

.. figures not available

... figures not applicable

**Source:** Census of Canada, Individual Public Use Micro-data Files, 1991.

## APPENDIX 8.5

### ***t* STATISTICS, UNEMPLOYMENT EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1971, 1981, 1991 (ORDINARY LEAST-SQUARES LINEAR PROBABILITY ESTIMATES)**

Variable	1971		1981		1991	
	Female	Male	Female	Male	Female	Male
<b>Age</b>						
15-24	...	...	...	...	...	...
25-34	-15.29	-17.92	-29.11	-27.15	-8.37	-4.38
35-44	-18.24	-16.96	-33.60	-29.43	-18.35	-10.55
45-54	-17.31	-16.96	-34.89	-29.32	-20.32	-12.33
55-64	-17.05	-13.88	-32.18	-24.25	-15.93	-9.40
65+	-7.26	-4.25	-19.45	-20.32	-11.76	-10.36
<b>Vocational training</b>						
No vocational training	...	...	...	...	...	...
Vocational training	-0.91	-0.17	0.73	2.57	2.1	2.25
<b>Degree, certificate or diploma</b>						
No high school diploma	...	...	...	...	...	...
High school graduate	-8.68	-9.55	-20.16	-20.82	-15.13	-19.20
Some postsecondary	-5.08	-3.65	-11.33	-9.76	-12.65	-11.66
Bachelor's degree	-6.29	-7.20	-16.78	-18.46	-17.74	-23.99
Post-bachelor's	0.4	-0.70	-7.85	-9.25	-8.85	-10.92
Postgraduate degree	-3.62	-7.82	-8.86	-13.86	-10.35	-18.32
<b>Marital status</b>						
Single	...	...	...	...	...	...
Married	-3.17	-22.67	-6.78	-38.07	1.05	-24.65
Separated, widowed, divorced	0.36	-1.58	0.87	-6.46	6.39	-1.61
<b>Languages known</b>						
English only	...	...	...	...	...	...
French only	1.06	7.39	6.94	12.02	-0.20	2.26
English and French	1.25	3.77	3.24	3.96	-3.18	-3.35
Neither English nor French	-1.25	0.8	1.55	3.24	7.48	5.8
<b>Immigrant status</b>						
Non-immigrant	...	...	...	...	...	...
Immigrant	2.61	1.83	0.97	1.87	10.94	8.12
<b>Province</b>						
Atlantic provinces	...	...	...	...	...	...
Quebec	1.63	-1.09	-8.34	-12.64	-10.98	-13.31
Ontario	0.82	-4.88	-20.58	-25.16	-25.75	-27.01
Prairie provinces	-0.67	-6.52	-26.09	-30.38	-25.36	-27.99
British Columbia	3.29	0.87	-15.07	-19.55	-16.86	-20.62

**Notes:** The reference categories for categorical variables appear in bold, unshaded type. Variables are statistically significant at the 0.01 and 0.05 level, when their *t* statistics respectively are greater than 2.58 and 1.96 based on two-tailed tests.

