Work and Pay: The Canadian Labour Market

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FOREWORD

When the members of the Rowell-Sirois Commission began their collective task in 1937, very little was known about the evolution of the Canadian economy. What was known, moreover, had not been extensively analyzed by the slender cadre of social scientists of the day.

When we set out upon our task nearly 50 years later, we enjoyed a substantial advantage over our predecessors; we had a wealth of information. We inherited the work of scholars at universities across Canada and we had the benefit of the work of experts from private research institutes and publicly sponsored organizations such as the Ontario Economic Council and the Economic Council of Canada. Although there were still important gaps, our problem was not a shortage of information; it was to interrelate and integrate — to synthesize — the results of much of the information we already had.

The mandate of this Commission is unusually broad. It encompasses many of the fundamental policy issues expected to confront the people of Canada and their governments for the next several decades. The nature of the mandate also identified, in advance, the subject matter for much of the research and suggested the scope of enquiry and the need for vigorous efforts to interrelate and integrate the research disciplines. The resulting research program, therefore, is particularly noteworthy in three respects: along with original research studies, it includes survey papers which synthesize work already done in specialized fields; it avoids duplication of work which, in the judgment of the Canadian research community, has already been well done; and, considered as a whole, it is the most thorough examination of the Canadian economic, political and legal systems ever undertaken by an independent agency.

The Commission's research program was carried out under the joint

direction of three prominent and highly respected Canadian scholars: Dr. Ivan Bernier (*Law and Constitutional Issues*), Dr. Alan Cairns (*Politics and Institutions of Government*) and Dr. David C. Smith (*Economics*).

Dr. Ivan Bernier is Dean of the Faculty of Law at Laval University. Dr. Alan Cairns is former Head of the Department of Political Science at the University of British Columbia and, prior to joining the Commission, was William Lyon Mackenzie King Visiting Professor of Canadian Studies at Harvard University. Dr. David C. Smith, former Head of the Department of Economics at Queen's University in Kingston, is now Principal of that University. When Dr. Smith assumed his new responsibilities at Queen's in September 1984, he was succeeded by Dr. Kenneth Norrie of the University of Alberta and John Sargent of the federal Department of Finance, who together acted as Co-directors of Research for the concluding phase of the Economics research program.

I am confident that the efforts of the Research Directors, research coordinators and authors whose work appears in this and other volumes, have provided the community of Canadian scholars and policy makers with a series of publications that will continue to be of value for many years to come. And I hope that the value of the research program to Canadian scholarship will be enhanced by the fact that Commission research is being made available to interested readers in both English and French.

I extend my personal thanks, and that of my fellow Commissioners, to the Research Directors and those immediately associated with them in the Commission's research program. I also want to thank the members of the many research advisory groups whose counsel contributed so substantially to this undertaking.

DONALD S. MACDONALD

INTRODUCTION

At its most general level, the Royal Commission's research program has examined how the Canadian political economy can better adapt to change. As a basis of enquiry, this question reflects our belief that the future will always take us partly by surprise. Our political, legal and economic institutions should therefore be flexible enough to accommodate surprises and yet solid enough to ensure that they help us meet our future goals. This theme of an adaptive political economy led us to explore the interdependencies between political, legal and economic systems and drew our research efforts in an interdisciplinary direction.

The sheer magnitude of the research output (more than 280 separate studies in 70+ volumes) as well as its disciplinary and ideological diversity have, however, made complete integration impossible and, we have concluded, undesirable. The research output as a whole brings varying perspectives and methodologies to the study of common problems and we therefore urge readers to look beyond their particular field of interest and to explore topics across disciplines.

The three research areas — *Law and Constitutional Issues*, under Ivan Bernier; *Politics and Institutions of Government*, under Alan Cairns; and *Economics*, under David C. Smith (co-directed with Kenneth Norrie and John Sargent for the concluding phase of the research program) — were further divided into 19 sections headed by research coordinators.

The area *Law and Constitutional Issues* has been organized into five major sections headed by the research coordinators identified below:

- Law, Society and the Economy — *Ivan Bernier and Andrée Lajoie*
- The International Legal Environment — *John J. Quinn*
- The Canadian Economic Union — *Mark Krasnick*

- Harmonization of Laws in Canada — *Ronald C.C. Cuming*
- Institutional and Constitutional Arrangements — *Clare F. Beckton and A. Wayne MacKay*

Since law in its numerous manifestations is the most fundamental means of implementing state policy, it was necessary to investigate how and when law could be mobilized most effectively to address the problems raised by the Commission's mandate. Adopting a broad perspective, researchers examined Canada's legal system from the standpoint of how law evolves as a result of social, economic and political changes and how, in turn, law brings about changes in our social, economic and political conduct.

Within *Politics and Institutions of Government*, research has been organized into seven major sections:

- Canada and the International Political Economy — *Denis Stairs and Gilbert Winham*
- State and Society in the Modern Era — *Keith Banting*
- Constitutionalism, Citizenship and Society — *Alan Cairns and Cynthia Williams*
- The Politics of Canadian Federalism — *Richard Simeon*
- Representative Institutions — *Peter Aucoin*
- The Politics of Economic Policy — *G. Bruce Doern*
- Industrial Policy — *André Blais*

This area examines a number of developments which have led Canadians to question their ability to govern themselves wisely and effectively. Many of these developments are not unique to Canada and a number of comparative studies canvass and assess how others have coped with similar problems. Within the context of the Canadian heritage of parliamentary government, federalism, a mixed economy, and a bilingual and multicultural society, the research also explores ways of rearranging the relationships of power and influence among institutions to restore and enhance the fundamental democratic principles of representativeness, responsiveness and accountability.

Economics research was organized into seven major sections:

- Macroeconomics — *John Sargent*
- Federalism and the Economic Union — *Kenneth Norrie*
- Industrial Structure — *Donald G. McFetridge*
- International Trade — *John Whalley*
- Income Distribution and Economic Security — *François Vaillancourt*
- Labour Markets and Labour Relations — *Craig Riddell*
- Economic Ideas and Social Issues — *David Laidler*

Economics research examines the allocation of Canada's human and other resources, the ways in which institutions and policies affect this

allocation, and the distribution of the gains from their use. It also considers the nature of economic development, the forces that shape our regional and industrial structure, and our economic interdependence with other countries. The thrust of the research in economics is to increase our comprehension of what determines our economic potential and how instruments of economic policy may move us closer to our future goals.

One section from each of the three research areas — The Canadian Economic Union, The Politics of Canadian Federalism, and Federalism and the Economic Union — have been blended into one unified research effort. Consequently, the volumes on Federalism and the Economic Union as well as the volume on The North are the results of an interdisciplinary research effort.

We owe a special debt to the research coordinators. Not only did they organize, assemble and analyze the many research studies and combine their major findings in overviews, but they also made substantial contributions to the Final Report. We wish to thank them for their performance, often under heavy pressure.

Unfortunately, space does not permit us to thank all members of the Commission staff individually. However, we are particularly grateful to the Chairman, The Hon. Donald S. Macdonald; the Commission's Executive Director, J. Gerald Godsoe; and the Director of Policy, Alan Nymark, all of whom were closely involved with the Research Program and played key roles in the contribution of Research to the Final Report. We wish to express our appreciation to the Commission's Administrative Advisor, Harry Stewart, for his guidance and advice, and to the Director of Publishing, Ed Matheson, who managed the research publication process. A special thanks to Jamie Benidickson, Policy Coordinator and Special Assistant to the Chairman, who played a valuable liaison role between Research and the Chairman and Commissioners. We are also grateful to our office administrator, Donna Stebbing, and to our secretarial staff, Monique Carpentier, Barbara Cowtan, Tina DeLuca, Françoise Guilbault and Marilyn Sheldon.

Finally, a well deserved thank you to our closest assistants: Jacques J.M. Shore, *Law and Constitutional Issues*; Cynthia Williams and her successor Karen Jackson, *Politics and Institutions of Government*; and I. Lilla Connidis, *Economics*. We appreciate not only their individual contribution to each research area, but also their cooperative contribution to the research program and the Commission.

IVAN BERNIER
ALAN CAIRNS
DAVID C. SMITH

PREFACE

Volumes 15–18 of the Collected Research Studies represent the product of the Commission's research program in labour markets and labour relations. The primary objective of these 22 papers is to assess the state of knowledge of key aspects of labour market and labour relations behaviour and to examine the policy implications of this knowledge.

A wide range of topics was addressed in the labour research program, a reflection of the Commission's extraordinarily broad mandate and the importance of labour-related issues to economic and social performance. In addition, the program was influenced by an advisory group from the disciplines of economics, industrial relations, and labour law. Given the broad scope of labour issues, and the integrated and cross-disciplinary approach taken, the division of the research papers into four separate volumes is as unfortunate as it is inevitable. Although the division chosen is a fairly natural one, some issues receive only brief attention here because they are covered more thoroughly elsewhere.

This volume deals with key aspects of labour market behaviour and performance — in particular, employment and unemployment, labour force participation (particularly that of women), the amount of time spent working by those in the labour force, and equal pay and equal opportunity in the labour market. A number of labour market policies — including unemployment insurance, minimum wages, work sharing, equal pay for work of equal value, and affirmative action — are examined in detail.

Most closely related to the papers in this book are those in *Labour Market Adjustment in Canada*, volume 18 of the research studies, which deals with aspects of labour market adjustment to change, including the impact of economics and technological change on the labour market,

education and training, and regional labour market mobility. Also relevant are the two volumes on industrial relations. *Canadian Labour Relations*, volume 16 of the research studies, examines aspects of collective bargaining and other mechanisms for determining wages and working conditions and assesses the performance of Canada's industrial relations system in areas such as occupational health and safety and collective bargaining disputes. *Labour-Management Cooperation in Canada*, volume 15 of the research studies, examines the potential role of innovative and non-adversarial approaches to labour-management relations in Canada.

The reader of this volume will also find useful a number of papers which appear elsewhere in the Commission's research, particularly Jean-Michel Cousineau, "Unemployment Insurance and Labour Market Adjustments," and John Kesselman, "Comprehensive Income Security for Canadian Workers," both in *Income Distribution and Economic Security in Canada*, volume 1 of the research studies.

W. CRAIG RIDDELL

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Many people contributed to the Commission's research program in labour markets and labour relations and their assistance is gratefully acknowledged. The members of the labour research advisory group — Jean-Michel Cousineau (Université de Montréal), David Dodge (Department of Finance), James Frank (Conference Board of Canada), Morley Gunderson (University of Toronto), Robert Jenness (Economic Council of Canada), Stephan Kaliski (Queen's University), Thomas Kochan (Massachusetts Institute of Technology), Pradeep Kumar (Queen's University), Robert Lacroix (Université de Montréal), Glenn MacDonald (University of Western Ontario), Keith Newton (Economic Council of Canada), Ray Protti (Labour Canada), Frank Reid (University of Toronto), John Vanderkamp (University of Guelph) and Paul Weiler (Harvard University) — provided valuable advice on the research program and commented usefully on various drafts of the papers.

I also wish to acknowledge the assistance received from members of the Commission's research staff, especially Dr. Lilla Connidis, Barbara Cowtan, Caroline Digby, Rod Hill, Joyce Martin and Donna Stebbing. David C. Smith, Director of Research (Economics), provided valuable advice and encouragement, as did fellow research coordinators, especially John Sargent and François Vaillancourt. Beth Ediger and Rosemary Shipton skilfully edited the papers.

I particularly want to thank my wife Rosemarie and son Chris for their support and patience.

W.C.R.

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Work and Pay: The Canadian Labour Market
An Overview

W. CRAIG RIDDELL

The operation of the labour market affects the well-being of most individuals, both those in and those outside the labour force. For many Canadians their primary source of income, and therefore the primary determinant of their economic well-being, is pay received in exchange for labour services provided to employers. Work can also be a source of satisfaction and of a sense of accomplishment. The variety of employment opportunities available to Canadians, and the wages received for their work, are clearly of fundamental importance.

For these reasons issues relating to work and pay are always topical and often controversial. Today there is much concern about high levels of unemployment and projected slow economic growth. There are also fears that rapid technological and economic change may take place, and that substantial adjustments on the part of the labour force will be required. Another issue attracting considerable attention is the income and employment opportunities of women, as well as other groups such as native people, visible minorities and the handicapped.

Clearly this is a sweeping set of issues. Several topics are examined in this volume, and others in the companion volume (Riddell, 1985a). The division is not an easy one to make, but the issues are too large and too important to be addressed adequately in one volume. This volume covers aspects of work and pay, including employment and unemployment, labour force participation (especially of women), the amount of time spent working, and discrimination, equal pay and equal opportunity in the labour market. The companion volume deals with the topic of labour market adjustment to change. It thus examines the impact of technological change on the labour market, education and training, and regional labour market adjustment. Also closely related are the compan-

ion volumes on labour relations (Riddell, 1985b, 1985c), which deal with topics relating to collective bargaining and other mechanisms for determining wages and working conditions. Again, the division between the topics to be discussed here and in these related volumes is not an easy one to make, and cross references will be provided when appropriate.

Each of the papers in this volume deals with aspects of labour market behaviour. The authors examine alternative explanations for observed behaviour and the implications of the existing state of knowledge. In addition to illuminating the current understanding of these phenomena, the papers also evaluate aspects of labour market performance. Stephan Kaliski's paper provides a broad overview of labour market developments in the postwar period, focussing primarily on the causes and consequences of unemployment. Frank Reid's related paper deals with aspects of working time, particularly employment sharing (or work sharing) as a mechanism for dealing with unemployment.

Probably the most dramatic labour market development of the postwar period was the substantial increase in the labour force participation of women, particularly married women. This phenomenon had numerous effects on the nature of family life and on society more generally. Issues relating to the changing role of women in the workplace receive considerable attention in this volume. Alice and Masao Nakamura survey a large body of empirical research on the determinants of the labour supply and earnings behaviour of Canadian women. Their primary objective is to find the extent to which the rise in female labour force participation, in particular that of married women, can be explained in terms of observable variables affecting labour supply such as family size, husband's income, education, wage rates, and job opportunities. Morley Gunderson's paper deals with labour market discrimination, and issues relating to equal pay and equal opportunity in the labour market. Such issues are, of course, relevant not only to women but to others who may have received less than fair treatment from society. Nonetheless, much of the debate over labour market discrimination and equal pay has focussed on women and most of the discussion here is carried on in this context.

This volume thus deals with several key aspects of Canadian labour market behaviour. In recent years there has been increased recognition of the importance of labour market and labour relations institutions and behaviour to overall macroeconomic performance. This point was reinforced by the research symposium on foreign macroeconomic performance organized by the Royal Commission (see Sargent, 1985b). Experts from Australia, Sweden, the United Kingdom, France, the Netherlands, West Germany, Austria and Switzerland reported on economic developments and issues in their respective countries. The rapporteur, Douglas Purvis, summarized one of the salient conclusions of the symposium: "All roads lead to the labour market." The primary

focus of this volume is on labour market performance from a microeconomic perspective; that is, on the efficient use of labour and other resources, and on the distribution of income and opportunity. These aspects are closely related to macroeconomic behaviour, however, and the links will be pointed out as appropriate.

A well-functioning labour market is desired not for its own sake, but because it contributes in an important way to the well-being of individuals in society. An efficient labour market maximizes the overall level of well-being for given endowments of land, labour, capital and other resources. For this reason, policies to promote the efficient operation of the labour market deserve attention. Moreover, equity of outcomes in the labour market, perhaps more than elsewhere, is also a significant concern. Issues relating to both efficiency and equity arise several times in this volume.

Governments have increasingly intervened in the labour market in the postwar period. Although this is part of a more general trend of increased government involvement in the economy, the intervention in the labour market appears to have been no less and possibly greater than in other areas of economic and social endeavour. Many of these interventions can be interpreted as an attempt to achieve a set of income, employment and related outcomes that correspond more closely to what we as a society deem equitable. A central theme of the papers in this volume is that these policy interventions typically have additional, and quite possibly unintended, effects. These often subtle effects must be considered in evaluating policies and their design.

The organization of this overview paper is as follows. In the next section we review the very substantial changes and developments that have occurred in the Canadian labour market since World War II. This provides useful descriptive background for the analysis which follows. First we discuss the rise in unemployment that took place over this period, especially during the past two decades, followed by a close look at youth unemployment. Each of these sections draws primarily on Kaliski's paper in this volume. Next we discuss two labour market policies which arise in the discussion of unemployment: unemployment insurance and minimum wages. The unemployment insurance section draws on a number of background papers written for the Royal Commission: Cousineau (1985), Vanderkamp (1985), Gunderson (1985), as well as Kaliski's paper in this volume and Kesselman's (1985) study of the Canadian income security system. We then examine issues relating to working time, particularly hours worked per week. Special attention is devoted to the topic of employment sharing, the central issue in Reid's paper.

In the remaining two sections we focus on the role of women in the world of paid work. Drawing primarily on the Nakamura paper, we discuss the causes and consequences of the increased participation of

women in the work force; next, based on the Gunderson paper, we discuss the controversial issues relating to discrimination, equal pay and equal opportunity to the labour market.

Labour Market Developments in the Postwar Period

The period since World War II has been one of substantial growth and change in the Canadian labour market. The main trends and changes include the rapid growth in the labour force and employment; the increase in average unemployment rates in the 1970s and 1980s; the dramatic rise in female participation rates and in the importance of multi-earner families; the altered age, sex, and educational composition of the labour force; the decline in the growth of labour productivity, and the concomitant decline in real earnings growth in the 1970s and 1980s; changes in the occupational, regional and industrial composition of employment; the increased importance of part-time work; the decline in time spent working — hours per week, weeks per year, and years worked over the lifetime — for "full-time" workers; the increased importance of government programs in the labour market, and the increased regulation of the terms of employment.

A number of these developments are described in this section, as background for the analysis which follows. While this section is necessarily largely descriptive, the causes and consequences of these changes receive more attention in subsequent parts of the paper.

Several key aggregate economic and labour market indicators are shown in Table 1-1. To abstract from cyclical effects, the table shows growth rates between the cyclical peak years of 1956, 1966, 1973 and 1981. When available, average data for the period 1927–46 are also included to provide additional historical perspective. However, as these years include the Depression and World War II, there is considerable variability underlying these averages.

The population grew very rapidly in the first two decades of the postwar period. The bulk of the growth came from natural increase associated with the "baby boom"; however, immigration also played an important part, especially in the decade 1947–56. Immigration slowed after 1957; this decrease, together with falling birth rates, led to sharp declines in population growth beginning in the early 1960s.

Overall economic performance was excellent during the period from 1947 to 1973. Productivity and real income per capita grew at rapid rates compared to those attained earlier and subsequently. Employment increased and average unemployment rates were lower than levels experienced prior to 1947 and since 1973. Only in the average inflation rate was there some deterioration in performance compared to the 1927–46 period; however, although the Consumer Price Index (CPI) in 1946 approximately equalled its level in 1927, there was substantial upward

TABLE 1-1 Key Economic and Labour Market Trends

	Population							
	Total	Natural	Net Immigration	Real Output[b]	Real Income Per Capita[c]	Productivity[d]	Inflation Rate[e]	Unemployment Rate[f]
1927–46	1.3	1.2	0.1	3.5	2.2	2.1	0.1	8.1
1947–56	2.7[a]	2.0	0.6	5.3	2.6	3.5	4.3	3.2
1957–66	2.2	1.8	0.4	4.6	2.4	2.1	2.0	5.5
1967–73	1.4	1.0	0.4	5.4	3.9	2.5	4.4	5.2
1974–81	1.3	0.9	0.4	3.0	1.7	0.1	9.7	7.3

	Source Population[g]				
	Total	Labour Force[f]	Employment[h]	Participation Rate[f]	Annual Hours Worked (paid workers)
1927–46	1.6	1.4	1.4	57.2	—
1947–56	2.1	1.8	1.8	53.6	−.63
1957–66	2.2	2.6	2.5	54.1	−.55
1967–73	2.6	3.1	3.0	58.2	−.67
1974–81	2.1	3.1	2.9	62.4	−.43[i]

Notes: All variables are growth rates unless noted otherwise. Growth rates are averages of annual compound increases from the level in the year before the period specified to the level in the final year of the period specified. Remaining series (inflation rate, unemployment rate, participation rate) are averages of annual levels.

a. The entry of Newfoundland into Confederation accounted for 0.3 percentage points of the average growth rate from 1946 to 1956.
b. Real GNE.
c. Real GNE divided by population.
d. Real GNE per person employed.
e. As measured by the CPI.
f. Minor non-comparabilities in series occur in 1946 and 1966.
g. Population 14 years of age and over prior to 1966; 15 years and older after 1966.
h. Civilian employment; minor non-comparabilities in series occur in 1946 and 1966.
i. For the period 1976–81; a minor discontinuity in the series occurs in 1975.

and downward movement in prices in between these end points. Inflation has been considerably higher since 1973, though it should be noted that this deterioration began in the mid-1960s.