.. figures not available

... figures not applicable

**Source:** Census of Canada, Individual Public Use Micro-data Files, 1971, 1981 and 1991.

# APPENDIX 8.6

## LOGIT UNEMPLOYMENT EQUATIONS, 1991 SPECIFICATION

Variable	Females		Males	
	Change in probability	t statistic	Change in probability	t statistic
<b>Age</b>				
15-24	...	...	...	...
25-34	-2.2	-6.55	-0.2	-0.63
35-44	-7.4	-16.29	-2.2	-6.20
45-54	-9.6	-17.46	-3.2	-7.50
55-64	-8.1	-12.45	-1.4	-3.24
65+	-13.5	-8.63	-6.2	-5.94
<b>Vocational training</b>				
No vocational training	...	...	...	...
Vocational training	0.4	0.59	0.9	1.36
<b>Degree, certificate or diploma</b>				
No degree, certificate or diploma	...	...	...	...
High school graduate	-3.9	-13.33	-4.7	-16.6
Trade certificate or diploma	-5.4	-6.01	-4.5	-5.07
Other non-university certificate	-7.7	-8.31	-9.8	-9.32
University diploma below bachelor level	-11.3	-10.33	-9.8	-8.10
Bachelor's degree(s)	-9.0	-14.93	-13.8	-20.23
University degree above bachelor's	-10.3	-7.35	-14.4	-9.02
Degree in medicine, dentistry, veterinary science or optometry	-21.1	-4.67	-46.9	-7.35
Master's degree(s)	-7.7	-6.71	-15.4	-12.21
Doctorate degree	-24.5	-3.38	-18.7	-6.38
<b>Marital status</b>				
Never married, single marital status	...	...	...	...
Common law	1.1	3.04	-1.8	-5.17
Married	-0.2	-0.54	-10.7	-29.51
Separated	3.1	6.16	-0.5	-0.82
Widowed	1.0	1.38	-4.3	-3.06
Divorced	2.2	4.95	-0.6	-1.25
<b>Languages known</b>				
English only	...	...	...	...
French only	0.0	-0.07	0.6	1.43
Both English and French	-0.6	-1.65	-0.7	-2.00
Neither English nor French	4.1	5.74	3.5	4.45
No non-official languages known	...	...	...	...
Some non-official languages known	0.7	2.29	1.2	4.13
<b>Immigrant status</b>				
Non-immigrant	...	...	...	...
Immigrant	1.7	5.22	0.8	2.49

# APPENDIX 8.6 (CONCLUDED)

## LOGIT UNEMPLOYMENT EQUATIONS, 1991 SPECIFICATION

Variable	Females		Males	
	Change in probability	t statistic	Change in probability	t statistic
<b>Visible minority status</b>				
Not visible minority	...	...	...	...
Visible minority	3.1	9.23	3.1	9.54
<b>Aboriginal origins</b>				
Non-Aboriginal	...	...	...	...
Aboriginal	4.1	10.57	5.3	17.58
<b>Province</b>				
Ontario	...	...	...	...
Newfoundland	7.7	24.01	7.7	28.17
Prince Edward Island	3.9	3.62	1.3	1.07
Nova Scotia	4.2	9.57	3.1	7.24
New Brunswick	4.9	10.71	5.2	13.31
Quebec	3.8	9.10	3.0	7.60
Manitoba	-1.9	-2.88	-1.3	-2.38
Saskatchewan	-2.5	-3.38	-4.4	-6.01
Alberta	-1.0	-2.32	-2.0	-4.87
British Columbia	2.7	6.85	1.3	3.23
Yukon and Northwest Territories	1.6	1.13	-0.4	-0.28
<b>Census area</b>				
Non-census metropolitan area	...	...	...	...
Toronto	-1.9	-4.44	-0.8	-2.22
Montréal	-1.6	-3.66	-1.2	-3.11
Vancouver	-4.1	-6.23	-2.6	-4.41
Other census metropolitan area	-1.3	-4.44	-0.5	-1.83
<b>Logit intercept</b>				
Logit intercept	1.7	43.35	1.51	56.83
Sample size	...	96,749	...	117,659
Chi <sup>2</sup>	...	2,816	...	5,356
Average unemployment rate	...	10.2	...	10.0

.. figures not available

... figures not applicable

Source: Census of Canada, Individual Public Use Micro-data Files, 1991.

# APPENDIX 8.7

## LOGIT UNEMPLOYMENT EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1971 (CHANGE IN PROBABILITIES AT MEAN)

Variable	Females		Males	
	Change in probability	t statistic	Change in probability	t statistic
<b>Age</b>				
15-24	...	...	...	...
25-34	-9.2	-13.13	-7.0	-13.92
35-44	-15.0	-15.92	-7.6	-12.97
45-54	-13.9	-15.00	-8.2	-13.07
55-64	-19.0	-14.16	-6.2	-9.69
65+	-9.9	-6.04	-1.1	-1.56
<b>Vocational training</b>				
No vocational training	...	...	...	...
Vocational training	-0.5	-1.07	-0.3	-0.87
<b>Degree, certificate or diploma</b>				
No high school diploma	...	...	...	...
High school graduate	-4.0	-8.39	-3.5	-9.17
Some postsecondary	-3.7	-4.92	-1.8	-3.77
Bachelor's degree	-9.1	-5.71	-8.6	-6.98
Post-bachelor's	1.3	0.40	-1.5	-0.69
Postgraduate degree	-6.7	-3.32	-11.3	-7.87
<b>Marital status</b>				
Single	...	...	...	...
Married	-1.3	-2.93	-10.0	-21.28
Separated, widowed, divorced	0.7	1.14	0.1	0.14
<b>Languages known</b>				
English only	...	...	...	...
French only	0.7	1.02	2.5	6.22
English and French	0.7	1.41	1.4	4.26
Neither English nor French	-2.0	-1.15	1.1	1.01
<b>Immigrant status</b>				
Non-immigrant	...	...	...	...
Immigrant	1.1	2.66	0.4	1.41
<b>Province</b>				
Atlantic provinces	...	...	...	...
Quebec	1.2	1.47	-0.7	-1.26
Ontario	0.5	0.72	-2.5	-5.19
Prairie provinces	-0.6	-0.79	-4.1	-6.84
British Columbia	2.3	3.21	0.5	0.92



## APPENDIX 8.7 (CONCLUDED)

### LOGIT UNEMPLOYMENT EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1971 (CHANGE IN PROBABILITIES AT MEAN)

Variable	Females		Males	
	Change in probability	t statistic	Change in probability	t statistic
Logit intercept	1.60	18.81	1.26	21.22
Sample size	...	30,343	...	57,032
Chi <sup>2</sup>	...	830	...	2,643
Average unemployment rate	...	8.9	...	7.4

**Notes:** The reference categories for categorical variables appear in bold, unshaded type. Statistical significance is not denoted, because the variables were almost always significant at conventional levels.

.. figures not available

... figures not applicable

*Source:* Census of Canada, Individual Public Use Micro-data Files, 1971.

## APPENDIX 8.8

### LOGIT UNEMPLOYMENT EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1981 (CHANGE IN PROBABILITIES AT MEAN)

Variable	Females		Males	
	Change in probability	t statistic	Change in probability	t statistic
<b>Age</b>				
15-24	...	...	...	...
25-34	-9.4	-24.54	-5.4	-18.65
35-44	-15.7	-29.36	-9.7	-22.69
45-54	-19.3	-30.19	-10.5	-22.51
55-64	-23.4	-26.70	-7.9	-16.95
65+	-34.2	-14.26	-22.2	-13.89
<b>Vocational training</b>				
No vocational training	...	...	...	...
Vocational training	0.8	1.12	2.2	3.77
<b>Degree, certificate or diploma</b>				
No high school diploma	...	...	...	...
High school graduate	-6.1	-19.61	-4.9	-19.38
Some postsecondary	-9.7	-10.20	-8.9	-9.69
Bachelor's degree	-11.8	-15.37	-11.8	-17.50
Post-bachelor's	-12.5	-6.94	-15.8	-8.49
Postgraduate degree	-13.7	-7.89	-18.0	-13.17

# APPENDIX 8.8 (CONCLUDED)

## LOGIT UNEMPLOYMENT EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1981 (CHANGE IN PROBABILITIES AT MEAN)

Variable	Females		Males	
	Change in probability	t statistic	Change in probability	t statistic
<b>Marital status</b>				
Single	...	...	...	...
Married	-1.8	-6.42	-11.4	-35.97
Separated, widowed, divorced	1.0	2.47	-0.7	-1.74
<b>Languages known</b>				
English only	...	...	...	...
French only	2.3	5.41	2.8	9.19
English and French	1.1	3.30	1.2	4.52
Neither English nor French	2.4	2.40	3.4	4.30
<b>Immigrant status</b>				
Non-immigrant	...	...	...	...
Immigrant	0.1	0.23	0.1	0.28
<b>Province</b>				
Atlantic provinces	...	...	...	...
Quebec	-3.4	-6.38	-4.2	-9.98
Ontario	-9.7	-20.09	-9.0	-24.26
Prairie provinces	-17.3	-26.16	-14.9	-29.63
British Columbia	-7.7	-13.65	-7.7	-17.48
Logit intercept	48.6	13.39	49.6	15.7
Sample size	...	99,774	...	144,275
Chi <sup>2</sup>	...	5,025	...	9,321
Average unemployment rate	...	11.5	...	8.9