It is worthwhile recalling that during this "golden era" (1947–73), considerable concern was expressed on several occasions about economic performance. For example, the upward movement of prices in the 1950s, the high unemployment levels experienced in the 1957–58 recession, and, in the late 1950s and early 1960s, the possibility of a lengthy period of structural unemployment associated with automation and other technological change all received substantial attention.

The causes of the aggregate economic behaviour shown in Table 1-1 are discussed in detail in Sargent (1985a). In this volume we examine the causes of the rise in unemployment over the postwar period. Further, a brief discussion of the decline in productivity growth since the early 1970s is included, both because it has important implications for labour market outcomes and because there has been some speculation that labour market developments played a role in this decline. However, the primary focus of the papers in this volume is on labour market behaviour. Inevitably, some overlap with macroeconomic developments occurs.

As the baby-boom generation aged, the source population (the population of working force age) grew rapidly. The participation rate (the fraction of the source population employed or seeking employment) also rose. As a result of these two developments, the labour force grew very rapidly, especially in the late 1960s and the 1970s. This process of the baby-boom generation working its way into the labour market is now complete; the rate of growth of the source population has decreased steadily since 1974 and the number of people aged 15 to 24 in the labour force has been declining since 1980 (see Kaliski, Table 2-2). Behind these aggregate trends and changes lies considerable change in the industrial, occupational and demographic structure of the labour force.

The rise in labour force participation reflects three main forces: the dramatic increase in participation rates of adult women (women 25 years and over), the rise in youth (15–24 years) participation since the mid-1960s (reversing its previous downward trend), and the decline in participation of adult men. As a result of these changes in participation as well as the large changes in the relative size of the various age and sex groups, the age-sex composition of the labour force changed significantly. These changes are summarized in Table 1-2.

In 1946, men aged 25–64 accounted for well over half the labour force (56.6 percent); women aged 25–64 accounted for just over one-tenth of the total labour force, and only 20 percent of women in this age group participated in the labour force. About half of men aged 65 and over remained active in the labour force. By 1981 men aged 25–64 accounted for well under half the labour force (44.1 percent). Women aged 25–64

TABLE 1-2 The Age and Sex Composition of the Labour Force

	1946		1981	
	% of Labour Force	Participation Rate[a]	% of Labour Force	Participation Rate[a]
Women				
14/15–24[b]	10.3	42.4	12.0	63.2
25–64	11.7	20.2	28.2	57.2
65+	0.4	5.0	0.5	4.4
All age groups	22.4	24.7	40.7	51.6
Men				
14/15–24[b]	16.8	73.0	14.1	72.5
25–64	56.6	95.6	44.1	91.4
65+	4.2	47.5	1.1	14.0
All age groups	77.6	85.1	59.3	78.3
Total	100.0	55.0	100.0	64.7

Source: Statistics Canada, *The Labour Force*, various issues.

a. The participation rate is an annual average of monthly observations.

b. For 1946, youth are 14 and over, the old labour force survey definition. For 1981 the revised labour force survey definition (15 and over) is used.

now accounted for 28 percent of the labour force, and the percentage of women in this age group participating in the labour force had almost tripled to reach 57.2 percent. The percentage of men over 65 participating in the labour force had declined from 47.5 percent to only 14 percent. The participation rate of women over 65 remained low (from 4 to 5 percent).

The industrial composition of employment also shifted dramatically, with an absolute decline in agricultural employment (and thus a major decline in agricultural employment as a proportion of total employment), some decline in the share of employment in manufacturing, and a major increase in the fraction of total employment accounted for by the service sectors. These changes are shown in Table 1-3. Kaliski (Table 2-3) shows the industrial composition of employment growth since 1956.

Tables 1-3 and 1-4 display the industrial composition of total employment, male employment and female employment, and also show the share of male and female employment in each major industrial sector. The industrial composition of male and female employment has also changed significantly, although the changes are not as large as for total employment.

The share of both male and female employment in agriculture declined substantially. Both groups also exhibited some decline in the share of employment in manufacturing, and large increases in the share of employment in finance, insurance, real estate and other services (which includes public administration). In addition, the share of overall employment and of male employment in primary industries other than agri-

TABLE 1-3 Distribution of Total Employment by Industry and Sex

Industry	Levels and Growth Total Employment			Percent Composition					
	Levels		% Annual	Total		Males		Females	
	1946	1981	Growth	1946	1981	1946	1981	1946	1981
Agriculture	1,186	485	−2.5	25.4	4.4	28.5	5.3	14.7	3.0
Other Primary Industries	185	323	1.6	4.0	2.9	5.0	4.4	0.3	0.8
Manufacturing	1,214	2,122	1.6	26.0	19.3	26.7	23.7	23.7	12.8
Construction	224	651	3.1	4.8	5.9	6.1	9.0	0.4	1.4
Transportation, Communication and Utilities	373	912	2.6	8.1	8.3	9.2	10.8	4.3	4.6
Trade	573	1,884	3.5	12.3	17.1	10.4	16.3	18.5	18.3
Finance, Insurance and Real Estate	124	594	4.6	2.7	5.4	2.1	3.5	4.7	8.1
Other Services	784	4,033	4.8	16.8	36.7	11.9	26.9	33.4	51.0
Community, Business and Personal Services	1,178[a]	3,267	5.2[a]	19.5[a]	29.7	10.8[a]	19.5	42.1[a]	44.7
Public Administration	356[a]	768	3.8[a]	5.9[a]	7.0	6.3[a]	7.4	4.8[a]	6.3
Total	4,666	11,006	2.5	100.0	100.0	100.0	100.0	100.0	100.0

Source: Statistics Canada, *The Labour Force*, various issues.
Note: There were minor changes in industrial classifications between 1946 and 1981.
a. For 1961, the first year for which these data are available. Percent change is from 1961 to 1981, over which period the percent change in total employment averaged 3.0 percent per year.

TABLE 1-4 Shares of Employment by Sex in Each Industry

Industry	Males		Females	
	1946	1981	1946	1981
Agriculture	86.8	72.8	13.2	27.2
Other Primary Industries	98.4	89.2	1.6	10.8
Manufacturing	79.4	73.1	20.6	26.9
Construction	98.2	90.5	1.8	9.5
Transportation, Communication and Utilities	88.1	77.6	11.9	22.4
Trade	65.8	56.9	34.2	43.1
Finance, Insurance and Real Estate	59.7	39.1	40.3	60.9
Other Services	55.0	43.8	45.0	56.2
Community, Business and Personal Services	40.2[a]	39.1	59.8[a]	60.9
Public Administration	77.5[a]	63.5	22.5[a]	36.5
Total	77.3	59.6	22.7	40.4

Source: Statistics Canada, *The Labour Force*, various issues.

Note: There were minor changes in industrial classification definitions between 1946 and 1981.

a. For 1961, the first year for which these data are available. Percent change is from 1961 to 1981, over which period the percent change in total employment averaged 3.0 percent per year.

culture has declined, and there has been a slight decline in the share of female employment in trade. Turning to the distribution of employment by sex (Table 1-4), the proportion of female employment in each industry has increased, in most cases substantially, but female employment has become even more concentrated in the service sectors (trade, finance, insurance, real estate, and other services). Other data on the industrial composition of employment of men and women are provided in Kaliski (Table 2-6A).

The occupational structure of employment also changed significantly. There was rapid employment growth in white-collar occupations (managerial, professional, clerical, sales and services) and slow growth in blue-collar occupations (farming and other primary occupations, processing, construction, transportation, material handling and other crafts). (See Kaliski, Table 2-4, and Nakamura and Nakamura, Tables 4-2 and 4-4.) The proportion of females in almost every occupation rose, in some cases very substantially (see Nakamura and Nakamura, Tables 4-1 and 4-3, and Kaliski, Table 2-6B).

A number of other changes are worth pointing out. The fraction of employment accounted for by "paid workers" (the remainder being employers, unpaid family members, or self-employed) increased from 67 percent in 1946 to 90 percent in 1981, illustrating the increased importance of the employment relationship and its concomitant issues relating

to wages, working conditions, and unemployment. The importance of part-time work increased dramatically, especially in the 1970s and 1980s. This growth was heavily concentrated in services-producing industries, and involved primarily adult women and youth (see Kaliski, Tables 2-5 and 2-7).

One consequence of the demographic trends and changes in participation was a rise in the number of families with multiple income earners. Summary information on the growth of family income is shown in Table 1-5.[1] The growth in real family income over the 30-year period 1951–81 was a spectacular 124 percent, or a compound annual average of 3.3 percent per year. Most of this growth occurred prior to 1974; from 1974 to 1981 real family income increased by a meagre 8 percent, just over 1 percent per year. The growth in family income occurred during a period when the average size of families was declining. Thus the growth in family income per family member was even larger. The increase in real family income reflects both the rise in real income per employed person and the increased number of income earners per family. The latter rose by about 12 1/2 percent (1.27 to 1.43).

The rise in real income per person and per family is the main factor contributing to higher living standards, or material well-being. This measure, however, omits an important "commodity" — leisure time — which is purchased implicitly by not working. The reduction in hours worked per year shown in Table 1-1 is another significant trend of the postwar period, continuing the trend of the earlier part of this century. (More detail on long-run trends in hours of work is provided in Reid's paper in this book.)

After 1973, growth slowed in both sources of increased well-being — real income and leisure time. This is consistent with the view (discussed below and by Reid) that the main factor accounting for the long-term downward trend in time spent working is the trend increase in the real wage. With the decline in productivity growth beginning around 1973, the source of real wage growth dried up. The consequence was reduced growth in real income and leisure time. The decline in productivity growth is clearly a phenomenon of enormous significance for material well-being. In addition, it may make income redistribution more difficult. With a fixed "pie," distributing more real income to some groups means that other groups will receive less, rather than a smaller increase as is the case when real output per person is growing.

While the consequences of the decline in productivity growth are evident, the causes remain a matter of debate and controversy. Denny (1985) discusses the various explanations which have been advanced, and assesses the current state of understanding of this phenomenon.[2] He stresses the considerable uncertainty about the relative contribution of the many potential sources. Factors such as the rise in the relative price of energy beginning in 1973, the generally greater amount of slack in the

TABLE 1-5 Family Income, Family Size and Family Income Growth, 1951–81

Year	Average Income (current dollars)	Average Income (constant 1971 dollars)	Average Annual Growth[a] (constant dollars)	Average Family Size	Average Number of Income Earners	Average Income per Family Member (constant dollars)	Average Annual Growth[a]
1951	3,185	4,833		3.22	1.27	1,501	
1957	4,269	6,021	3.7	3.31	1.25	1,819	3.1
1967	6,519	7,535	2.2	3.24	1.33	2,326	2.5
1974	12,437	9,950	4.0	2.86	1.38	3,482	5.8
1981	25,641	10,820	1.2	2.66	1.43	4,066	2.2

Source: Statistics Canada, *Historical Data Compendium for the Royal Commission on the Economic Union and Development Prospects for Canada*, and calculations by the author.

a. Average annual growth from year in row above to year in this row.

economy since 1973, and special circumstances in some industries (in particular, oil and gas) are generally agreed to have played a role, though most analyses suggest that they cannot account for all of the decline. Factors such as the altered composition of output (toward services and away from agriculture, primary industries and, to a lesser extent, manufacturing) and the age-sex composition of the labour force (more inexperienced youth, more part-time workers) may well have played a role in overall productivity growth, but do not appear able to account for the strong decline beginning in the early 1970s. The contribution of other factors such as increased government regulation, possible changes in the work ethic ("people don't want to work any more"), and poor labour-management relations (usually proxied by strikes and lockouts) remains largely speculative. Because of the potentially multi-causal nature of the phenomenon, studies which focus on one or a few explanatory factors suffer from an "omitted variables" problem.[3] The marginal contribution of each factor cannot be adequately assessed unless all variables are included in the estimated equation. Data limitations also constrain the ability to sort out the alternative forces involved.

Many of these developments — the postwar baby boom, the rise in service sector employment, the decline in the relative importance of goods-producing industries, the decline in agricultural employment, the increased participation of women, and the decline in productivity growth — also occurred in other industrialized countries.[4] The timing and magnitude of these changes differ from country to country, but their general nature does not. Clearly, many of these trends and changes are interrelated. They represent a set of jointly determined responses to a number of exogenous forces. A central purpose of this volume is to explain what is known (or at least believed to be known) about the causes and consequences of these developments.

Throughout this description of the main trends and changes in the past four decades, words like "dramatic," "significant," and "substantial" have been used. The labour force of today is, in Kaliski's words, "unrecognizably different from that of twenty years ago," and even more different from that in 1946. There seems little doubt that the labour market is capable of making substantial adjustments in response to exogenous changes. Whether these adjustments are sufficiently large or rapid is another question, one which receives some attention in this volume and is the primary focus of the companion volume (Riddell, 1985a). Perhaps the most evident indication of inadequate, or at least sluggish, adjustment is the rise in the average unemployment rate, to which we now turn.

The Nature and Behaviour of Unemployment

A key trend in the postwar period, even prior to the severe recession of 1982–83, was the rise in average unemployment rates. Our views about unemployment, its causes and significance, have also undergone important changes. This section discusses the evolution of knowledge regarding unemployment and what is known about the causes of the rise in "normal" unemployment rates.

Economists typically distinguish several different types of unemployment. These differ in their causes, their consequences, and the policies that may be effective in their reduction. The most fundamental distinction is between deficient demand or cyclical and non-cyclical unemployment. Various terms are used to describe the latter, including "normal," "natural," and "non-accelerating inflation rate of unemployment" (or NAIRU).[5] The focus of this section is primarily on this "normal" component, rather than on the cyclical component, though both are discussed to some extent.

The causes of aggregate fluctuations in economic activity (or business cycles), and what institutional arrangements or policies might be effective in reducing these cycles, are topics addressed by macroeconomics. They are also complex and controversial, and it is not possible to deal adequately with these complexities here.[6] Some discussion of cyclical effects is inevitable, given their impact on the labour market and the role the labour market plays in their transmission. However, the treatment is necessarily cursory.

The non-cyclical component, however, is the traditional domain of microeconomics (and in particular labour economics). This division of labour reflects the generally accepted view that, although stimulative aggregate demand policies could reduce unemployment below the natural rate or NAIRU, doing so on a continuing basis would result in steadily increasing inflation. According to this "natural-rate hypothesis," the non-cyclical or natural unemployment rate is an equilibrium rate in the sense that it is consistent with steady inflation. (That is, at this unemployment rate, aggregate labour demand equals labour supply, and real wages are rising at the trend rate of productivity growth.) Labour market institutions and policies, however, can alter this "normal" unemployment rate. The non-cyclical unemployment rate is usually divided further into frictional (including seasonal) and structural unemployment, although a clear division between these two categories is difficult to make.

The unemployment rate is one of the most widely quoted economic statistics. To a considerable extent this intense interest reflects concern about the hardship which unemployment imposes on the affected individuals and their families and the waste of human resources implied by

unemployed workers. This interest may also reflect a view that unemployment is largely involuntary. Each of these characterizations of unemployment, and the changing views about them, is examined below.

Evolving Views about Unemployment

Several observers (e.g., Economic Council of Canada, 1976, chap. 10) have noted that the degree of "hardship" associated with a given rate of unemployment has generally declined over the postwar period. This decline reflects a number of developments. Perhaps most important has been the very substantial rise in multi-earner families. This in turn reflects the dramatic rise in the labour force participation of married women, as well as increases in youth labour force participation. While in the early postwar period unemployed workers were often the sole or primary income earners in the family, this situation became significantly less true in the late 1960s and 1970s. Thus, as noted by Kaliski (Table 2-8), even when unemployment peaked in December 1982, nearly 70 percent of families with one or more persons unemployed had at least one person working. In more than half the families the unemployed person was not the primary income earner.[7]

A second factor has been the expansion, both in terms of coverage and the improvement in benefits, of the unemployment insurance system. In addition, as noted in the previous section, real income has grown so that bouts of unemployment can be financed more readily now than in the past.

Recognition of the increased importance of multiple income earners and unemployment insurance in providing some protection against the vicissitudes of the business cycle and government macroeconomic policies should not be taken as downplaying the severity of the current unemployment problem, or suggesting that unemployment and financial hardship are not related in an important number of cases. On the contrary, as discussed below, the burden of unemployment is unevenly distributed among members of society so that general statements about the population as a whole do not apply in an important number of cases.

The description of unemployment as being largely involuntary has been challenged by some analysts, especially in the past two decades. What the ensuing debate has largely confirmed is the very slippery nature of the distinction between voluntary and involuntary unemployment. Keynes's original distinction classified unemployment as voluntary if a job is available but the worker is not willing to accept it at the existing wage, while involuntary unemployment occurs when the worker is willing to work at the existing wage but no jobs are available. This is more complex than the classification used in popular discussion, which is based on the reason for leaving the last job (i.e., spells of unemployment initiated by quitting the last job are classified as volun-

tary, with other spells considered involuntary). However, it is not sufficiently detailed to deal with some of the subtleties of labour market situations. Is an individual voluntarily unemployed if he or she continues searching or waiting for employment rather than accepting the first job to turn up in the process of job search? When there is imperfect information about the various jobs available, their rates of pay and working conditions, the dividing line between voluntary and involuntary unemployment becomes difficult to draw. The worker's normal job and usual occupation or region of employment generally enter into attempts to classify unemployment as voluntary or involuntary. Individuals may choose to continue searching or waiting for employment which utilizes their skills and training or which is located in their existing area of residence. Is this unemployment voluntary if there exist other, perhaps low-paying, "dead end" jobs in the same region or jobs which utilize the worker's skills in other regions? Similarly, when workers join a firm or enter an industry or occupation known to involve some risk of layoff in response to fluctuations in demand, is the individual voluntarily unemployed when a downturn in demand and the accompanying layoff occurs? He or she can be said to be voluntarily unemployed in the sense that the risk was known at the time of accepting employment (indeed, the wage received may well have reflected this risk). However, when the layoff occurs the worker can be said to be involuntarily unemployed in the sense that he or she may prefer to continue working at the previous wage or possibly even at a lower wage rather than being laid off.

Debate on the extent to which unemployment is voluntary or involuntary has not produced agreement on acceptable definitions of these terms. Nor is it clear that agreement on a definition would improve our understanding of the causes and consequences of unemployment. A more constructive approach appears to be to concentrate on the nature and consequences of unemployment, and its costs to the individuals affected and to society.

Related to the debate over the extent to which unemployment is typically voluntary or involuntary was the emergence in the 1970s of the "new unemployment" view which emphasized the importance of turnover in the labour market. This "new unemployment" view, which is discussed in detail by Kaliski, challenged the notion that unemployment can be characterized simply in terms of a shortage of jobs, with a stock of unemployed workers waiting for an economic expansion. Rather, it was suggested that the problem was not so much a shortage of jobs as brief employment attachments, presumably reflecting a large supply of unattractive jobs as well as a certain amount of experimentation with different types of employment. This situation was felt particularly to characterize younger workers and women, the groups whose labour force participation was rising significantly. As evidence for this new view of unemployment, analysts pointed to the very substantial flows

between the various labour market states (employment, unemployment, out of the labour force) and the resulting brief duration of spells of unemployment.

A considerable amount of subsequent research which is discussed in detail by Kaliski has confirmed that this turnover view of unemployment has important elements of truth, but has also demonstrated that it is overly simplistic as a general characterization of unemployment. In particular, it has been found that, on average, completed spells of unemployment are brief, typically two to two-and-a-half months.[8] Further, the groups which have had the highest unemployment rates — youth and women — have shorter durations of unemployment than adult men. Thus, the higher unemployment rates of youth and women are accounted for by more frequent, rather than longer, spells of unemployment. At the same time, it has been found that an important minority of workers suffer long spells of unemployment, and that this long duration unemployment accounts for a significant amount of the total unemployment in the economy.[9] These individuals thus bear a substantial portion of the total burden of unemployment. Further, some of these individuals are "chronically unemployed" in that they suffer repeated spells of joblessness, and are unemployed for a substantial portion of their working lives. For these individuals, the claim that unemployment primarily reflects a shortage of available jobs, at least for people with these characteristics, appears to be substantially accurate. Furthermore, the description of their unemployment as essentially voluntary is difficult to accept, though this does not imply that they are not doing the best they can given their circumstances, nor that there are some low-paying dead-end jobs available. This conclusion is reinforced by the findings that a substantial fraction of spells of unemployment end in withdrawal from the labour force, that this fraction increases with the length of the spell of unemployment, and that spells of unemployment which end in employment are longer on average than those which end in withdrawal from the labour force.

In summary, views about non-cyclical unemployment have evolved from the "old" to "new" to what might be called "modified new" view. The latter recognizes turnover and search unemployment, as well as temporary layoffs in response to variations in demand in specific industries, as important phenomena. However, it also notes that a significant fraction of total unemployment is accounted for by the "chronically unemployed," people whose employment opportunities, even when the economy is operating at normal levels of output and employment, are evidently extremely limited and who as a result suffer long and often repeated unemployment. As a consequence, recent policy analysis (e.g., Economic Council of Canada, 1982, chap. 6) has recommended focussing on this group of structurally unemployed.

The final characterization of unemployment is that it reflects a waste of

valuable human resources. While this description is generally accepted for deficient demand unemployment,[10] it is less applicable to frictional and possibly some structural unemployment, the components of the NAIRU. In particular, some search unemployment can be a productive investment in the acquisition of information about job opportunities. It is not true, either from the individual's or society's point of view, that an unemployed searcher should always accept the first job offered. This is especially the case when it is difficult to continue the search while employed. The efficient matching of workers and jobs is facilitated by the search process, both that of employers with job vacancies and that of unemployed or underemployed workers. Similarly, temporary layoffs in response to fluctuations in demand can also be an efficient arrangement for employers and employees, especially when the value of brief periods of additional leisure time to workers is high and when alternatives to layoffs (e.g., inventory accumulation) are prohibitively expensive. As another example, a certain amount of the high job turnover among young labour force participants can be a productive investment in the acquisition of information about types of employment most suitable for the longer term. Finally, in a dynamic economy in which the goods and services demanded by consumers and the technology of production are continually changing, there will be increases in labour demand in some occupations, regions or industries and decreases in others. A period of unemployment, possibly also combined with relocation or retraining, is a privately and socially efficient response to such change, though this does not necessarily imply that the individual should bear the burden of this response.

Thus, some frictional and possibly some structural unemployment is beneficial in the sense that it yields net returns to the individual and to society. However, there is no reason to believe that the natural unemployment rate is optimal in any sense. Analytical and empirical knowledge on this issue is skimpy at present. Models of search equilibrium indicate reasons why the equilibrium amount of search unemployment may be non-optimal.[11] The focus of policy concern, however, is primarily on structural unemployment, in particular the groups experiencing the greatest difficulty in the labour market. Both on equity and efficiency grounds, reducing this component of the "normal" unemployment rate deserves high priority.

A final observation concerning the waste of human resources has to do with the way we measure unemployment. Specifically, not all of the unutilized or underutilized labour resources are included in the measured unemployment rate. The most important exclusion is the group commonly referred to as "discouraged workers," those who are not searching for work and therefore not measured as unemployed because they believe none to be available or are still awaiting recall after more than six months on layoff. Kaliski discusses the magnitude of this effect

in the recent recession and the recovery to date. Another important group are those who are underemployed — either working fewer hours than they would wish, or working temporarily in a job which does not utilize their skills. The importance of these groups increases significantly in recessions; that is, the measured unemployment rate understates the degree of underutilization of labour resources. Thus, as the economy recovers, measured unemployment does not fall as quickly as the degree of underutilized labour (and other) resources declines.

In summary, the evolution of knowledge and belief about unemployment has led to increased recognition of the complexity of the phenomenon. In discussing whether unemployment is voluntary or involuntary and the degree to which unemployment represents a waste of human resources, it is clear that no simple descriptions apply without important qualifications. Unemployment is associated with low family income levels in an important number of cases, but the degree of hardship is generally less now than in the past. Deficient demand and probably most structural unemployment is an important waste of resources with substantial associated human and social costs, but some frictional and structural unemployment can be a productive use of time, leading to a better matching of workers and jobs and facilitating adjustment to economic fluctuations and change. The degree to which unemployment is voluntary or involuntary is disputed to the extent that there is not even agreement on the meaning to be attached to these terms.

The Rise in Unemployment

As noted in the previous section, the average unemployment rate between cyclical peaks was higher in the 1974–81 period than in comparable earlier parts of the postwar era. This suggests that the natural rate of unemployment, or NAIRU, rose. The remainder of this section discusses the causes of this rise and their implications for the current situation.

The NAIRU is estimated to have risen from the 4 to 5 percent range in the 1950s and early 1960s to the 6 to 7 percent range in the early 1970s, and to be between 6 and 8 percent today.[12] These estimates should be treated with some caution, for there are important difficulties in controlling for the variety of factors affecting inflation and unemployment.

A more detailed discussion of the various factors which are believed to have caused the rise in the NAIRU is provided by Kaliski. Briefly, most empirical studies rate as most important the very substantial demographic changes which occurred during this period and changes in social legislation affecting the labour market (in particular, changes in the unemployment insurance program, and, to a lesser extent, minimum wages). A number of different methodologies have been employed in these empirical studies.[13] Reid and Meltz (1979) estimate unemploy-

ment-job vacancies (*U-V*) curves. The extent to which increases in unemployment are associated with a shift in the *U-V* curve versus movement along the curve is a measure of the extent to which the rise in unemployment is frictional and structural as opposed to cyclical in nature. Another method, used by Fortin and Phaneuf (1979), constructs an adjusted unemployment rate series which attempts to provide a consistent measure of excess demand. Riddell and Smith (1982) jointly estimate an expectations-augmented Phillips curve and an equation explaining movements in the natural unemployment rate. Finally, Wogin (1980) and Riddell (1980) estimate unemployment rate equations based on the modern classical models of the business cycle or variants thereof. Each of these procedures finds that demographic trends and changes in labour market legislation raised the natural unemployment rate by a significant amount. The estimated effects differ somewhat from study to study. However, there is a fairly clear consensus that emerges from these studies. Demographic trends are estimated to have raised the NAIRU by 1 to 2 percentage points, the 1971 revisions to the Unemployment Insurance Act by 1 to 2 percentage points, and increases in real minimum wages (or minimum wages relative to other wages) in the late 1960s and early 1970s by 0.1 to 0.3 percentage points. Although these different methodologies have broadly similar results, the estimates are based on aggregate time series data and thus should be treated with appropriate caution.

Another potentially important factor, which has received less attention until recently, is the rapidity of structural adjustment (owing to technological and economic change) in the economy. If the pace of change accelerates, there will be a temporary increase in structural unemployment as the economy and labour markets adjust to larger increases in demand in some industries or sectors and larger decreases in demand in others. Stating this somewhat more precisely, consider two economies in which labour demand and labour supply are growing at equal average rates. If labour demand is growing at the same rate in each industry (or occupation or region) in economy A, but growing at above average rates in some industries and below average rates in other industries in economy B, the latter economy would have a higher natural unemployment rate. That is, the variance in labour demand growth across industries, occupations or regions may exert an independent effect on the NAIRU. This hypothesis has been investigated by Lilien (1982) for the United States and Samson (1985) and Charette and Kaufman (1984) for Canada. All these studies use an unemployment rate equation based on modern classical models of the business cycle.

At present there is considerable controversy regarding the extent to which this "dynamic structural unemployment" explanation can account for the rise in unemployment. Estimates of the natural unemployment rate by Samson (1985) and Charette and Kaufman (1984) are

considerably higher than the estimates discussed above. Indeed, they place the natural rate in 1982 at 10.6 to 11.0 percent, approximately equal to the actual unemployment rate. Kaliski discusses this new approach, and concludes that there is considerable basis for being skeptical of these estimates at this time.[14] Essentially, the difficulty appears to arise because the variance of growth in labour demand across industries increases noticeably in cyclical downturns. Thus, any trend effects of the structural change measure are mixed in with cyclical effects.

Examination of the trend in the variance or structural change measure indicates a greater rate of structural adjustment in the 1970s and early 1980s compared to the late 1950s and early 1960s, although no greater than earlier in the postwar period. However, the extent to which this increased volatility of the economic environment has contributed to a higher natural unemployment rate has yet to be established.

These different factors have different implications for the future course of the natural unemployment rate. Most of the demographic trends should now be leading toward a decline. The rate of growth of the labour force has slowed and the baby-boom generation has largely worked its way into the labour market. The only demographic factor tending to raise the NAIRU is the anticipated continuation in the growth in the labour force participation rate of women, though this may not continue to grow at the previous rapid rate. Similarly, social legislation since the mid to late 1970s has contributed to some reduction in the NAIRU. After the 1971 revisions, UI benefits were gradually made smaller or somewhat more difficult to obtain through a series of changes, particularly those in 1979. Although these changes were small compared to those made in 1971, they have been estimated to have had a significant effect on non-cyclical unemployment (Beach and Kaliski, 1983; Fortin and Newton, 1982; Riddell and Smith, 1982). Minimum wages have been declining relative to prices and wages in general since the late 1970s, a decline which seems also to have lowered the NAIRU (Fortin, 1985). An unsettled question at present is the extent to which these favourable (in terms of effect on the NAIRU) developments may be offset by increasing structural adjustment associated with technological changes, altering world trade patterns, or possibly other factors.

The main other factor which has received attention is technological change.[15] Kaliski provides an assessment of this issue and concludes that there is considerable basis for being skeptical of the proposition that structural unemployment due to technological change is a quantitatively significant phenomenon now, or that it will become one in the future. This important issue is also discussed in more detail in the companion volume (Riddell, 1985a).

In summary, the natural unemployment rate is generally believed to have risen from the mid-1960s to the late 1970s owing to demographic developments and changes in labour market policies, principally those

to the Unemployment Insurance Act. Those trends and changes have begun to reverse themselves, beginning in the late 1970s, and on the basis of these factors the natural rate should decline gradually. However, competing explanations involving industrial and technological change exist, which are less optimistic about future trends in "normal" unemployment rates. At present the empirical support for these explanations is a matter of debate. However, the fact that different views exist implies the need for some caution in interpreting the past and predicting the future.

This section has focussed on long-term trends and developments. To conclude the discussion of unemployment, some attention is given to the present situation. The above assessment indicates that a substantial portion of the current (Summer, 1985) unemployment (10 to 11 percent) is cyclical in nature. This implies that a more rapid recovery could take place without generating significant inflationary pressures. The question then is how to bring about this more rapid recovery given the other constraints on macroeconomic policy, in particular the concerns about the size of the deficit and the achievement of non-inflationary growth.

At this point we have perhaps more than crossed the line I attempted to draw between labour market and macroeconomic concerns. Thus I will simply note that a key policy recommendation made recently by several Canadian macroeconomists (see Fortin, 1985; Wilson, 1985, among others) — a tighter fiscal policy and a looser monetary policy — warrants very careful consideration. In order to promote a more rapid recovery, this policy change would be designed to be, on balance, expansionary. An even more rapid recovery could be brought about if there were agreement among business, labour and government on wage and price moderation. Canada's history in this regard, however, does not lead to optimism about the prospects for such an agreement (Riddell, 1985d).

Another policy which has been advocated by some, especially in Europe, is a legislated reduction in the work week or some other measure to reduce hours of work by those currently employed. This issue is fully discussed in a subsequent section and in Reid's paper.

A key development of the postwar era was our unwelcome experience with inflation and unemployment and the resulting increased understanding of the tradeoffs between employment and other goals. The commitment to full employment expressed in the *White Paper on Employment and Income* in 1945 has gradually given way to the realization that attention must be given to the goals of both high employment levels and price stability. During the 1960s, the era of belief in a stable long-run tradeoff between inflation and unemployment, too much weight was probably attached to the employment goal and too little to inflation. As a result, the rate of inflation began to creep upward. Subsequently, the inflationary pressures emanating from the Vietnam War, plus the supply

shocks of the 1970s, led to the strong buildup of inflation in the 1970s. The severe monetary restraint imposed beginning in 1981 has succeeded in largely extinguishing that inflation. There appears to be a danger that governments and central banks may now err on the other side; that is, allow only a modest and gradual recovery to occur because of the concern about another outburst of inflation.

Widespread acceptance of the natural rate hypothesis, at least as a proposition about the long-run behaviour of the economy, implies the need to focus on measures to reduce the natural rate in order to achieve lower levels of unemployment on a continuing basis.[16] Two potential sources identified in this section — minimum wages and unemployment insurance — are discussed subsequently.

Youth Unemployment

The issue of youth unemployment warrants special attention because of the serious nature of the employment problems facing those under twenty-five. Concern about youth unemployment grew throughout the 1970s as both the number of young people (15–24 year olds) in the labour market and their unemployment rate rose. The increase was especially large for young females, a factor which reflects in part the general rise in female unemployment rates.

The youth unemployment rate has typically exceeded that of adults because entry into the labour force often involves a period of search unemployment, and the transition from school to work involves experimentation with a variety of jobs and accumulation of job-related skills and experience. However, the ratio of youth to adult unemployment rose from about 1.8 in the early 1950s to 2.1 in the mid-1960s to 2.5 in 1976–77 (see Table 1-6). To make matters worse, this increase occurred at a time when unemployment in general was rising. The greater rise in youth unemployment primarily reflects the fact that the various forces accounting for the rise in the normal unemployment rate — demographic factors and changes in social legislation — had a proportionally greater impact on the youth labour market. Thus, throughout the 1970s, youth accounted for approximately one-quarter of the labour force but about half the unemployment.

Since 1977 the ratio of youth to adult unemployment has fallen significantly — from about 2.5 in 1977 to below 2.0 in 1984 — though unemployment rates of both groups are higher. The share of total unemployment accounted for by youth has also fallen — from an average of 47 percent in the 1971–81 period to 37 percent in 1984.[17] In part these declines probably reflect the reversals in demographic trends and social legislation noted earlier. However, the decline appears to reflect cyclical in addition to secular forces. The 1982–83 recession resulted in a significant decline in the youth participation rate as many young people aged

TABLE 1-6 Youth/Adult Unemployment Ratios: 1953–84

	Youth/Adult		Female Youth/Adult		Male Youth/Adult	
Year	FLFS[a]	RLFS[b]	FLFS[a]	RLFS[b]	FLFS[a]	RLFS[b]
1953	1.80		2.09		2.07	
1954	1.82		2.24		2.02	
1955	1.81		2.00		2.07	
1956	1.79		2.00		2.09	
1957	1.87		2.25		2.16	
1958	1.86		2.28		2.13	
1959	1.88		2.74		2.09	
1960	1.90		2.70		2.06	
1961	1.79		2.56		1.92	
1962	1.92		2.57		2.05	
1963	2.07		2.76		2.21	
1964	2.14		2.70		2.26	
1965	2.10		2.76		2.11	
1966	2.07	2.15	2.39	1.78	2.15	2.42
1967	2.13	2.24	2.68	1.96	2.19	2.40
1968	2.22	2.26	2.86	1.97	2.26	2.49
1969	2.19	2.21	2.46	1.76	2.35	2.59
1970	2.36	2.38	2.66	1.95	3.46	2.73
1971		2.47		1.96		2.79
1972		2.37		1.68		2.90
1973		2.34		1.70		2.94
1974		2.38		1.75		2.91
1975		2.40		1.75		2.91
1976		2.49		1.83		3.14
1977		2.48		1.86		3.04
1978		2.38		1.78		2.58
1979		2.39		1.81		2.93
1980		2.44		1.94		2.85
1981		2.36		1.84		2.94
1982		2.24		1.83		2.57
1983		2.12		1.77		2.43
1984		1.95		1.67		2.18

Source: Statistics Canada, *The Labour Force* and *Historical Labour Force Statistics*, and calculations by the author.

a. Former Labour Force Survey.

b. Revised Labour Force Survey.

15–24 remained in, or returned to, schools, colleges and universities. Thus, although the decline in youth employment during the recession was proportionally greater than for adult employment, the youth unemployment rate rose proportionally less.

Future prospects hinge on this combination of secular and cyclical influences. The most important secular trend is the declining size of the youth cohort entering the labour force. The rise in cohort size in the late 1960s and 1970s is generally accepted as an important factor in the

increase in youth relative to adult unemployment. With the smaller entering cohorts beginning in 1980, the ratio of youth to adult unemployment has declined appreciably. The decline in cohort size is predicted not only to continue, but to accelerate (Foot and Li, 1985). The demographic trends which worked to the disadvantage of the baby-boom generation will probably work to the advantage of future groups of young workers. Relative cohort size, however, is not the only factor affecting relative unemployment rates. For reasons noted above — lack of labour market experience and the need for many new entrants to try out a variety of jobs — the youth unemployment rate will probably continue to exceed that of adults.

At the same time, the medium-term prospects for youth unemployment appear much less favourable. This situation reflects several factors: the current high unemployment rates among today's youth; the cyclically depressed participation rate which implies a significant number of new entrants or re-entrants into the labour force as employment expands, thus keeping the unemployment rate high; and the projections of a slow return to more normal levels of employment. The most important contribution which policy can make to the labour market prospects of the current generation of youth is a more rapid return to more normal levels of employment.

The "new unemployment" view discussed earlier was felt to be particularly relevant to youth, a group with high labour market turnover and short spells of unemployment. Subsequent research has shown this characterization to be overly simplified, as it was of unemployment in general. (For some Canadian evidence see Hasan and de Broucker, 1984.) It is true that the average duration of completed spells of unemployment is shorter for youth than adults, and thus the higher youth unemployment rate is accounted for by more frequent spells of unemployment. However, these averages tell only part of the story. As is the case for adults, youth unemployment is highly concentrated. While a majority of youth find jobs relatively quickly after becoming unemployed, an important minority do not and this number accounts for much of the youth unemployment. Furthermore, a significant fraction of youth unemployment spells end in withdrawal from the labour force, so the total duration of joblessness is understated by our usual measures of labour force status.

Youth unemployment tends to be highest among the least educated, particularly school dropouts. For example, in 1982 the unemployment rate among youth aged 15 to 24 was 18.8 percent, but 32 percent among those with fewer than eight years of education and 10 percent among those with university education. Other factors accounting for prolonged periods of unemployment are location in areas of slow growth and high unemployment and lack of success at finding a first job. These factors suggest that structural adjustment policies relating to education and

training, the transition from school to work, and regional mobility — issues addressed in several of the papers in Riddell (1985a) — may be effective in reducing unemployment among "chronically unemployed" youth.[18]

Because of the demographic trends already in place, youth unemployment is a current problem which is expected to decline gradually in relative importance over the long term. However, an issue of potential concern for the medium to long term is the prospects for the current generation of youth. Will they become the unemployed adults of the future? The central question here is whether individuals who suffer unemployment as teenagers or young adults are to some extent permanently "scarred" in the sense of having relatively high probabilities of adult unemployment or less rapid earnings growth. Unfortunately, research on this important issue is limited to U.S. experience and is generally inconclusive.[19] Improved general employment prospects are clearly necessary and may be sufficient for reducing unemployment among this cohort. However, continued monitoring of their labour market situation is advisable. It would be unfortunate to have in place an array of special programs for youth at a time when those facing the greatest labour market difficulties were the 25–34 or 35–44 year old groups.

Unemployment Insurance

Unemployment insurance was noted earlier as one factor in the rise in unemployment rates. Here we take a more detailed look at this important labour market program.

The unemployment insurance system was established in 1940, following the recommendations of the Royal Commission on Dominion-Provincial Relations and the resolution, through a constitutional amendment, of the difficulties which had resulted in the Employment and Social Insurance Act of 1935 being declared outside the legislative authority of the federal government. From 1940 to 1971 there were gradual and modest changes in the coverage, eligibility, and benefit and financing provisions of the Unemployment Insurance Act. Dramatic changes to these key features of the act were made in the 1970s, primarily in 1971 but also later in the decade as well.[20] The 1971 changes included a substantial expansion in the coverage of the act; an increase in the benefit rate (benefits as a proportion of previous earnings) to 66.6 percent (with 75 percent being provided to claimants with dependants who had low earnings or prolonged unemployment) from the previous rate of 43 to 53 percent (depending on the presence of dependants); a reduction in the minimum period of employment required to qualify for benefits from 30 weeks during the preceding two years to 8 weeks during the preceding year; an increase to 44 weeks in the maximum benefit period,

replacing the stipulation that each two-week period of unemployment qualified the claimant for one week of benefits; and the establishment of extended benefits on a regional basis. Another important set of changes in 1979 lowered the benefit rate to 60 percent, and raised qualification requirements for new entrants and re-entrants into the labour force and for repeat users (claimants who had already drawn substantial benefits in their qualifying periods).[21]

After 1971 the size of the unemployment insurance system also grew dramatically. Expenditures (in current dollars) increased from approximately $700 million in 1970 to almost $2 billion in 1972, and further to almost $12 billion in 1983. With current and projected expenditure of approximately $11 billion per year, unemployment insurance is the largest operating program of the federal government.

Because of its size and the extent of its coverage, the UI system has numerous effects on the functioning of the labour market.[22] Some of these are consistent with the objectives of the program while others are primarily unintended adverse consequences. Below we examine the empirical evidence on the magnitude of these effects, and then turn to an examination of reforms which would enable the unemployment insurance system to contribute more effectively to the achievement of these objectives, while minimizing adverse side effects.

Objectives of the Unemployment Insurance System

The primary goal of the UI system is to provide insurance against the loss of income associated with unemployment. However, other objectives have also been pursued or recommended. These include facilitating labour market adjustment, redistributing income, and contributing to macroeconomic stability. In addition, the effects of the program on economic efficiency are important.

Unemployment insurance can improve the operation of the labour market if benefits contribute to a better matching of abilities and job requirements and thus stability of the resulting employment. Similarly, UI benefits may help finance job search in locations with more favorable employment prospects. At the same time, the program may impede labour market adjustment if it encourages labour force participants to remain in regions or occupations with poor employment prospects.