**Notes:** The reference categories for categorical variables are indicated in bold, unshaded type. Statistical significance is not denoted, because the variables were almost always significant at conventional levels.

.. figures not available

... figures not applicable

**Source:** Census of Canada, Individual Public Use Micro-data Files, 1981.

# APPENDIX 8.9

## LOGIT UNEMPLOYMENT EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1991 (CHANGE IN PROBABILITIES AT MEAN)

Variable	Females		Males	
	Change in probability	t statistic	Change in probability	t statistic
<b>Age</b>				
15-24	...	...	...	...
25-34	-2.5	-7.37	-0.5	-1.70
35-44	-8.1	-17.87	-3.4	-9.15
45-54	-10.9	-19.68	-5.0	-11.23
55-64	-9.9	-14.85	-3.6	-7.58
65+	-16.5	-10.19	-10.1	-8.79
<b>Vocational training</b>				
No vocational training	...	...	...	...
Vocational training	1.4	2.63	1.8	3.20
<b>Degree, certificate or diploma</b>				
No high school diploma	...	...	...	...
High school graduate	-4.3	-14.37	-5.0	-17.69
Some postsecondary	-8.9	-11.59	-8.6	-10.31
Bachelor's degree	-10.0	-16.42	-14.9	-21.82
Post-bachelor's	-11.2	-7.86	-15.4	-9.52
Postgraduate degree	-10.8	-9.26	-19.5	-16.27
<b>Marital status</b>				
Single	...	...	...	...
Married	0.2	0.88	-7.6	-24.29
Separated, widowed, divorced	2.4	6.69	-0.1	-0.28
<b>Languages known</b>				
English only	...	...	...	...
French only	-0.3	-0.61	0.5	1.16
English and French	-1.2	-3.19	-1.2	-3.30
Neither English nor French	4.5	6.52	4.1	5.46
<b>Immigrant status</b>				
Non-immigrant	...	...	...	...
Immigrant	2.7	11.37	1.9	8.28
<b>Province</b>				
Atlantic provinces	...	...	...	...
Quebec	-4.6	-8.49	-5.2	-10.21
Ontario	-12.7	-25.59	-11.4	-26.29
Prairies	-14.5	-24.36	-14.1	-26.68
British Columbia	-8.0	-15.24	-9.2	-18.57

# APPENDIX 8.9 (CONCLUDED)

## LOGIT UNEMPLOYMENT EQUATIONS, COMMON SPECIFICATION ACROSS THREE CENSUSES, 1991 (CHANGE IN PROBABILITIES AT MEAN)

Variable	Females		Males	
	Change in probability	t statistic	Change in probability	t statistic
Logit intercept	75.6	18.34	56.2	15.71
Sample size	...	95,974	...	116,774
Chi <sup>2</sup>	...	2,307	...	4,175
Average unemployment rate	...	10.2	...	10.0

**Notes:** The reference categories for categorical variables appear in bold, unshaded type. Statistical significance is not denoted, because the variables were almost always significant at conventional levels.

... figures not available

... figures not applicable

*Source:* Census of Canada, 1991 Individual Public Use Micro-data Files.

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# WOMEN AND THE CANADIAN LABOUR MARKET

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Morley Gunderson is a professor in the Department of Economics and the Centre for Industrial Relations, and a research associate with the Institute of Policy Analysis at the University of Toronto. Among his extensive research and publication topics are labour market economics theory and practice in Canada, gender discrimination and comparable worth, the determinants and impact of immigration, child care arrangements and labour market behaviour, and labour market adjustment and training.

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ISBN 0-17-605638-6



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