Although not a primary objective of the program, UI can contribute to overall economic stability by acting as an "automatic stabilizer"; that is, contributing to a government deficit and increasing aggregate demand in recessions and contributing to a surplus and decreasing aggregate demand in booms. However, as has become increasingly recognized in recent years, social programs financed by payroll taxes can contribute to economic instability if their financing provisions result in increases in premiums in recessions, when program expenditures rise (Ellman, 1984).

For example, the substantial increase in UI premium rates in 1983, when the economy was in the midst of the most severe recession of the postwar period, probably contributed to a slower recovery.

There are differing views on the issue of whether the UI system should attempt to redistribute income and wealth in the economy. Of course, at any point in time UI redistributes income from those who are currently employed and paying UI premiums to those who are unemployed. However, fulfilling this insurance function does not necessarily imply that a broader redistribution among income classes, regions or occupations is being achieved. It is the issue of whether such a broader redistribution should be intended that has been the subject of debate.

One view, expressed for example in Kapsalis (1979) and Kesselman (1983, 1985), is that the program should be concerned strictly with social insurance, leaving income redistribution objectives to programs specifically designed for that purpose. Others, for example Cloutier (1978) and Osberg (1979), have suggested that UI should contribute to our accepted social objectives regarding income distribution. The UI system has gradually moved in this direction, for example, by extending coverage to workers in seasonal industries, by relating benefits to the regional unemployment rate, and by imposing a surtax on higher income UI recipients.

The position argued here, which is also the conclusion reached by Kesselman (1985) in his study examining the Canadian income security system, is that income redistribution is not an appropriate objective for the UI system. There are several reasons for this conclusion. Our objectives with respect to income distribution focus on family income and need, while UI benefits are based on the individual worker and are unrelated to other income or assets. To achieve distributive goals, UI benefits would have to be operated on the basis of family income and need (e.g., number of dependants) and would involve testing for other income and assets. In addition, the accounting period (the period over which benefits and income are reconciled) would have to be substantially altered as the weekly accounting period used by UI is much shorter than that usually considered appropriate for income support programs intended to match income and requirements. Altering the UI system along these lines would necessarily interfere significantly with the social insurance objective, which should be the primary focus of the program.

This emphasis on the social insurance function does not imply a lack of concern about poverty or, more generally, the distribution of income and opportunity among Canadians. On the contrary, the emphasis is based on the view that UI is an inappropriate vehicle for this important objective, and that explicit income security programs are much more likely to be effective. Elsewhere in the Commission's research, in particular in Kesselman (1985) and other studies in Vaillancourt (1985), is an examination of Canada's income security system and proposed reforms designed to achieve our equity goals more effectively and efficiently.

While primary emphasis is placed on the insurance objective, the benefit and financing provisions of the UI system should also attempt to achieve other goals (such as to facilitate rather than retard labour market adjustment, contribute to economic stability, and be designed with economic efficiency considerations in mind) to the extent possible.

Having accepted the social insurance function as the primary objective, a fundamental issue is whether unemployment insurance should be publicly provided, or provided by the private sector as most other forms of insurance. It appears that there is a rationale for publicly provided unemployment insurance. This rationale is primarily based on the expectation that private insurance companies are unlikely to offer insurance against the risk of becoming unemployed, except possibly in very narrowly specified circumstances. Because of this probable "failure" of private insurance markets to exist on a comprehensive basis, society as a whole may benefit from a state-supported UI scheme which allows the risk to be diversified somewhat across employers and employees, regions, and over time.[23]

There are three main reasons why private insurance companies would not find it profitable to offer comprehensive insurance against the risk of unemployment despite the demand and therefore willingness to pay for this service from employees and possibly also employers.[24] First, the insurer often cannot observe the risk a particular insuree (employee and/or employer) represents. Since low-risk individuals and employers are less likely to purchase insurance, the insurance company may find that only high-risk individuals and employers will purchase insurance, making its sale unprofitable. Raising the premium will typically lead to a smaller group of customers with an even higher risk of becoming unemployed. Compulsory coverage avoids this "adverse selection" problem. Private firms, however, could not require compulsory coverage.

Second, as the empirical evidence discussed below appears to corroborate, individual employers and employees can to some extent control the risk of workers becoming or remaining unemployed. To deal with this "moral hazard" problem, insurance companies would seek broad monitoring and surveillance powers, powers we as a society do not wish to grant to private companies. In addition, the relationship between UI and Canada Employment Centres may facilitate dealing with the moral hazard problem.

Intervention in markets characterized by adverse selection and moral hazard can, in principle, result in a socially preferred outcome (see, e.g., Leland, 1979). This does not imply that any particular intervention necessarily improves economic well-being. In particular, the government faces moral hazard problems similar to those that a private insurer would face.

Moral hazard and adverse selection are features of any insurance

market. A third reason why private insurance companies may not provide UI on a comprehensive basis is that the risk of cyclical unemployment is largely non-diversifiable except over time. That is, the risk of unemployment due to the business cycle is positively correlated across members of the labour force so that pooling many insurees does not substantially reduce the aggregate risk.

Although fully developed insurance markets may not exist for these reasons, it would be a mistake to assume that there are no private market responses to the demand for insurance against the risk of unemployment. Firms may insure their employees to some degree, thus shifting the risk from the labour market to the capital market where it can be handled more readily via portfolio diversification by shareholders.[25] That is, in exchange for offering relatively stable employment, the firm can pay a lower wage. If employees are more risk averse than the owners of firms, which is very likely given that human capital risks are difficult to diversify, both can benefit from such an arrangement. In effect, the employment contract, whether explicit or implicit, involves two transactions — labour services provided by the employee and insurance provided by the employer. The employer is better able to deal with the adverse selection and moral hazard problems than a private insurance company.[26] Other private market responses include self-insurance (through saving, career diversification, family labour supply) and ex post adjustment to reductions in product and labour demand (e.g., wage or hours reductions).

These various private market responses are unlikely to obviate the need for comprehensive unemployment insurance. In particular, the "systematic risk" associated with the business cycle is difficult to reduce through portfolio diversification. Nonetheless, the existence of these responses is important to note in that state-provided unemployment insurance will tend to displace them, at least to some extent.

Unemployment Insurance and Unemployment

As noted in the section on the nature and behaviour of unemployment, changes in the UI system have been a factor in rising unemployment rates, and thus UI reform would be one way of lowering the natural unemployment rate. However, demonstrating that making unemployment insurance less generous would lower the NAIRU is not by itself a sufficient reason for proposing such changes. The issue is whether unemployment insurance reforms would benefit Canadian society as a whole. Before examining that issue, we should discuss the relevant empirical evidence.

Empirical studies, several of which are analyzed in more detail in Kaliski's paper in this volume and in Cousineau (1985), provide strong support for the view that changes in the unemployment insurance sys-

tem (in particular the very substantial changes in 1971–72) have had a significant effect on the unemployment rate. These effects result from a variety of mechanisms, which we will now examine briefly.

Unstable Seasonal and Cyclical Employment

The current method of financing the unemployment insurance system tends to subsidize industries with unstable employment patterns while taxing those with stable employment patterns. The size of this cross subsidization is very large (see Kesselman, 1983, chap. 9), since premium rates are the same for all industries, occupations and regions but some industries (occupations, regions) are much bigger users of unemployment insurance than others (i.e., their employees draw more benefits than those of other industries). In the absence of unemployment insurance, industries with unstable employment, either seasonal or cyclical, would have to pay a wage premium to attract workers while industries with very stable employment could pay lower wages and still attract employees. The existence of unemployment insurance as currently funded implies that industries with unstable employment become relatively more attractive and thus can pay less of a wage premium, while industries with unusually stable employment become relatively less attractive and thus have to pay higher wages than they would otherwise. These changes in wages paid in different industries affect labour cost and ultimately the product price, raising costs and thus prices in industries with stable employment and lowering costs and prices in industries with unstable employment. Purchasers of these products react to changes in relative prices by reducing their consumption of the products whose price has risen and increasing their consumption of those whose price has fallen in relative terms. This implies that a larger fraction of output and employment will be produced by and employed in industries with unstable employment and a smaller fraction in industries with stable employment patterns.

The fact that the Canadian UI system is not experience rated (i.e., premium rates are the same for all firms and industries) also implies that there is reduced incentive for firms to smooth out their employment pattern to attract workers. Firms can adjust to seasonal and cyclical fluctuations in various ways: through inventories, by diversifying product lines, by altering the time lag between receiving orders and making shipments, by saving work for slack periods, by adjusting the wages and/or hours worked by employees, by layoffs and rehires (i.e., adjusting the number of employees), and possibly other methods. Firms will choose the least-cost method of adjustment. Unemployment insurance lowers the cost of adjusting through layoffs and rehires relative to other methods because, in the absence of UI, firms which rely extensively on layoffs will have to pay higher wages in order to attract employees.

The link between the financing of UI and employment instability has

been examined in a number of empirical studies. Much of this research has been carried out in the United States, utilizing the differences that exist across states in the degree to which UI is experience rated. There is substantial agreement that having premiums not fully linked to risks accounts for a significant amount of short-term employment and unemployment (Cousineau, 1985). This issue has not been as extensively investigated in Canada. A study by Kaliski (1976) found that for the great majority of industries and provinces, the trend toward reduced seasonality moderated, or even reversed, after 1971. The estimated increase in seasonality was particularly large for construction, the industry most heavily subsidized by UI. In a careful analysis using excellent data, Glenday and Alam (1982) examine the impact of UI on the regional pattern of employment and unemployment in Canada. Their results are consistent with the view that the regional differentiation of UI reinforces the short-term and seasonal nature of much of the employment in high unemployment regions.

On the basis of these considerations, Kesselman (1985) concludes:

> A disproportionate share of unemployment is generated by the country's seasonal industries, often concentrated in depressed regions, and by individuals with unstable work attachments in all industries and regions. For this reason the income security problems of many Canadian workers are intimately tied to the seasonality of economic activity. However, past economic policies have added to the forces of nature in creating high unemployment. . . . The implicit UI subsidies to forestry, construction, and others make these industries larger, more unstable, and more attractive to workers than they would otherwise be. And there are some workers in all industries and regions who prefer a lifestyle of intermittent work combined with regular unemployed spells subsidized by UI benefits. All of these effects raise the economy's average rate of unemployment and lower its level of real output.

A general method of dealing with these effects is to have premiums related to the firm's layoff rate or to the rate of unemployment insurance benefit payments to its workers. Such an "experience-rated" financing structure is used in most other insurance systems, both those in the private sector (e.g., automobile insurance) and in the public sector (e.g., workers' compensation, although these firms are typically experience rated by group rather than individually). Experience rating of premiums would also reduce the incentive which now exists for firms to use layoffs as a method for responding to fluctuations in demand rather than employment sharing, inventory accumulation, and accumulating work for non-peak periods. The employment-sharing aspect is discussed below in the section on working time.

The degree to which the UI system should be experience rated is an issue which requires more detailed analysis and discussion.[27] However, some modification of the current financing system in this direction would

improve the incentive structure of the program and lower the natural unemployment rate.

The UI benefit structure may also contribute to employment instability and structural unemployment. In 1971 the UI program became regionally differentiated, with shorter qualification periods and longer benefit entitlement periods in regions with high unemployment rates. An important difference between high and low unemployment rate regions is the large concentration in the former of short-term jobs and seasonal industries (Glenday and Alam, 1982). The regional differentiation of benefits makes location in the high unemployment regions relatively more attractive, thus retarding the interregional adjustment mechanism and contributing to the level of structural unemployment (Vanderkamp, 1985). Eliminating or significantly altering the regional differentiation is recommended by Cousineau (1985), Kesselman (1985), and Vanderkamp (1985) in their examinations of the Canadian UI system. The important equity objectives implicit in the regional structure of UI benefits could be attained through alternative policies, policies which would have fewer adverse effects on employment, output and income (Kesselman, 1985).

The UI benefit structure may also contribute to high labour market turnover and employment instability by raising the return to short-term employment relative to long-term employment. The 1971 amendments, by lowering the entrance requirement, raising the maximum benefit duration, and weakening the link between weeks of previous employment and eligible weeks of benefits, substantially raised the returns to unstable or intermittent work attachments relative to long-term employment attachments. Subsequent amendments have reversed these changes to some extent. Empirical research on the effects of these changes on labour market turnover and participation by groups with marginal attachment to the labour force has yielded conflicting results (Cousineau, 1985). Nonetheless, many observers feel that the return to short-term employment remains too high. At present, a worker with as little as ten weeks of insured earnings can draw as many as 40 weeks of benefits at 60 percent of insured earnings; that is, can earn benefits equal to 240 percent of market earnings. Both Cousineau and Kesselman recommend tightening the link between the duration of previous employment and the duration of benefits; for example, by imposing a ratio rule of one week of benefits for each three weeks of insured employment.[28] This change would substantially reduce the return from a pattern of repeated unstable work yet retain up to a full year of benefits for those who had worked steadily for the past three years.

UI Benefits and the Duration of Unemployment

Changes in the benefit structure of the UI system affect the unemployment rate through a variety of mechanisms. They also influence the duration of spells of unemployment, because higher benefits lower the

cost of searching and/or waiting for employment. A number of empirical studies have examined this effect. Early Canadian studies focussed on the substantial changes made in 1971, and found that the average duration of unemployment increased by one and a half to two weeks (Cousineau, 1985). This increase of approximately 20 percent in duration corresponds to an unemployment rate increase of 1 to 1 1/2 percentage points, thus apparently accounting for much if not all of the estimated rise in the NAIRU.[29]

More recently, Beach and Kaliski (1983) examined the impact of the 1979 UI amendments. They found that the reduction in the benefit rate from 66.6 to 60 percent lowered unemployment durations for all age-sex groups. Other recent studies by Hasan and Gera (1982) and Glenday and Alam (1982) also find evidence of significant UI effects on the duration of job search. Kaliski (this volume) notes that the ratio of employed to unemployed searchers rose between 1976–78 and 1979–81. This suggests that, faced with the increased cost of unemployment due to the 1979 amendments, searchers substituted employed for unemployed job search.

Numerous studies have also been carried out in the United States. Although changes over time in UI provisions have not been as dramatic as in Canada, U.S. studies have the advantage of substantial variation across states, as well as availability of panel data. On the basis of these empirical studies, there appears to be considerable agreement about the effects of differences across states in UI benefit structure. A difference of 10 percentage points in the earnings replacement ratio is estimated to alter the average duration of unemployment by one week, an estimate that is also consistent with those of the Canadian studies (Cousineau, 1985).

The empirical findings linking UI benefits to the duration of unemployment suggest that, on average, the length of spells of unemployment can be controlled to some extent by the individual. However, it should be recalled that statements about average behaviour relating to unemployment do not apply in a significant minority of cases, and this qualification may also be appropriate in this situation.

The longer duration of unemployment implied by a more generous benefit structure may be socially beneficial if it leads to more productive job search. Longer duration may be a useful investment for the individual and society if it leads to more intensive job search, to higher post-unemployment earnings, or to obtaining more suitable or longer lasting employment. Less is known about these questions than about the impact of benefit levels on duration. The limited and somewhat inconclusive evidence from U.S. studies indicates that, in addition to longer duration of unemployment, higher UI benefits lead to reduced search intensity (substantially offsetting the longer duration), no change in post-unemployment job stability, and possibly some positive impact on post-

unemployment earnings, though the range of estimates of the latter effect is diverse and includes zero. As Cousineau (1985) notes, "the empirical studies do not succeed in identifying the benefits of the UI program as clearly as its costs."

In summary, there is reasonably conclusive evidence that the behaviour of the unemployed responds, on average, to economic incentives, in particular to the benefit provisions of UI. Changes in the level or structure of benefits thus alter the social costs of UI, as well as the amount of frictional and structural unemployment. However, they also alter the social benefits of the program, for lowering the replacement rate (or otherwise making UI less generous) reduces the insurance value of UI. Clearly there is a tradeoff between these social costs and benefits, and an optimal UI design would maximize the net social benefits (i.e., strike a balance at the margin between these benefits and costs). This issue has been addressed in a number of theoretical studies.[30] Although these necessarily employ highly stylized models, they do suggest approximate values for the optimal replacement rate. Primarily on the basis of these studies, Cousineau (1985) and Kesselman (1985) recommend reducing the benefit rate from 60 to 50 percent of average insured earnings.

Conclusions and Policy Implications

Risk and uncertainty are important aspects of economic life. As a result, a good deal of economic activity involves information gathering to reduce uncertainty and insurance to reduce risk. The primary purpose of UI is to provide insurance against the loss of income associated with periods of unemployment. The importance of this insurance function is especially clear at times like the present when there is a substantial amount of deficient demand unemployment which few of those affected evidently anticipated.

Because of its size and numerous effects on well-being and labour market behaviour, the UI system deserves and receives considerable attention from policy analysts. This attention is reflected in the background papers written for the Commission. UI reform is addressed not only by Cousineau (1985) in his examination of the labour market effects of UI, but also by Kaliski (this volume) in his examination of methods for reducing frictional and structural unemployment, Kesselman (1985) in his proposed reform of the Canadian income security system, and Vanderkamp (1985) in his examination of the interregional adjustment process. Though some would go further than others, there appears to be considerable agreement among these authors on certain directions of reform.

An assessment should begin with a statement of the objectives of the program. The view argued here and by Kesselman is that the primary

purpose of UI should be social insurance, and that income redistribution should be left to programs more suited to that purpose. Within the social insurance framework, the design should take into account equity and efficiency considerations, facilitate labour market adjustment, and contribute to macroeconomic stability.

Focussing on the social insurance objective leads naturally to a consideration of experience rating of UI premium finance. Experience rating is consistent with equity in the social insurance sense (Kesselman, 1983). More important, it ensures the appropriate incentives for economizing on unemployment. Experience rating would also obviate the need for special (and costly) programs to encourage work sharing, an aspect discussed in more detail in the section on working time.

Among the UI reforms discussed by Cousineau, Kaliski, Kesselman and Vanderkamp, finance by experience rating appears to command the most substantial agreement. In my view it warrants serious consideration by policy makers.[31] Experience rating could be introduced in stages, and would probably operate best on an individual firm rather than industry-wide basis. Employee premiums could also be based on previous unemployment experience, though the same incentives can be achieved by the benefit provisions.

As noted earlier, UI can operate as an "automatic stabilizer," reducing fluctuations in output and employment. While little is known about the degree to which UI has contributed to macroeconomic stability in Canada, the stabilizing properties of UI appear to have deteriorated with modifications to UI financing in the 1976–80 period. These changes result in most cyclical variations in program costs falling on the private sector. Although not examined here, amendments to the financing arrangements to improve the stabilizing properties of UI could probably be made.

The other potential unemployment insurance reforms are on the benefits side. Here the magnitude of change depends not only on the labour market effects discussed in this section, but on broader considerations. For example, the most extensive package of benefit changes are those proposed by Kesselman (1985). His proposed revisions to the Canadian income security system involve a major shift of expenditures away from UI and toward both public and private sector employment programs and to a lesser extent toward liberalized social assistance for the unemployed who are unable to benefit from those employment programs. We could also consider, as is done in the companion volume (Riddell, 1985a), a substantial shift of expenditures away from UI and toward adjustment assistance for labour market participants adversely affected by technological and economic change. In either case, the reduction in the benefit rate proposed by Cousineau and Kesselman would free up funds for these other programs. The "normal" unemployment rate would thus be reduced in two ways: through the effects of reduced UI benefits, and

through the use of those funds for employment generation or positive adjustment assistance.

Even within the narrower scope of the present assessment, which is focussed primarily on the social insurance objective and on the potential for reducing frictional and structural unemployment without incurring excessive costs, there are several changes to the structure of benefits which appear worthwhile. Eliminating or altering the regional differentiation aspect is the most obvious candidate. In addition, tightening the link between the duration of previous employment and benefits entitlements would probably have the intended effect of reducing turnover and employment instability. Other changes designed to reduce the return to repeated spells of employment and unemployment are discussed by Cousineau (1985) and Kesselman (1985).

Each of these proposed changes to the level and structure of UI benefits will tend to reduce the amount of frictional and structural unemployment but will also reduce somewhat the insurance value of the program. Optimal design must trade off these social benefits and costs. The evidence reviewed here suggests that Canada has not yet settled on a socially optimal design for its UI system.

Minimum Wages

Another factor which several empirical studies have found to play a role in the rise of unemployment rates in the 1960s and 1970s was changes in the minimum wage. Legislation specifying minimum wages has been in existence for over four decades. Originally this legislation applied only to women and children, but coverage has subsequently been extended to most of the labour force. Today, the main exclusions are domestic service and farm labour. As of January 1, 1985, the minimum wage for adult workers in the federal and provincial jurisdictions varies from $3.50 to $4.30 per hour. Most jurisdictions also have a minimum wage for younger workers and students, and this varies from $3.00 to $3.85 per hour.

The stated objectives of minimum wage laws have varied over time, but the most important and enduring objective has been to improve the living standards of low wage workers, and thereby contribute to a reduction in poverty.[32] Significant numbers of the working poor remain in Canada, despite the substantial growth in well-being that has occurred in the postwar period (Vaillancourt, 1985). Low incomes among these people result from two sources — low wages and poor employment prospects. Clearly, policies which operate to improve both the income *and* employment prospects of low wage workers will be most effective in assisting these individuals. The minimum wage has to be compared to alternative methods of attempting to achieve these objectives.

The fundamental difficulty with the use of the minimum wage as a tool

for reducing poverty is that increases in the minimum wage can be expected to reduce employment opportunities for low wage earners. This reduction in employment opportunities comes from two main sources. First, firms faced with an increase in the price of low wage, low productivity labour relative to the price of other inputs into the production process will substitute away from the now relatively more expensive input. Usually this involves the more extensive use of machinery and equipment, though it may also involve greater use of higher wage, higher productivity labour which is made relatively more attractive by an increase in the minimum wage. The second source of reduced employment opportunities comes from the higher labour costs faced by firms using low wage labour. While initially these higher costs may be absorbed in lower profits, they eventually will result in higher prices to the consumer of the product and thus reduced sales and production. The reduction in the scale of operation typically implies a reduction in employment. Firms employing low wage labour are often small and operate in highly competitive industries. Increases in labour costs relative to those of substitute products can have substantial effects on employment, in some cases forcing firms out of business. In addition, labour costs are usually a significant fraction of total costs in these industries, making employment quite sensitive to changes in labour costs.

Increases in minimum wages will benefit some low wage earners — those whose employment opportunities are not reduced. However, others will suffer from the reduced employment opportunities. The ones who suffer may well be those with the least skills and opportunities.

A number of Canadian and American econometric studies have confirmed the disemployment effects of increases in the minimum wage. The reduction in employment opportunities is typically found both to increase the unemployment rate and reduce the participation rate of low wage workers. That is, in response to reduced employment opportunities, some affected workers search longer for work while others do not enter or drop out of the labour force. In some studies the reductions in employment and labour force participation are approximately equal, so that the unemployment rate remains the same. This is most likely to occur with teenage workers, for whom the option of remaining out of the labour force and in school is most attractive.

Canadian studies by Maki (1979), Cousineau (1979), Fortin and Phaneuf (1979), and Swidinsky (1980) found significant effects of changes in the minimum wage on employment, unemployment and labour force participation. On the basis of these studies, a 10 percent increase in the minimum wage relative to the average wage is estimated to raise the aggregate unemployment rate by 0.2 to 0.5 percentage points (Fortin and Newton, 1982, p. 253). The disemployment effect is larger, for some of the reduction in employment leads to reduced labour force participation

in addition to increased unemployment. The most recent Canadian study (Schaassma and Walsh, 1983) finds significant effects of the minimum wage on the unemployment rates of both youth and adult workers. The authors conclude that "the effect of the minimum wage on employment and unemployment is stronger and more pervasive than heretofore appreciated."

These studies face many of the difficulties of econometric analyses of other policy interventions — access only to fairly aggregate data and the problem of controlling for other factors which may affect employment and labour force participation. These problems are no more severe than in other areas of quantitative economic analysis but they should nonetheless be recognized.

An alternative empirical procedure which has been employed, primarily in studies carried out by or on behalf of government labour departments, is the survey method. In these studies, firms are questioned about the effect of minimum wage revisions on their work force. The surveys usually concentrate on firms which employ low wage workers, and typically find no significant displacement effects of changes in the minimum wage (West and McKee, 1980, chap. 4). Most labour economists would not find controversial the statement that these studies are virtually useless as measures of the disemployment effects of changes in the minimum wage relative to prices and other wages. The responses to these changes are varied, subtle and take place gradually over time. Though the survey studies may contain useful information and insights, they are not capable of (indeed, do not attempt) distinguishing between the changes in employment that would have occurred in the absence of the minimum wage revision and the changes in employment that in fact occurred. It is unfortunate that the findings of these studies appear to be given some weight by policy makers.

Minimum wages may also affect the training opportunities available in the labour market. This aspect is particularly important for younger workers whose training and labour market experience is limited. On-the-job training can often be financed by low wages during the training period (i.e., partly financed by the trainee), with higher wages and productivity in the post-training period. High minimum wages tend to discourage such financing methods and thus on-the-job training and subsequent wage growth. These consequences of minimum wages are discussed in more detail in Davies (1985).

The setting of minimum wages also tends to discourage wage flexibility in the economy. At the macroeconomic level there are arguments for structural changes to promote wage and price flexibility in order to achieve greater employment stability in the face of changes in aggregate demand (see Riddell, 1985d). In addition to changes in aggregate demand, there are changes in demand in particular regions, occupations or industries. Minimum wages inhibit wage adjustment as a mechanism

for responding to decreases in demand in particular labour markets, especially those with wages at or just above the minimum. The result is that the adjustment to change will be slowed, with consequences of higher unemployment and job vacancies, and reduced living standards. For a detailed discussion of this point in the context of regional adjustment see Vanderkamp (1985).

We can fully accept the equity objectives implicit in minimum wage legislation and yet feel the policy is unwise. Good intentions do not necessarily lead to good policies. The econometric evidence suggests that minimum wages are an ineffective and inefficient way of raising living standards among low wage earners. Thus, there are solid reasons to examine other approaches. In particular, two options — supplementing the income of the working poor and improving opportunities for training in order to raise productivity and earnings — seem preferable. Two general types of policies have been suggested. The first attempts to improve market outcomes, while the second supplements the market income of the working poor. The first type is typically advocated in the context of youth employment, where general wage subsidies or training subsidies for young workers have been advocated and in some jurisdictions adopted to offset the adverse effects of high starting wages on employment and/or on-the-job-training opportunities. Kaliski's paper in this volume and Davies (1985) discuss these policies in more detail. Kesselman's (1985) proposed comprehensive income security scheme has expanded special public and subsidized private sector employment as its centrepiece, though he would also include income supplementation for the working poor.

Proposals for income supplementation typically involve some form of a negative income tax (NIT) scheme. Such schemes combine income supplementation (up to a break-even point) with some work incentives (by an effective tax rate on market earnings substantially less than 100 percent). The NIT proposal has been widely discussed but never adopted except on a categorical basis (the Guaranteed Income Supplement for the elderly). In part this reflects concern about adverse work incentives associated with a comprehensive non-categorical NIT. Primarily, however, it reflects the very high costs of a scheme with a minimum income guarantee equivalent to existing levels of welfare assistance and a reasonably low effective tax rate (Kesselman, 1985). As a result, relatively little assistance is provided for the working poor in Canada. Traditional welfare assistance is provided for those permanently or temporarily unemployable, and, as noted, income supplementation is provided for the elderly poor.

Although a comprehensive non-categorical NIT scheme may not be feasible, a categorical system which maintains the distinction between "employables" and "unemployables" could probably be instituted at reasonable cost. Traditional welfare assistance would continue to be

available for those groups judged unemployables. A NIT scheme for employables would involve low guarantee levels (below equivalent welfare assistance) and a low effective tax rate on market earnings. This would provide income supplementation for the working poor with minimal stigma and adverse work incentives.

Working Time, Employment and Unemployment

During the postwar period, the growth in employment and real income were key factors contributing to the increased well-being of Canadians. Another important factor was the reduction in time spent working and the increased time thus made available for leisure and other activities. In this century the reduction in Canadians' working time has been dramatic. This reduction occurred on three fronts: hours worked per week, weeks worked per year, and years worked over a lifetime. A shorter work week, more holidays, and later entry into and earlier retirement from the labour force have produced significant increases in the time available for non-work activities.

Frank Reid's paper in this volume provides a detailed discussion of several issues relating to working time. For conceptual purposes, these issues can usefully be separated into two groups. The first involves working time when the economy is operating at normal levels of employment. The focus here is on the equilibrium distribution of hours, weeks and years of work in the economy; the extent to which these work times reflect the preferences of employers versus the preferences of employees; and whether this distribution is socially optimal. The second set of issues involves the way hours of work and employment adjust in response to cyclical fluctuations in the economy or in individual industries. This matter was raised earlier in the discussion of unemployment insurance, and we return to it here. Perhaps the most provocative aspect of this second issue is the suggestion that reductions in working time, in particular a legislated reduction in the work week, should be brought about in an attempt to deal with the currently high levels of unemployment.

Weekly and Annual Work Schedules: Current Patterns and Historical Trends

At any point in time, the hours worked per week by Canadian employees vary considerably. Reid (Table 3-1) shows the average distribution of hours worked for 1983. In that year, over 18 percent of the labour force were working part-time (below 30 hours per week), 52 percent were working 30–40 hours per week, and about 22 percent were working more than 40 hours per week. The remainder worked zero hours (i.e., were on vacation, sick, on strike or lockout, etc.).

TABLE 1-7 Full- and Part-Time Employment Shares by Sex, All Industries

	Both Sexes		Male		Female	
Year	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time
1966	91	9	67	3	24	6
1971	88	12	63	4	25	8
1976	89	11	60	3	29	8
1981	86	14	56	4	31	10
1983	85	15	54	4	31	11

Source: Statistics Canada, *Historical Data Compendium for the Royal Commission on the Economic Union and Development Prospects for Canada*, and calculations by the author.

Part-time employment has grown much more rapidly than full-time employment over the past two decades. Table 1-7 shows the full- versus part-time distribution of employment since 1966. Over this period part-time employment increased from 9 to 15 percent of total employment. Almost all this employment growth has been in services-producing industries, and the vast majority has involved youth and adult women (Kaliski, Table 2-5). Clearly, the increased importance of part-time employment is closely related to several key trends noted earlier — the changes in the demographic and industrial composition of the labour force and employment.

The decline in hours worked per week over the past century has been dramatic. Reid (Table 3-4) shows the trend in standard weekly hours in manufacturing, the longest available time series. Other series are reported in Ostry and Zaidi (1979, p. 80). It is sometimes claimed that the decline in time spent working has slowed in the postwar period. However, this claim ignores the decline in weeks worked per year and years worked over the lifetime. When additional holidays and vacations alone are included in the series, the postwar trend appears similar to earlier periods (Reid, Figure 3-1 and Table 3-5).

The long-run decline in working time is believed primarily to reflect employees' preference for increased leisure as real wages and thus real incomes rise. There are offsetting pressures here. As real hourly wages rise, the implicit price of an hour of leisure rises, causing a substitution away from leisure time toward income and goods consumption. However, as real wages and thus real income rise, households consume more of most goods, including leisure time. Evidence indicates that this "income effect" dominates the "substitution effect" over a wide range of income and hours of work, so that employees' preferred hours of work decline as real wages rise. Although there is nothing inherent in people's preferences that implies that this will continue to be the case as real wages rise further, there is also very little basis for believing that this

trend will not continue. Thus, the future long-term trend in working time depends to a considerable extent on the rate of productivity growth, for this largely determines real wage growth.

Determinants of Working Time

Hours and weeks of work are determined by the interaction of employee and employer preferences. In unionized firms the employees' preferences are articulated by their union representatives. In non-union firms, employee preferences are articulated either through direct communication or implicitly by their job acceptance and quit behaviour. Employers who want their employees to work more or fewer hours than the majority of employees would prefer will be forced, at least when the economy is at normal levels of employment, to pay a wage premium.

Employees' preferences with respect to hours and weeks of work depend on a number of factors affecting their desire for income versus leisure, including their age, health, commuting costs, number of workers in the family, number of dependants and so on. Employer preferences depend on several factors affecting the cost and productivity of employee hours versus the number of employees, including fixed or quasi-fixed costs (i.e., costs which are a fixed or partially fixed amount per employee) such as hiring and training costs and contributions to medical and dental plans. The organization of working time will also affect employee productivity through such factors as fatigue and employee interaction, and employers will take this into account.

In a competitive market equilibrium, such as analyzed by Rosen (1974), the joint determination of wages and hours of work would be socially optimal in the Pareto sense: it would not be possible, by adjusting hours of work, to make any individual better off without making someone else worse off. This would also be a "sorting equilibrium"; individuals with a strong preference for income over leisure would be matched with firms which find it costly to reduce the work week, while individuals with a strong preference for leisure (or at least non-working time) over income would be matched with firms which find it relatively inexpensive to reduce the work week and thus hire more employees. Although the assumptions needed for a competitive equilibrium do not hold in practice, this provides a useful starting point for the policy analysis of working-time issues. In particular, it causes us to focus on conditions which might interfere with the socially optimal determination of working time.

Barriers to Work-Time Reduction

Because work schedules reflect the wishes of both the employer and the employee, they may not be ideal from the perspective of either party.[33] Any factors other than those which reflect a true social cost (e.g., hiring

and training costs) and which may operate to cause employers to prefer more working time than their employees desire should be examined. Several instances of such "artificial" barriers occur as a result of employment standards and labour-relations legislation, which has generally been written with full-time employees in mind.

Reid describes a number of these artificial barriers, including that associated with the ceilings on payroll taxes used to finance workers' compensation, the Canada (or Quebec) Pension Plan, and unemployment insurance (UI). An unintended effect of these ceilings is to create a person-specific cost for individuals earning above the ceiling. If hours worked per employee are reduced and additional employees are hired, the proportion of earnings subject to contribution, and thus employers' labour costs, will rise. The annual ceilings on CPP and workers' compensation thus create a barrier against those working less than a full year; the weekly ceiling on UI creates a barrier against those working less than a full week. Simulations by Meltz, Reid and Swartz (1981) indicate that the effect of these ceilings on labour costs is not trivial.

It would be desirable to eliminate these artificial barriers, since employers' bias toward longer hours and fewer employees results in work schedules which are not socially efficient. Reid's recommended solution is to base unemployment insurance, workers' compensation and Canada Pension Plan premiums on *hourly* earnings, with a ceiling to limit the amount subject to contribution. This action would eliminate the bias against those working fewer hours, while maintaining the intended purpose of the ceilings.

Privately negotiated fringe benefits also often involve person-specific fixed costs, and thus will tend to operate as a barrier to reductions in hours or weeks of work per employee. In this case it is not so evident that this bias against reduced working time is unintended, for employers and employee representatives should, if rational and far-sighted, take into account the consequences of negotiated benefits for hours of work. However, this level of sophistication may not prevail. Employee representatives and employers may find it to their mutual advantage to prorate benefits according to hours worked.

Reid identifies a number of other practices, such as eligibility provisions in employment standards legislation and Labour Relations Boards' procedures for choosing the appropriate bargaining units for part-time and full-time employees, which can also inhibit employers and employees from adopting alternative working hours arrangements which may be mutually advantageous.

Layoffs Versus Work Sharing

An important and related issue is the way employment and hours of work respond to cyclical fluctuations in the industry and/or overall economy. The choice between layoffs and reduced hours (or, if both are used, the

proportion of each) depends on a variety of factors reflecting employer and employee preferences — the impact on the employees' income and leisure and on the employer's costs. In general, employees and employers can assess these costs and benefits and make the appropriate choices. Thus, there may appear to be little need for public policy involvement. However, again existing policies may (inadvertently) bias the choice, and it is important to examine policies for these potential effects.

One of the difficult issues relating to the choice between layoffs and work sharing is determining the extent to which a given reduction in demand is temporary or permanent. If the reduction is permanent, then work sharing makes little sense either from the perspective of society or of the individuals involved.[34] For temporary reductions in demand, work sharing has much more appeal. Even here, however, there are some complicating factors. Layoffs by seniority in response to temporary reductions in demand may have an efficiency rationale. For example, workers may prefer to take most of the risk of layoff early in their careers in exchange for less risk later, when they have more financial commitments.

The existing unemployment insurance system represents an important obstacle to work sharing because the system provides benefits to individuals out of work for the full week, but not to individuals whose income falls because of reduced hours. This provision makes employers and employees more likely to prefer layoffs to hours reductions as a means of responding to temporary reductions in labour demand. This unintended bias toward layoffs can be eliminated by changing either UI financing or benefit provisions. As noted earlier in the discussion of the UI system, experience rating of the financing of UI would have several advantages, one being that it offsets the tendency to prefer layoffs by making these more costly to the firm. The alternative, discussed by Reid, is a short-term compensation program which operates on the benefits side.

The 1977 amendments to the Unemployment Insurance Act provided for the use of UI funds for developmental purposes, one of which was work-sharing programs. Following pilot projects conducted in 1978–80, a short-term compensation program was introduced in Canada in January 1982. Essentially the program involves redistributing the UI benefits that would have been paid to laid-off workers. Thus, individuals whose hours of work are reduced receive some additional income in the form of UI benefits. The combination of an increase in leisure time and a relatively small drop in total income can make such a program attractive to most employees, depending on the parameters of the program. Employers face somewhat higher costs than would be the case with layoffs, in the form of fringe benefits (since some of these are fixed costs per employee) and administrative costs associated with the program. How-

ever, there are also benefits to employers — reduced costs associated with layoff and recall, less reduction in employee productivity due to loss of work experience, and less potential loss of experienced employees who do not return upon recall. Reid reports that the limited experience with the Canadian program suggests that these costs and benefits (to the employer) roughly offset each other.

UI expenditures were considerably higher — by 35 percent or more — under the program compared to conventional unemployment insurance. The two main reasons were the waiving of the normal two-week waiting period (this was done to make the program more attractive to senior employees whose risk of layoff was low) and the provision that the program did not reduce eligibility for conventional UI. With respect to the latter, about half the employees originally designated for layoff were laid off following the termination of the short-term compensation agreement, thus raising the overall costs of the program.

Because of the higher cost of the short-term compensation program, both in the form of additional UI expenditures and extra administrative costs, it appears to be preferable to operate on the financing side to offset the bias toward layoffs. The advantage of experience rating in this context is that no additional administrative machinery would be required for operating a work-sharing program. Experience rating brings several other important benefits as well, as discussed earlier. However, until experience rating is implemented, it will be useful to retain the short-term compensation program, though possibly with some modifications to reduce the unemployment insurance costs and administrative complexity. In particular, designing the program so that the UI costs are identical to those that would be incurred under regular UI would seem a straightforward way to guard against unduly subsidizing participants.

Reducing Working Time to Alleviate Unemployment

The abnormally high levels of unemployment which have existed for the past several years, and which many authorities forecast to persist, have led to considerable interest in reduced working time to alleviate unemployment. This interest is especially strong in Europe (see OECD, 1984), where the unemployment is viewed as being primarily associated with structural rigidities and high real wages and thus not reducible by expansionary demand policies. However, even in Canada where the description of much of the current unemployment as cyclical is more widely accepted, there has been interest in the issue of reducing working time to alleviate unemployment.[35]

Several employment-sharing policies have been suggested as a response to the current unemployment situation. Perhaps the most dramatic and intrusive proposal is for a legislated reduction in the standard work week. Reid also suggests temporary subsidies for

employment sharing in periods of deficient demand unemployment, a policy which has been employed in Britain.

At the outset, it should be made clear that these proposals are fundamentally different from those discussed earlier in this section. In particular, the proposals discussed earlier — removing barriers to mutually advantageous work schedules and removing any bias toward layoffs associated with the UI program — are ones that make considerable sense whatever the state of the economy. They affect the equilibrium distribution of working time, and how industries and the economy as a whole adjust to various shocks.

These employment-sharing (or unemployment-sharing, which is perhaps a more accurate description) proposals do not purport to increase aggregate demand, and therefore the total hours of work demanded. Rather, they intend to redistribute the unemployment across workers, transforming it from measured unemployment to unmeasured underemployment. The rationale is explained by Reid as follows. The preferred option would be to expand aggregate demand. However, given that this option has been rejected because of concerns about the consequences of expanding aggregate demand for inflation or the deficit, then sharing the unemployment is viewed as more equitable and perhaps more efficient.

There are, however, as Reid has noted, very serious difficulties with proposals for bringing about (temporary) employment sharing. Legislating a reduction in the standard work week would, if the European experience is any guide, be offset by an "induced productivity" effect which dulls the (measured) employment-generating impact of the policy. In addition, not everyone is covered by employment-standards legislation, the mechanism by which hours reductions would be brought about. Among those covered, some would reduce the intended effects of the policy by taking a second job. Perhaps most significant is the high likelihood that total hours of work demanded will fall in response to a legislated reduction in the work week, holding the hourly wage rate constant. The reason is that, because of various employee-specific fixed costs, and possibly more extensive use of overtime, the effective hourly wage will rise, reducing employment and output.

Another problem is that a legislated reduction in the standard work week would be much more binding on some industries, occupations and regions than others. Even if the policy did increase the number of employees demanded in those industries (occupations, regions) in which the constraint is binding, these may not be the industries with an excess supply of workers. The policy would also require additional enforcement costs on the part of labour departments particularly because the imposed work week may be shorter than desired by both employers and employees. A final difficulty is reversibility. It might be difficult to raise

the standard work week as aggregate demand expands. Yet if this is not done, the consequences would be inflationary pressure without reducing the underemployment.

In summary, legislating a reduction in the standard work week, holding constant hourly wage rates, has very serious drawbacks. The adverse consequences of imposing a reduction in hours, holding constant weekly income, are probably even more severe. The other option mentioned by Reid is the use of (temporary) subsidies for employment sharing in periods of deficient demand. Here again several difficulties arise. In particular, the funds have other uses. Why not subsidize employment, rather than employment sharing, if funds are available?

Summary

A number of public policies may inadvertently inhibit employers and employees from mutually advantageous arrangements concerning the organization of working time. Privately negotiated fringe benefits and other conditions may also have these unintended adverse effects. Though these policies often have these features for good reasons, the policies can typically be redesigned to minimize their adverse consequences. Several such design changes were noted in this section: ceilings on payroll taxes used to finance workers' compensation, the Canada (or Quebec) Pension Plan, and unemployment insurance. Basing these premiums on hourly earnings was suggested as a preferred alternative.

The existing UI system biases employers and employees toward layoffs rather than work sharing (hours reductions) in response to temporary downturns in demand. Since 1982 the short-term compensation program introduced by Employment and Immigration Canada has offset this bias by providing UI benefits to employees choosing work sharing. However, in order to make work sharing attractive to employees with a low probability of layoff, the program is considerably more expensive than regular UI. The bias can also be offset by changing the UI financing provisions, specifically by having experience-rated premiums. This alternative has considerable appeal: "It seems self-defeating to introduce developmental U.I. benefits to encourage work-sharing while simultaneously having a U.I. financial system which discourages the natural development of work-sharing" (Kesselman, 1983, p. 80).

Issues relating to working time are significant. The decline in the work week and the increased number of holidays and vacations are important developments which have raised the well-being of many working Canadians. Recent high levels of unemployment have focussed interest on schemes to reduce the working time of those employed in an attempt to increase working time for those unemployed. While such schemes have

some popular appeal,[36] analysis shows them to be seriously flawed. Promoting a more rapid recovery appears preferable to work-sharing schemes as a means of dealing with the existing levels of unemployment.

The Labour Market Behaviour of Canadian Women

The increased participation of women, especially married women, in the labour force was the most dramatic labour market development of the postwar period. This phenomenon had numerous effects on society — on the size and living standards of families, on the goods and services demanded and produced in the economy, and on the nature of family life, to name only a few. Perhaps most important, associated with the increased participation in the world of paid work there have been fundamental changes in the way women perceive themselves and their role in society.

This is also an international phenomenon. Table 1-8, which draws on a recent comparative analysis (Mincer, 1985), shows the growth in female labour force participation rates over the 1960–80 period in Canada and 12 other countries. Only in the Netherlands did female labour force participation decline. In all 13 countries the participation rates of married women rose, often dramatically. Clearly these trends were not unique to Canada. Canada's growth in married female labour force participation was among the highest over this period. However, the overall level of participation in 1980 is not high by international standards, being eighth for married women and ninth for all women.

These developments were also largely unexpected. Smith (1983) recently reviewed projections made in the mid-1950s by the Royal Commission on Canada's Economic Prospects (the Gordon Commission) and by the Economic Council of Canada in 1967 and 1972. In all three projections the major source of error was the unexpectedly large increase in the female labour force. The earlier the projection, the larger was the error. The Gordon Commission's projection error was especially large — the female labour force in 1980 was almost double that projected (4.6 million versus 2.55 million). All three forecasts also overpredicted male labour force growth, reducing somewhat the forecast error for the total labour force. Nonetheless, the prediction error for female labour force growth was huge compared to that for males.

The rise in female labour force participation in the postwar period is a continuation of a long-term trend. According to census data, the female participation rate increased slowly but steadily from 16 percent in 1901 to 24 percent in 1951 (Ostry and Denton, 1967). However, the most substantial changes occurred in the following three decades, which saw participation rise from 24 percent in 1951 to 52 percent in 1981. Less is known about the long-term trends in the labour force behaviour of married women. Ostry and Zaidi (1979, p. 42) estimate that the participa-

TABLE 1-8 Labour Force Participation Rates, All Women and Married Women, 1960, 1970, 1980 (13 Countries)

	All Women[1]			Married Women[2]			
Country	1960	1970	1980	1960	1970	1980	Growth Per Annum
Australia	29.5	42.8	55.4	19.2	36.5	50.8	4.86
Britain	43.4	54.6	62.3	33.7	48.8	57.2	2.64
Canada	27.9[e]	38.3[f]	50.4[f]	19.1[e]	32.0[e]	49.4[f]	4.31[g]
France	44.5	47.1	57.0	35.6	41.5	52.6	1.95
Germany	46.5	50.9	56.2	36.5	42.7	54.4	2.00
Israel	29.0[a]	32.0[b]	39.2	25.7[a]	36.0[b]	43.5	2.63
Italy	35.2	33.8	39.9	18.5	24.2	35.4	3.24
Japan[a]	47.7[c]	50.0	52.7	36.0[c]	39.5	41.9	1.00
Japan[b]	21.9	27.0	29.5	12.6[d]	18.3	26.0	4.02
Netherlands	49.0	43.9	34.9	7.6	17.3	30.6	6.96
Spain	22.7[a]	26.1	33.2	n.a.	16.3	26.0	2.37
Sweden	51.0[a]	60.1	76.9	43.1	56.2	75.6	2.81
United States	37.8	43.4	51.3	30.5[a]	40.8[a]	50.1[a]	2.48
U.S.S.R.	77.4	89.4	88.2	77.4	89.4	88.2	0.66

Sources: J. Mincer, "Intercountry Comparisons of Labor Force Trends and of Related Developments: An Overview." *Journal of Labor Economics* 3 (1, January, Supplement), S1–S32, for all countries except Canada; Statistics Canada, *Historical Labour Force Statistics* and *The Labour Force*, and calculations by the author.

1. Over 15 years of age, exceptions noted.
2. Ages 20–59, exceptions noted.
   Israel: all ages; a. 1961, b. 1975.
   Japan: a. All women, ages 20–64, in non-agricultural households and married women in employee households.
   b. Paid employees, all ages.
   c. 1965.
   d. 1962.
   Spain: a. 1964, all women, ages 20–59.
   United States: a. All ages.
   U.S.S.R.: All women, ages 20–54.
   Canada: e. Former labour force survey, ages 14 and over.
   f. Revised labour force survey, ages 15 and over.
   g. The growth rate is calculated after an adjustment for the difference between the former and revised labour force surveys.

tion rate of married women was less than 3 to 4 percent prior to World War II. By 1951 this figure had risen to 10 percent, and by 1981 to 51 percent, almost equal to that of unmarried women. This clearly was the most significant departure from previous trends.

Because of these features of the phenomenon — its dramatic and unexpected nature, its numerous consequences for society, and its general nature, being common to many countries with diverse cultures — it is not surprising that the increased number of women working for pay has received considerable attention from social scien-

tists. It also receives considerable attention here, first in a discussion of the causes of this development, and second in a survey of consequences and policy issues.

Causes of the Rise in Female Labour Force Participation

As with any major social phenomenon, the increased number of women working for pay has received considerable attention. A variety of explanations has been offered for the very substantial changes that have occurred in the past three decades relative to earlier periods. Most of these changes are partly a result of increased participation and partly a cause. Separating cause and effect is not easy. It is also difficult to determine the extent to which increases in labour demand and labour supply have contributed.

On the demand side, the substantial growth of the service sector has provided a large number of employment opportunities for women. These largely white-collar jobs are occupations for which employers traditionally consider women, as well as those with a number of features which make them attractive to women (more flexible work schedules, availability of part-time employment, among others). Many factors have operated on the supply side. Increased levels of education have played a role. The technology of "household production" has changed, releasing more time for work as well as facilitating substitution between work for pay and work in the home. The average size of families has declined. In part this reflects the availability of more reliable methods of birth control. Society's attitudes toward working women have undergone significant changes. Increased urbanization has also encouraged women to enter the work force. The extent to which each of these factors is a cause or an effect of changing participation behaviour remains largely unknown. In addition, as discussed earlier, changes in social legislation, for example, unemployment insurance, may have played a role.

The wages of men and women have also been affected by these developments. Changes in wages and family income in turn have complex effects on participation. As Canadians have become wealthier, men have spent less time working. This decline takes three forms. Fewer years are worked over the lifetime, primarily by later entry into and earlier retirement from the labour force. In addition, as discussed in the previous section, hours worked per week and weeks worked per year have declined steadily. This tendency for time spent working to decline as real income rises is generally attributed to the dominance of the income effect of an increase in the real wage rate over the substitution effect. (These effects are explained below.) The rise in female labour force participation during a period when both real wages of females and real husband's income (for married women with a husband working)

have been rising suggests the substitution effect dominates. The explanation for these differing responses is given below.

Many of these factors have been investigated in empirical studies of female labour force behaviour. Studies using aggregate time series, cross section, and, in the case of the United States, panel data have been carried out. The advantages and disadvantages of these different data sources are discussed by Alice and Masao Nakamura. The factors which have received the most attention in empirical studies of female labour force behaviour are child status (number and age of children), husband's income (for married women), education, the market wage rate, and macroeconomic variables such as the national or regional unemployment rate. In addition, some studies have included measures of the number of job opportunities available to women.

Child status is generally found to be the most important influence on the decision of women to work, and on annual hours worked for those who choose to work. As stated by the Nakamuras: "In study after study, including both cross-sectional and panel data studies, the usual finding has been that the presence of children, and particularly the presence of children younger than six years of age, substantially reduces both the probability that a woman will work and her expected hours if she does work." For married women, the husband's income is generally found to be the second most important determinant. The higher the husband's income, other things equal, the lower the probability the wife will work and the less the annual hours worked for those who work for pay. The empirical studies find that education has a large impact on the income of working women, and on the probability that a woman will work, holding constant the wage rate and other factors.

Changes in the real wage have offsetting effects on the amount of time an individual would like to work. A higher real wage means higher income for each quantity of hours worked, permitting greater consumption of all commodities including leisure time. This "income effect" generally leads to a reduction in working time. However, an increase in the wage raises the implicit price of an hour of leisure, causing a "substitution effect" away from leisure toward goods consumption. Following Mincer (1962), labour economists have traditionally explained the contrasting time series behaviour of male and female labour supply in terms of the differing magnitudes of the income and substitution effects for males and females. Most males have traditionally been in the labour force for much of their lives and work a substantial number of hours per year. Thus the income effect of an increase in the real hourly wage is substantial, and is expected to be larger than the substitution effect. The male labour supply curve is thus "backward bending," an increase in the real wage leading to a reduction in time worked. (This is divided between hours, weeks and years according to a variety of considerations.)

Females, in contrast, have traditionally been outside the labour force or, if employed, have earned lower wages and/or worked fewer hours than men. Thus the income effect of an increase in the real wage is small, and is dominated by the substitution effect. As a result, the female labour supply curve is upward sloping.

These statements about the shape of the labour supply curve reflect two responses. One is the effect of changes in the wage rate on participation in the labour force. The second is the effect on hours worked, conditional on being in the labour force. The time series behaviour of female labour supply is dominated by the participation effects.

When the focus is narrowed to the influence of changes in the real wage on hours worked by women conditional on their being in the labour force, it is less clear that the female labour supply curve is upward sloping. Several cross-sectional studies by the Nakamuras (see their 1979, 1981 and 1983 papers) using census data and a recent study by Robinson and Tomes (1985) using the 1979 Quality of Life Survey find that hours of work decline in response to an increase in real wages. There are, however, conflicting results in the empirical literature. Indeed, until recently the consensus view was that hours worked by female participants increase in response to an increase in the wage.[37] The sign and magnitude of the elasticity of hours worked with respect to the wage is thus a matter of some debate. This debate does not, however, question the view that a higher real wage has been one factor accounting for the rise in female labour force participation.

Some studies have also tested the hypothesis that variations in employment opportunities for women have a direct impact on female labour force participation, in addition to the effect on the market wage. If wages adjust fairly quickly to changes in labour demand and supply, this hypothesis should receive little support. An increase in labour demand will lead to an increase in the wage, and this will lead to more females entering the labour force. The measure of job opportunities should have no independent effect. There is some support for this hypothesis in the cross-sectional studies carried out by the Nakamuras, though it has not been extensively tested by other researchers. The support may indicate that the wage rate does not fully adjust to demand and supply changes. That is, variations in employment opportunities across regions, cities or towns do not result in corresponding variations in wage rates so that both wage rates and employment opportunities affect female labour force participation and hours of work.

A possible explanation is that the wage rate is not the only, possibly not even the primary, characteristic of the job which adjusts in response to changes in labour demand, especially in the short term. For example, employers may find that offering more flexible working hours, making part-time work available, or providing daycare facilities are more effec-

tive methods of attracting additional employees than increasing the wage. Since these job characteristics are not observed by the researcher, a positive relationship between female participation and measures of employment opportunities would show up in the data, even after controlling for the wage rate.

The measures used to test this hypothesis focus on employment opportunities for *women*. They presume, therefore, some occupational segregation; that is, somewhat distinct labour markets for men and women. The existence of different occupational and employment patterns between men and women is easily established (see, for example, Table 4-1 in the Nakamura and Nakamura paper.) Whether these differences primarily reflect preferences or discrimination is a more difficult issue to resolve, as we shall see in the next section.

In summary, a variety of factors have been found to influence the number of women working and the hours worked by those in the labour force. Can changes over time in these factors, given their estimated impacts, account for the observed rise in female labour force participation in the past three decades? Alice and Masao Nakamura argue that observed changes in these variables can account for some but probably not very much of the observed change. Declining fertility rates, increases in education levels of women, and rising real wages are three factors tending to raise the participation rate over time. (Note, however, that these factors, especially the first two, are partly a consequence of as well as a cause of increased participation. Treating these as exogenous determinants may well overstate their contribution to increased participation.) A fourth factor tending to raise female participation rates is growth in female employment opportunities; as noted above, this variable may be viewed as a complement to the real wage. At the same time, the rise in real income of husbands tends to reduce labour force growth of married women. The net effect of these variables will be a rise in female labour force participation, because the effect of changes in the husbands' income is small relative to the other effects, especially child status and education.

The Nakamuras present evidence which indicates that changes over time in the commonly used explanatory variables (child status, education, real wages, and so on) do not provide a fully satisfactory account of the observed labour force behaviour of women, especially married women. In particular, panel data indicate that there is more continuity or persistence from year to year in the labour force behaviour of individual women than would be predicted on the basis of estimated participation equations. This suggests that unobserved (by the researcher) factors which differ across women are the source of this persistence. As a result of these differences across women in the propensity to seek market work, the responses of individual women to changes in child status,

education, real wages and husband's income are less than those observed to be true for all women in the sample. The Nakamuras discuss possible sources of this heterogeneity.

Although admittedly speculative, their view is that the continuity of labour force behaviour is due to early life-style choices made by women regarding careers and marriage. They see women in the labour force falling into three main groups: "those who see themselves as working for only a short time to meet the current economic needs of their families, those who see themselves as working on a long-term or career basis to meet the economic needs of their families, and those whose work activities are not primarily motivated by the economic needs of their families." These groups are argued to differ in their long-term plans or intentions with respect to specialization in home-oriented versus market-oriented activities, investment in education and training for market work, and in the importance of marriage and the husband's income to the economic well-being of the family.

This heterogeneity implies that the estimated effects on participation of child status, education, husband's income, and so on confound two effects. The first is a true behavioral response; it shows, for example, the effect of a change in the husband's income on the labour force participation of women in each group. The second is a relationship among labour force participation, education, husband's income, and so on due to the different characteristics of these groups. This heterogeneity clearly has implications for the causes of the increased labour force participation of women in the past three decades and for future trends. In particular, it suggests that there have been shifts in the proportions of women choosing lifestyles oriented toward careers and market work versus those oriented toward homemaking activities, and/or shifts in the proportions of intended homemakers who enter the labour force to meet family economic needs.

The Nakamuras suggest that although the short-term responsiveness of female labour force participation to changes in economic and other variables is fairly small, the long-term response may be quite large. That is, long-term increases in real wages, in the employment opportunities available to women, as well as changes in household production technology and in the reliability of birth-control methods appear to have led to major shifts in the proportion of women choosing a lifestyle oriented toward market work. Such shifts affect the amount and type of education and training acquired and planned family size for those who marry. Recent trends in higher education indicate that the proportion of young women making long-term career plans continues to rise, in some cases dramatically (Nakamura and Nakamura, Tables 4-3 to 4-5). These trends, together with the continuity in labour force participation observed in panel data, suggest that female participation rates will continue to increase.

There are signs that child status is becoming less important as a determinant of labour force participation. As Table 1-9 shows, the most rapid labour force growth in recent years has been among women with young children. From 1976 to 1983 the participation rate for women with children under 3 years of age rose by 54 percent (from 31.7 to 48.9) compared to an increase of 22 percent (43.1 to 52.5) for all female heads/spouses. As a result, the variation in participation rates among female heads/spouses according to child status fell considerably over this eight-year period.[38] This phenomenon is also occurring in other countries (Mincer, 1985).

Together with increases in female labour force growth there have been declining birth and marriage rates and rising divorce and separation rates in each of the countries examined in Mincer (1985). These trends have also occurred in Canada (Nakamura and Nakamura, Table 4-6), and appear to be interrelated. As discussed above, declining fertility rates affect labour force participation, as does the proportion of women marrying and the amount of marital instability. However, the choice of a way of life oriented toward work may also affect the probability of marrying, the age at which marriage is likely to occur, planned family size, and the importance of the marriage to the family's economic well-being. This last point in turn may affect the probability that the marriage will last. Thus the observed trends in divorce, marriage and fertility can be interpreted in terms of shifts in the proportion of women planning lifestyles oriented toward working careers versus those oriented toward homemaking activities.

While these shifts in the composition of the female population have been argued to play an important role, we have not discussed their possible causes. The primary *economic* factors underlying these shifts and therefore the jointly determined trends in participation, fertility, marriage and other developments appear to be growth in real wages and employment opportunities for women. This growth in earning power drew more women into the labour force. In addition, availability of better birth-control methods and changes in the technology of household production facilitated long-term commitments to market work and thus altered the pace at which these changes occurred.

Determining the contribution of these economic factors relative to other potential causal factors such as changes in society's attitudes toward working women is clearly difficult. In particular, it is extremely difficult even to estimate the extent to which changes in social attitudes is a cause or a consequence of these labour force trends. Smith and Ward (1985) estimate that 60 percent of the growth in the female labour force in the United States since 1900 can be attributed to growth in real wages. Half this estimated effect was associated with the fertility reducing effect of higher real wages. No comparable studies are available for Canada.

TABLE 1-9 Women's Participation by Marital Status and Age of Children, 1976–83

All Female Heads/Spouses	1976	1977	1978	1979	1980	1981	1982	1983
Total	43.1	44.4	46.5	47.8	49.4	51.0	51.6	52.5
With children less than 16 years	43.0	44.8	48.0	49.4	51.8	54.5	55.2	56.8
With pre-school-age children	35.5	37.3	41.0	42.7	45.0	47.4	48.5	51.5
With children less than 3 years	31.7	33.9	37.6	39.4	41.7	44.4	45.6	48.9
Without children less than 3 years but at least one 3–5 years	40.9	42.5	46.1	47.8	50.1	52.4	53.2	55.6
Without pre-school-age children but at least one 6–15 years	50.1	51.9	54.3	55.6	58.3	61.2	61.6	62.0
Without children less than 16 years	43.2	43.8	44.9	46.1	46.7	47.5	48.0	48.5
Females less than 55 years old	64.5	65.7	67.5	68.5	69.7	70.3	70.5	72.0
Females 55 years old and older	18.0	18.7	18.7	19.8	19.5	19.8	20.3	20.0

Source: Statistics Canada, *Historical Data Compendium for the Royal Commission on the Economic Union and Development Prospects for Canada.*

Discrimination, Equal Pay and Equal Opportunity

The dramatic rise in female labour force participation has had many consequences. One has been increased concern about equal opportunity and equal pay in the labour market. This section examines these issues, drawing heavily on Morley Gunderson's paper in this book.

Equal opportunity is a key necessary condition for the efficient utilization of our human resources. In the absence of equal opportunity, the skills and talents of some individuals will be underutilized and the total income and level of well-being produced by our economy will be lower than is feasible. Furthermore, the absence of equal opportunity implies fundamental inequities. For both these reasons, issues relating to discrimination in the labour market are important.

The possible existence of discrimination in the labour market is a concern of several groups, including visible minorities, the handicapped and native people. Nonetheless, much of the policy debate regarding labour market discrimination, equal pay and equal opportunity has focussed on women. For this reason the discussion of these issues is carried out in this context. However, many of the underlying principles apply to any group which may have received less than equitable treatment from society.

Issues relating to labour market discrimination have been very prominent in recent years. Women's issues in particular played a major role in the 1984 federal election and in recent provincial elections.[39] Not all of the issues have been economic; for example, there has been considerable attention to sexual harassment, wife-battering and sex-related crimes. (Even these, of course, may have economic causes and consequences.) However, economic issues and especially those relating to employment and income have received a substantial amount of attention, and are the focus of this section.

More specifically, the section discusses the following questions. Does discrimination in the labour market exist and, if so, what is its quantitative significance? What policies would reduce or eliminate any discrimination that does exist at the least cost to the individuals or groups discriminated against and to society at large? To address these questions we need first to understand the causes of discrimination.

Sources of Discrimination

Understanding the sources or mechanisms which may lead to discrimination is critical for determining the policies that will be most effective in reducing inequalities. Policies which presume discrimination comes mainly from the labour market may be largely ineffective if the main source of inequality is elsewhere. A number of different explanations have been put forward to account for unequal labour market outcomes.

Gunderson discusses these under four headings: neoclassical "taste" perspectives, non-competitive theories, statistical discrimination, and non-labour market constraints.

Labour market discrimination will reveal itself in terms of different wages or earnings for equally productive groups of workers. There will therefore be strong market pressures to eliminate these inequalities. Firms which hire the more poorly paid groups will be more profitable than firms which hire the well paid. In order to account for the possible persistence of inequalities (other than those due to differences in productivity), these theories must explain why the market forces do not operate effectively.

The first group of theories account for discrimination in terms of the personal prejudice of employers, workers, or customers. These explanations have the property that the individuals with discriminatory preferences pay for their prejudice, at least in the long run.[40] However, as Gunderson notes, the adjustment to the long-run equilibrium may take a long time.

A variety of explanations which rely on non-competitive market behaviour have been offered. While these differ in points of emphasis, they share a common viewpoint that labour markets are segmented, with males and females (or other divisions) in non-competing groups. For example, in dual labour market theories a distinction is made between the primary labour market characterized by high wages and benefits, job stability and good opportunities for advancement and the secondary labour market which has the opposite features. Although these theories do not explain why particular individuals or groups obtain employment in the primary or secondary sectors, they are able to account for the persistence of segmented labour markets. The low wages and poor opportunities for advancement in the secondary sector encourage poor work habits, absenteeism and high turnover, thus leading to persistent differences in worker productivity in the two sectors.

Statistical discrimination occurs because of imperfect information about the productivity and work habits of individual (especially prospective) employees. Because of imperfect information, there is an incentive for employers to rely on observed attributes of individuals which are correlated with productivity. That is, the attributes of the group to which the individual belongs may be the best predictor (on average) of the individual's productivity. This can result in an equilibrium "vicious circle" in which the choices made by potential employees with respect to education, training and other preparation for employment result in the employer's beliefs being confirmed (Spence, 1973).[41]

Potentially important sources of differences in incomes and employment patterns lie outside the labour market. Social attitudes may perpetuate stereotyping of male and female roles. These attitudes may be

reinforced by family upbringing, educational institutions, the media, and other institutions. They can affect the nature of preparation for the working world, the types of education chosen, and so on. Unequal division of labour within the household is another powerful force which can influence decisions relating to occupational choice as well as the time and effort available for human capital investments when working. If because of differential sharing of household tasks, including the raising of children, female labour force participation is less continuous, not only will female earnings be lower, but incentives for both the employer and employee to invest in on-the-job training and skills acquisition will be reduced.

Existing empirical evidence does not provide much guidance on which of these various explanations of observed differences in incomes and employment patterns are most important. Most of the empirical work has been concerned with measuring the amount of labour market discrimination that exists, rather than testing competing explanations. Gunderson's view is that forces emanating from outside the labour market are probably more important than those emanating from within, a judgment with which I agree. The distinction between labour market discrimination and non-labour market sources of unequal incomes is thus an important one.

Empirical Evidence on Discrimination

Examination of labour market data reveals important differences between men and women. Women have a significantly lower labour force participation rate, earn substantially less than men on average, and exhibit different occupational employment patterns.

Do these differences reflect discrimination against women? This is a difficult question to answer, for clearly there could be legitimate reasons for these differences; that is, reasons that are not connected to the absence of equal opportunity. The differences in participation and employment patterns may reflect barriers to women that have nothing to do with inherent ability, or they may reflect different preferences between men and women regarding occupational choice and work in the home versus market work. Similarly, earnings differences may be caused by women's jobs being "undervalued" owing to occupational segregation or other factors, or by productivity related factors such as hours worked, education, training and experience. Sorting out the extent to which observed differences reflect discriminatory versus non-discriminatory factors is a major empirical challenge.

There is no generally accepted empirical procedure for determining the extent to which differences in participation rates and occupational employment patterns reflect discriminatory versus non-discriminatory

factors. Many people feel that the differences are so large that they must reflect discrimination to some degree. However reasonable this view, it is not very helpful to the policy debate.

An even more difficult empirical problem is identifying the source of any observed differences in the labour market behaviour of men and women. For example, occupational employment patterns may be caused by discriminatory behaviour on the part of employers, by "choices" made by men and women raised in a society in which certain occupations are viewed as "women's jobs" and "men's jobs," or by different preferences for jobs with certain characteristics such as flexible working arrangements. This distinction between discrimination emanating from the labour market and discrimination emanating from outside the labour market is extremely important for policy purposes. Policies designed to promote equal opportunity in the labour market may be ineffective if the source is elsewhere. Again, however, there is no generally accepted empirical procedure for determining this source.

At the same time, there is a generally accepted empirical procedure for estimating the extent to which earnings differences reflect discriminatory versus non-discriminatory factors. This procedure involves estimating earnings equations and decomposing the overall male-female earnings differential (the "earnings gap") into the amount associated with productivity-related factors and the remainder (the "discriminatory earnings gap"). The latter is generally attributed to discrimination. Before examining the results of applying this procedure, some comments on the method itself are in order.

The methodology involves attributing to discrimination all of the earnings differential that cannot be explained by *observable* productivity-related factors. There are obviously dangers with this procedure. There may be some variables which are not (or imperfectly) observed by the researcher but which are legitimate non-discriminatory sources of earnings differences. For example, in most of the empirical work on this issue, the actual "labour market experience" of individuals in the sample is generally not observed. In addition, we might debate labelling as "discriminatory" a component which, being a statistical residual, is essentially a measure of our ignorance.[42] For these reasons, the residual is generally an upper bound on the amount of the earnings gap attributable to discrimination.

A second point that should be made is that the studies take as given the observed values of the productivity-related characteristics. Yet differences in these may themselves be due to discriminatory forces, albeit possibly outside of the labour market. As discussed earlier, different choices of types of education, time and effort devoted to career advancement, and so on may result from differential sharing of household tasks, sexual stereotyping and other factors.

Table 1-10 shows the ratio of female to male earnings in Canada over

TABLE 1-10 Male/Female Earnings Differences, Canada, 1967–82

Year	Ratio of Female to Male Earnings	
	All Earners	Earners Working Full Year/Full Time
1967	0.46	0.58
1971	0.47	0.60
1973	0.46	0.59
1975	0.48	0.60
1977	0.51	0.62
1979	0.51	0.63
1981	0.53	0.64
1982	0.55	0.64

Source: Statistics Canada, *Earnings of Men and Women* (selected years), and calculations by the author.

the past 15 years. It is clear from these data that there are substantial differences in the earnings of males and females. These differences exist in other countries, though the differences are greater in some (Mincer, 1985). In 1982 Canadian women employed on a full-time, full-year basis earned 64 percent of the income of men employed on the same basis. The Canadian earnings gap has narrowed somewhat over the 1967–82 period, as it has also in most countries.

Of course, it is the discriminatory earnings gap on which attention should be focussed. Even if there were no overall earnings gap, labour market discrimination against women could exist (i.e., women could have more productivity-related characteristics, on average, than men). Similarly, the narrowing of the overall earnings gap in the past two decades may reflect an increase in women's productivity-related characteristics rather than a reduction in the importance of discrimination.

Gunderson (Table 5-1) summarizes the various Canadian empirical studies on male-female earnings differentials. Although there are some differences in the results, owing to different data sources, time periods and statistical techniques, some generalizations can be made. For the studies which look at the economy as a whole, usually with census data, and which focus on individuals employed full time, full year, the overall earnings gap is about 40 percentage points. About half of this can be accounted for by observable productivity-related factors such as age, education and training. That is, the overall male-female earnings gap would be about 0.80 if these characteristics were equal, on average for men and women. The remaining 20 percentage points, or half of the earnings gap, is thus attributable to discriminatory factors according to the procedure described above.

The results of these studies are subject to some important qualifications. As noted above, actual years of work experience is not observed in

these cross-sectional studies. Since years of experience is lower on average for females, the amount of the gap attributable to discrimination may be overstated.[43] (The fact that the gap is substantially less for single men and women may be evidence of this qualification.) Similarly, some of the other variables employed are crude; for example, years of education but not the type of education are observed. Similarly, actual hours worked are typically not observed. Since the comparison involves earnings (rather than hourly wage rates), this is a potentially important factor. Another qualification is that these studies focus on earnings or income and do not take into account fringe benefits such as pensions, medical and dental benefits, and so on. This omission may understate the total compensation gap. Finally, factors such as the pleasantness of the work environment, the risk of job-related injury or illness, and the flexibility of working hours, factors which typically result in earnings differentials for otherwise comparable employees, are not taken into account. Nonetheless, these studies are valuable in giving approximate orders of magnitude of the probable causes of the overall earnings gap.

The conclusion of these studies that about half or slightly more than half of the overall earnings gap is associated with observed productivity-related characteristics has important implications. In particular, it implies that even if policies were fully successful in eliminating discrimination from the labour market, the overall female/male earnings ratio would rise to at most 0.80. If it is desired to remove the remainder, policies which will equalize characteristics such as hours worked, years of education and training, and so on across the sexes are more likely to be successful than policies intended to reduce discrimination.

Can anything be said about the remaining "discriminatory earnings gap"? Gunderson carries out a bit of detective work on this question. An important clue comes from the fact that case studies and studies based on wages for narrowly defined occupations in the same establishment find an overall gap of 20 percentage points or less and a discriminatory gap of 5 to 10 percentage points. This suggests that narrowly defined wage discrimination probably accounts for about 5 to 10 percentage points of the earnings gap. Again applying the principle that the residual must be attributable to the remaining potential source of discrimination, this suggests that occupational segregation probably accounts for about 10 percentage points. Table 1-11 summarizes these "guesstimates."

Policy Implications and Issues

These results suggest there is some potential for policies designed to reduce discrimination in the labour market, though these are unlikely to narrow the earnings gap beyond 0.80. Policies which break down occupational segregation are more likely to be successful in narrowing the gap than policies designed to deal with pay differences within indi-

TABLE 1-11 Decomposition of the Male-Female Earnings Gap

Overall Gap	0.40
Amount attributable to:	
Productivity-related factors	0.20–0.25
Occupational segregation	0.10
Narrowly based wage discrimination	0.05–0.10

vidual occupations. In addition, policies which operate outside of the labour market probably have the greatest potential for narrowing the overall male-female earnings differential (although not the discriminatory wage gap as defined here).

Three general types of policies can be used in an attempt to reduce earnings and other differences between men and women. The first two, equal pay and equal opportunity policies, operate within the labour market. These are discussed in detail by Gunderson and are briefly reviewed here. The third group of policies operate outside the labour market. These try to alter attitudes and social conventions, alter the division of labour within the household, or attempt to offset any disadvantage faced by women in the labour market due to unequal division of household tasks.

Equal Pay Policies

Equal pay policies exist in all Canadian jurisdictions (see Gunderson, Table 5-2). The first laws were passed in the 1950s in most jurisdictions, and have evolved through a number of stages. These include equal pay for "equal work," equal pay for "substantially similar work," the "composite" approach, and "equal pay for work of equal value" or "comparable worth." The latter currently applies in the federal jurisdiction and Quebec, and is being actively considered for implementation in Manitoba and Ontario. It is the focus of much of the current policy debate in Canada. Comparable worth is the most extreme version of equal pay legislation, though as Gunderson points out the logical next step is proportionate pay for work of proportionate value.

Little is known about the impact of equal pay legislation in Canada. The studies which have been carried out (Gunderson, 1975, 1976, 1984) focus on Ontario. These studies find that Ontario's equal pay initiatives had no significant impact on the male-female earnings gap.

Equal value assessments involve job evaluation procedures which attempt to determine the relative "worth" of two (or more) jobs. Four factors are taken into account in these evaluations: the skill required to do a job, the effort, the responsibility and the working conditions. The number of equal value cases to date has been limited, and have typically resulted in pay increases of 10 to 20 percent. They are more likely to be pursued when there is a large difference in earnings between predomi-

nantly male and predominantly female jobs. Thus an adjustment of 20 percent is unlikely to apply across the entire economy.

Raising female wages relative to male wages by any of these equal pay procedures will reduce employment opportunities for females as employers substitute machinery and equipment and/or male labour for the now relatively more expensive female labour and as consumers substitute away from products whose relative price has risen owing to increases in labour costs. These adjustments will be larger in the long than the short run, and will differ across occupations, depending on the factors which determine the elasticity of labour demand. As Gunderson notes, these adverse employment effects are expected to be large in many female-dominated labour markets. Thus, increased use of equal pay initiatives, especially comparable worth, is expected to help some females and harm others. Those whose employment opportunities are reduced by these adjustments will enter other, less desirable, sectors, will leave (or not enter) the labour force, or will exhibit higher unemployment as they queue for the more desirable jobs. In making policy decisions these tradeoffs must be recognized.

The more widespread application of the comparable worth principle, especially to the private sector, raises additional issues. As Gunderson notes, it represents "a quantum not a qualitative change in policy orientation." The fundamental break from the past results from substituting an administratively determined pay system for our current system of pay determination which is based on market forces and relative bargaining power.

The widespread use of administratively determined wages would, by making the wage structure more rigid, inhibit the adaptability of the labour force to change. Market forces (and, in some cases, collective bargaining) result in wages being raised (relative to other wages) in rapidly expanding sectors and lowered in declining or slow-growth sectors. These changes in relative earnings provide the signal and incentive for some of the labour force to move out of declining sectors and into expanding sectors, where the value (and thus remuneration) of labour services is higher. Though the adjustment process can take place without wage flexibility, the result is higher unemployment and job vacancies and lower national income (Vanderkamp, 1985).

The more widespread adoption of equal value policies represents a dramatic and probably difficult-to-reverse change in policy. For this reason, such a change should not occur without a reasoned and informed debate about the probable consequences. At present this does not appear to be happening.[44] Because the widespread adoption of equal pay for work of equal value could have important adverse consequences for many women as well as for society at large, it is important to examine alternative policies. The other group of policies designed to improve market outcomes is equal employment opportunity policies.

Equal Employment Opportunities

These policies attempt to alter decisions with respect to recruitment and hiring, promotion, training, transfers and termination. All Canadian jurisdictions prohibit discrimination in these decisions on the basis of sex as well as other factors such as age, race, religion and national origin. Furthermore, the Charter of Rights and Freedoms, and in particular the equality provisions which came into force in April 1985, has important implications for these policies and decisions.

The extreme version of equal employment policies is affirmative action. This typically involves setting targets for the hiring, retention and promotion of disadvantaged groups, and can go further and involve quotas and "reverse discrimination." In addition to targets and a timetable for their achievement, affirmative action typically involves the establishment of a data base recording such information as the sex, occupational distribution and pay of the work force.

There has been little reliance on affirmative action in Canada, though in most jurisdictions, voluntary affirmative action programs are permitted and are exempt from the anti-discrimination provisions of the Human Rights Code or other legislation. The Charter also explicitly exempts such programs. There has been much more extensive use of affirmative action in the United States, and it is thus possible to learn from their experience.

As Gunderson notes, there is an important difference between equal pay and affirmative action initiatives in terms of the effects predicted by elementary economic theory. Raising wages of females relative to males will reduce employment opportunities for females and also possibly increase them for males. Affirmative action, however, increases labour demand for women and other target groups and decreases labour demand for non-target groups. Affirmative action thus is predicted to raise both wages and employment of women as well as lower them for men. U.S. evidence on the impact of equal employment opportunity legislation supports this prediction, though the results are considerably stronger for blacks than for women. Another advantage of affirmative action is that it lends itself much more to being a temporary program. Since the purpose is to break down "vicious circles" and alter attitudes, a permanent program should not be required.

Although policies to alter employment opportunities have advantages, there are also important costs. Many people find the reverse discrimination aspect associated with targets and quotas distasteful. Nor do the members of the target groups wish to have others believe their positions are not solely based on merit. Further, there are numerous additional costs imposed on employers, which ultimately show up in product prices. Finally, there are the costs of the monitoring and enforcement agency.

Although these costs are by no means trivial, it nonetheless appears

that affirmative action has important advantages over comparable worth in terms of narrowing the earnings gap and breaking down occupational segregation. Temporary programs have particular appeal.

Extra-Labour Market Policies

The third general category consists of policies which operate outside of the labour market, though they of course are expected to have impacts on labour market outcomes. These policies have significant advantages over both equal pay and equal employment opportunity policies, especially the more extreme versions of the latter.

These policies are based on the empirical findings that at least half, and possibly considerably more than half, of the male-female earnings differential can be attributed to differences in productivity-related characteristics such as hours worked, continuity of labour market experience, education and training. Some of these differences reflect traditional division of labour within households (though some reflect specialization and comparative advantage). Policies to promote greater availability of daycare facilities, part-time jobs for both sexes, and equal rights to "birthing leave" have considerable appeal (Breton, 1984). Although these policies are also not without their costs, their adverse consequences seem minimal when compared to equal pay for work of equal value and affirmative action.

The Current Dilemma: Is Further Action Necessary?

At the present time there is considerable pressure for further legislative action to promote greater equality in labour market outcomes between males and females. A federal Royal Commission (the Abella Commission) was established in 1983 to examine the opportunities for employment of women, native people, disabled persons and visible minorities, with particular reference to federal Crown corporations. The report (dated October 1984) recommends that affirmative action programs (which the report prefers to call "employment equity programs") be set up throughout the federal jurisdiction, though quotas are not recommended. In addition, the report recommends that equal pay for work of equal value be implemented in all Canadian jurisdictions in which it does not already apply. In addition to this pressure at the federal level, there is considerable pressure in several provinces, notably Manitoba and Ontario, to implement equal value legislation.

At the same time there is some evidence which indicates that these legislative initiatives may not be needed. The evidence is by no means conclusive, but is certainly worthy of discussion. There are several components: a significant increase in the labour force participation of mothers of young children, suggesting a trend toward increased con-

tinuity of female labour force participation; some narrowing of the earnings gap over the past decade; and dramatic changes in the educational and career choices of younger women in the last decade or two.

The first development was discussed in the previous section (see Table 1-8). This trend toward increased continuity is important, for this is a key productivity-related factor accounting for the earnings gap. The second trend is noted in Gunderson and described in more detail by Boulet and Lavallée (1984). Both hourly and annual earnings of females grew more rapidly than those of males between 1970 and 1980. The differential growth in hourly earnings was larger. Thus the male-female annual earnings gap would have fallen more if hours worked per year had not declined more for females than males. The third development, the dramatic changes in the educational and career choices of younger women, is shown in Tables 4-3 to 4-5 in the Nakamura paper in this book and in Boulet and Lavallée. The number of women attending university and continuing their studies past the undergraduate level rose much faster than for men. Thus in 1966 women formed 34 percent of undergraduate and 18 percent of graduate enrolment. By 1981 these proportions had increased to 47 and 37 percent, respectively. There were also very substantial increases in the proportion of women receiving bachelor and first professional, master's and doctorate degrees over the 1966–80 period. Finally, the Nakamuras' Table 4-5 illustrates the dramatic increases in female enrolment in the traditionally male-dominated areas of engineering and applied science, medicine, law, and commerce and business administration. Thus there is evidence of very significant decline in occupational segregation, at least among those attending university. These developments can be argued to augur well for reducing both the earnings gap and occupational segregation in the future. As stated by Boulet and Lavallée (1984, p. 3): "Over the next few years, it will be mainly the young women who, between 1971 and 1981, succeeded in changing female labour patterns who will be able to move up the promotional ladders in their places of work." The research finding emphasized by the Nakamuras, that there is considerable persistence or continuity to the labour force behaviour of individual women, tends to reinforce this conclusion.

However, as is the case for many predictions about future developments, analysts differ on how large these reductions in the earnings gap and occupational segregation will be, and on how quickly any change will occur. As Gunderson concludes: "Whether the optimistic scenario will occur, or be frustrated by conventional discriminatory barriers, remains an open question. Perhaps the safe generalization is that some groundwork for change has been laid."

Conclusions

This overview paper, and the background papers which follow, deal with an important and complex set of issues, issues which affect the daily lives of many Canadians. The primary purpose has been to explain the current state of understanding of labour market behaviour in Canada in the postwar period. If the reader's understanding of phenomena such as unemployment, labour force participation, time spent working, and labour market discrimination has been increased, the volume will have achieved its main objective.

In addition, an evaluation of several important labour market policies has been carried out. This evaluation involved assessing the apparent purposes of the policies, and determining whether these purposes could perhaps be more effectively achieved by alternative methods. In several cases, it was suggested that socially beneficial changes could be made.

Two general and related themes emerge from this attempt at policy evaluation. First, labour market policies often achieve their intended purpose to some extent, but also generally have undesirable consequences as well. In some cases these undesirable consequences adversely affect some members of the group the policy is intended to assist. Intelligent policy design must confront these adverse consequences directly, and try to minimize them.

Second, labour market outcomes can often be improved by allowing wages and other market forces to perform their function of allocating labour and other resources to their best uses. This theme arises in several places in this overview — in the preferences expressed for income supplementation for the working poor over raising minimum wages, for experience rating of unemployment insurance, for equal opportunity and extra-labour market policies over equal pay for work of equal value, and for promoting a more rapid economic recovery over legislating a reduction in working time in order to reduce unemployment. This is not a simple-minded plea for a laissez-faire approach to labour market issues. Rather, it is a suggestion that the well-being of society as a whole can be improved by utilizing instead of attempting to counteract economic incentives.

Notes

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1. The source of this information (Survey of Consumer Finances) differs from the source of the income and output data in Table 1-1 (National Accounts). There are also some slight differences in the beginning and end points of the periods covered.
2. See also Helliwell, MacGregor and Padmore (1985).
3. In particular, if one or more variables that do effect productivity growth are omitted from the estimating equation, the estimates of the parameters measuring the effect of the included variables will be biased.
4. For an international comparison of some of those developments see Sargent (1985a).
5. I will use these terms interchangeably.
6. The interested reader may find Sargent (1985a), Riddell (1985d), and the references therein helpful.
7. Additional information on the relationship between unemployment and family income is reported in Shaw (1985). As aggregate unemployment rose from 7.1 percent in May 1981 to 11.0 and 12.3 percent in May 1982 and 1983, the proportion of husband-wife families in which the husband was unemployed and the wife or other family member employed remained constant at slightly over 50 percent. The proportions with wife *and* other family member employed was about 45 percent in each year.
8. There is an important distinction between "interrupted spells" and "completed spells." Duration measures from the Labour Force Survey measure "interrupted spells," i.e., the amount of time unemployed so far at the time of the survey. These measures can differ in important ways from those of primary analytical and policy interest, the length of "completed spells" (i.e., the time from when unemployment started to when it ended).
9. An example may help to illustrate this important finding. Suppose five people experience unemployment, four with spells of one month each and one with an eight-month spell. The average duration of a spell of unemployment is thus 1.8 months, but two-thirds of the total unemployment is accounted for by the one long spell.
10. There is, however, considerable controversy among macroeconomists about the ability of governments to offset business cycles through discretionary fiscal and monetary policies.
11. The reasons are complex. The interested reader will find Mortensen (1984, especially Part IV) useful.
12. Fortin (1985) provides a survey. Most of the estimates are in the 6–7 percent range. However, as noted below, some estimates based on a different methodology are higher. This is the reason for the wider range.
13. For details of these approaches see Riddell (1985d).
14. See also Abraham and Katz (1984), who reach a similar conclusion.
15. In Europe the phenomenon of "classical unemployment" associated with rigid real wages above their equilibrium values has received considerable attention (Malinvaud, 1982; Meltz and Ostry, 1985). However, at this point there is no evidence to indicate that Canada suffers from this particular problem (McCallum, 1985).
16. Even with a given natural rate, it may be possible through greater wage and price flexibility or other structural changes to reduce the magnitude or duration of cyclical fluctuations around that unemployment rate. On these questions see Riddell (1985d).
17. See Department of Finance, *Economic Review*, April 1984, Table 3-1.
18. Even prior to the recent increase in concern about youth unemployment there were a substantial number of such programs. See, for example, Gunderson (1981, Appendix B).

19. See, for example, the studies in Freeman and Wise (1982).
20. For a description of the evolution of UI to 1980 see Dingledine (1981).
21. Since 1971 there have been frequent changes to the UI Act, the regulations under it, and administrative practices. For details of these changes see Dingledine (1981) and Kesselman (1983).
22. Several Commission studies examine aspects of these labour market effects. In addition to Kaliski (1985), the studies by Cousineau (1985), Gunderson (1985), Kesselman (1985) and Vanderkamp (1985) are relevant.
23. In addition to this possible social efficiency rationale, there may also be an equity rationale for publicly provided UI (Boadway and Oswald, 1983).
24. The recent experience with Career Guard, an insurance plan to protect executives who might be fired, illustrates these forces. See "Insurance Against Being Fired: A Plan That Just Didn't Fly," *Financial Post*, May 29, 1983, p. 1.
25. This is the central insight of implicit contract theory, which is elaborated in more detail in Kaliski (1985).
26. See Gunderson (1985) for a more detailed discussion of this point.
27. See Kesselman (1983) for a thorough discussion of the implementation of experience rating.
28. At present the regional extended benefits provisions are an important factor weakening the link between duration of previous employment and duration of benefits. If regional differentiation is to be maintained, the extension periods should be proportional to the individual claimant's basic entitlement period, as recommended by Kesselman (1985), rather than a fixed period.
29. These duration estimates are based on the "interrupted spell" data, and thus should be treated more cautiously than the recent studies which use the more appropriate "completed spell" definition.
30. See the studies by Baily (1977, 1978) and Flemming (1978).
31. The 1971 UI Act contained provisions for experience rating, but these were never implemented and were subsequently repealed. This apparent error resulted from interest group pressure (primarily the industries most heavily subsidized by the existing financing system) and possibly faulty policy analysis. For a detailed analysis see Kesselman (1983, chap. 9).
32. For a discussion of the various objectives which have been associated with minimum wage laws, and an evaluation, see West and McKee (1980).
33. Though this does not imply that hours are not optimal in a social sense.
34. A possible exception would be the case in which search for new employment were more efficiently conducted while employed than while unemployed, possibly due to stigma effects. However, the opposite is more likely to hold in general.
35. On the differences between the nature of the unemployment problem in Europe and North America see Sargent (1985b) and Meltz and Ostry (1985).
36. The Decima poll taken in the Summer of 1983 found that 71 percent of respondents would be willing to work a shorter week (the example given was for a reduction from 40 to 32 hours) and accept lower income "if it meant that there would be more jobs for Canadians." (Johnston, 1985, Table 5-3)
37. See, for example, Killingsworth (1983, p. 192).
38. For example, the range narrowed from 18.4 percentage points (31.7 to 50.1) to 13.5 percentage points (50.1 to 62.0).
39. For a discussion of women's issues and the women's movement since 1970 see the Commission study by Burt (1985). On the impact of family law on the well-being of families see the Commission studies by Mossman (1985) and Payne (1985).
40. For example, employers who prefer to hire males rather than equally productive females pay for their prejudice through reduced profits. Customers who prefer to be served by males similarly pay through higher product prices. Both these effects result from the higher demand for males bidding up their wage and the reduced demand for females lowering their wage.

41. These "vicious circle" equilibria generally require special kinds of incomplete market assumptions. For example, some individuals offering to accept lower wages during a probationary period can break a vicious circle of statistical discrimination.
42. As stated by Breton (1984, p. 27): "Calling the residual 'discrimination' is a convention. Those who would choose to call it 'oppression,' or 'submissiveness,' or 'lack of motivation' or any other name could do so with complete legitimacy. The residual could also be labelled 'the extent of our ignorance.'"
43. Of course, it can be argued that the fact that females have less work experience than males is itself a sign of unequal opportunity, though not labour market discrimination as the term is employed here. This is a legitimate point, and is discussed further below.
44. As a contribution to this debate, I propose doing away with the term "equal pay for work of equal value" because it generally meets with approval without being understood. After all, who could be opposed to people being paid their "worth" in some sense, usually left to be inferred? In its place a more neutral and descriptive phrase should be used. "Pay determination by job evaluation" would be one possibility.

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2

Trends, Changes and Imbalances
A Survey of the Canadian Labour Market

STEPHAN F. KALISKI

Change is the single most pervasive element emphasized in current research on the labour market. Long-range studies stress the gradual changes in the demographic and other personal characteristics, industrial structure and technology that have made today's labour force unrecognizably different from that of twenty years ago and may make the next decade's unrecognizably different from today's. Cyclical studies focus on the deep recession that became, rather suddenly, the predominant concern of labour market analysts and the rate and extent of recovery from it that may be expected. Studies of turnover or labour market dynamics emphasize that the net changes on which both trend and cyclical studies concentrate constitute only a small residual of much larger gross movements.

The approach to and interpretation of these phenomena, too, are changing rather rapidly. The basis of the "new" analysis of the early 1970s is now much differently and more cautiously interpreted. Even the stylized statistical picture — the "stylized facts," as they are usually called — of the past changes as new partial explanations draw attention to the uncertain and partial character of old ones, the data themselves undergo ex post benchmark revisions, and more, longer and more comprehensive bodies of data become available.

Of course, many traditional concerns and methods of analysis remain or re-emerge, sometimes in an altered or more refined form. Thus the current discussion of obstacles to movement toward fuller employment both revives the debate about demand deficient and structural unemployment of 20 or more years ago and utilizes an econometric version of "Okun's Law," which links changes in output to those in unemployment. The old worry about the compatibility of full employment and

TABLE 2-1 Sources of Labour Force Growth (Average Annual Percent Rates of Growth), Canada, 1956–79 (Actual) and 1980–90 (Projected)

	1956–66	1966–73	1973–79	1980–85	1986–90
Source Population	2.2	2.6	2.2	1.3	1.0
Net Immigration	0.5	0.4	0.4	0.2[a]	0.2[a]
Domestic	1.7	2.2	1.9	1.1	0.8
Participation Rate	0.4	0.7	1.0	0.7	0.8
Total Labour Force	2.6	3.3	3.3	2.0	1.8
Employment	2.6	3.1	3.2		

Source: Canada, Department of Employment and Immigration, *Labour Market Developments in the 1980's: Report of a Task Force* (Ottawa: Minister of Supply and Services Canada, 1981).

a. Assuming net immigration of 50,000 annually.

price stability is still with us, and the profoundly human concerns about the availability and nature of work are as important as ever and as difficult to come to grips with in a general economic analysis.

What follows, then, will be largely a discussion of past and anticipated changes. It will, of necessity, rely on the present state of analytical and empirical knowledge of the labour market and the author's current understanding of it. Much of it will be tentative rather than certain knowledge, and I shall try to be frank about its degree of certainty.

Labour Force Trends, Past and Future

As Table 2-1 reminds us, the Canadian labour force grew very rapidly in the post–World War II period, especially in the late 1960s and the 1970s. This growth has now slowed, and it is predicted to slow further. The earlier rapid growth reflected both a very substantial increase in the source population[1] and some increase in the percentage of that population that participated in the labour force.[2]

Overall rates of population growth and participation, however, hide more than they reveal. Much of the growth in the source population (and even more of that in the labour force) was the result of the "baby-boom generation" attaining working age (see Table 2-2). The number of 15 to 24-year-olds in the source population reached a peak of nearly 4,600,000 in 1980 and is now declining. The labour force of the near future will be aging as well as growing less rapidly.

The matter of participation rates is even more complex. As Figure 2-1 indicates, the modest overall increase in participation was brought about by a dramatic rise in the participation rate of women of 25 and over (adult women), a moderate decline in the participation of adult men, and a slight trend increase in youth participation.[3] Figure 2-2 shows that as a result of these changes in demography and participation, youth and adult women became a much larger proportion of the labour force and adult men a smaller one.

It is projected that the trends in participation of all three groups will continue. There is, however, some considerable uncertainty about this forecast. Thus, for example, if the courts find that compulsory retirement at 65 is illegal, some elderly persons may choose to prolong their participation in the labour force. Quantitatively far more important, however, is the question of continuing increases in female participation. This is a large and complex possibility and cannot be explored here in any depth.[4] Suffice it to say that while the participation rates of women of all ages have been increasing since 1956, there are very distinct age profiles to female participation, and as Figure 2-3 illustrates, these trends have been changing. Clearly, age (the simplest factor to allow for in projections) does not represent effectively the host of demographic, sociological, generational, attitudinal and other factors. These factors

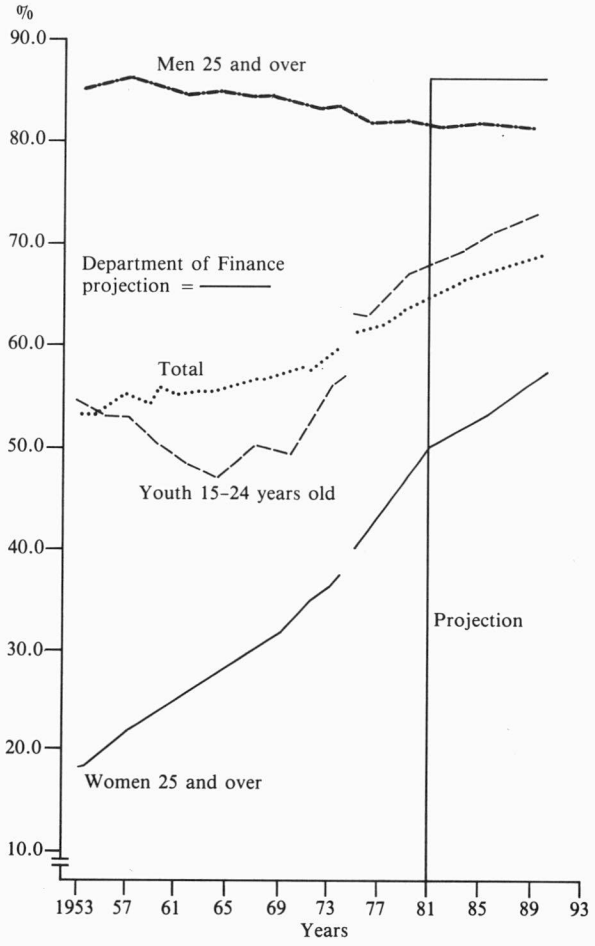
TABLE 2-2 Source-Population[a] Growth Rates, by Age-Sex Group, Canada, 1966–75, 1975–76 to 1980–83 (Actual) and 1984–85 (Projected)

	15–24		25–44		45–64		65 and Over		Total		
Years	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Both Sexes
1966–67	5.3	4.8	1.6	1.2	2.3	3.1	1.4	3.1	2.7	2.8	2.7
1967–68	4.6	4.3	1.5	1.1	2.3	3.0	1.4	3.0	2.5	2.6	2.5
1968–69	3.9	3.6	1.5	1.2	2.3	3.0	1.8	3.2	2.4	2.5	2.5
1969–70	3.4	3.6	1.9	1.4	2.1	2.7	1.9	3.2	2.4	2.5	2.4
1970–71	2.8	3.2	2.0	1.7	1.8	2.2	2.3	3.3	2.2	2.4	2.3
1971–72	1.8	1.3	2.4	2.9	1.7	2.1	1.9	3.0	2.0	2.3	2.1
1972–73	2.0	2.0	2.5	2.6	1.7	2.0	2.1	3.0	2.1	2.3	2.2
1973–74	2.9	2.7	3.1	3.1	1.6	2.0	2.2	3.1	2.5	2.7	2.6
1974–75	2.6	2.7	2.9	3.0	1.7	2.0	2.4	3.2	2.5	2.7	2.6
1975–76	2.2	2.2	2.8	2.8	1.5	1.6	2.6	3.2	2.3	2.4	2.3
1976–77	1.5	1.5	2.6	2.8	1.4	1.4	2.8	3.4	2.0	2.2	2.1
1977–78	1.1	1.1	2.6	2.7	1.3	1.2	2.7	3.5	1.8	2.0	1.9
1978–79	0.7	0.6	2.8	3.0	1.0	0.9	3.0	3.7	1.8	1.9	1.9
1979–80	0.5	0.4	3.2	3.3	1.0	1.0	3.0	3.7	1.9	2.0	2.0
1980–81	−0.3	−0.4	3.1	3.3	1.3	1.1	2.6	3.5	1.7	1.8	1.8
1981–82	−1.0	−1.3	3.1	3.2	1.2	1.1	2.5	3.2	1.5	1.6	1.6
1982–83	−1.5	−1.8	2.8	3.0	1.2	1.2	2.3	2.8	1.3	1.4	1.4
1983–84	−2.2	−2.0	3.1	2.7	1.1	0.9	2.6	3.2	1.3	1.3	1.3
1984–85	−2.1	−2.1	2.4	2.6	0.5	0.8	2.5	3.1	0.9	1.2	1.0

Source: Economic Council of Canada, *In Short Supply: Jobs and Skills in the 1980's* (Ottawa: Minister of Supply and Services Canada, 1982), Table 4-8. Re-estimated for 1975–83, using Statistics Canada, cat. no. 71–529, 9-17.

a. The source population, as defined by the Labour Force Survey, includes the population aged 15 and over, residing in Canada, with the exception of residents of the Yukon and Northwest Territories, persons living on Indian reserves, inmates of institutions, and full-time members of the armed forces.

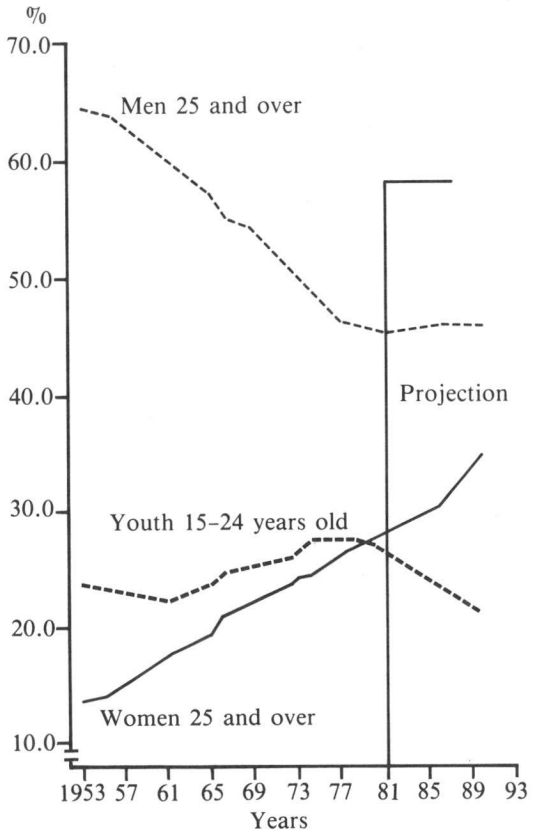
FIGURE 2-1 Participation Rates among Certain Demographic Groups, 1953 to 1990



Source: Canada, Department of Employment and Immigration, *Labour Market Developments in the 1980's: Report of a Task Force* (Ottawa: Minister of Supply and Services Canada, 1981).

Note: The historical series break in 1975, the year in which major revisions were made to the labour force survey. The most abrupt break occurs in the case of the less-than-25 group. Prior to the revisions, this group consisted of 14–24 year olds. With the revisions, it was redefined to comprise 15–24 year olds.

FIGURE 2-2 Labour-Force Composition by Demographic Groups, 1953 to 1990

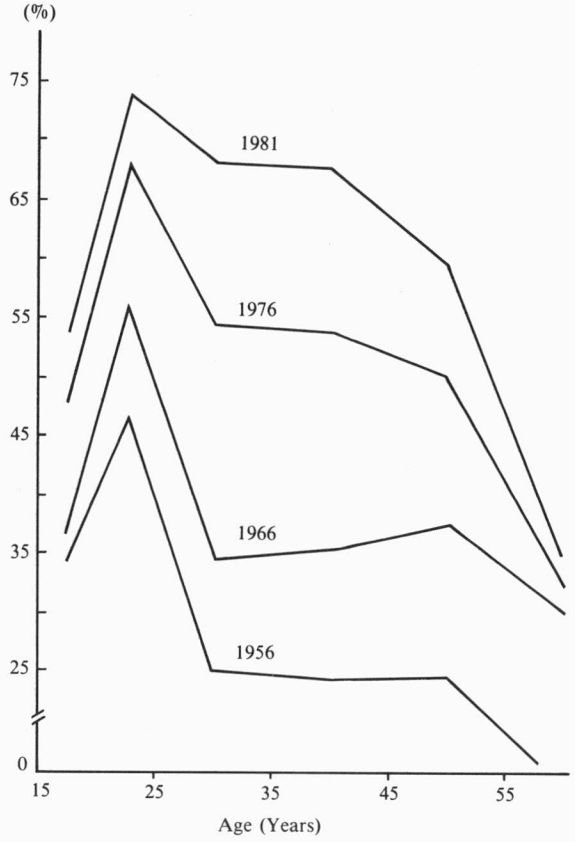


Source: Canada, Department of Employment and Immigration; *Labour Market Developments in the 1980's: Report of a Task Force* (Ottawa: Minister of Supply and Services Canada, 1981).

are more difficult to forecast, and their quantitative impact on the participation decision is only partly understood. Such circumstances as conditions of work and availability of child care must also matter.

Not surprisingly, given their dramatic nature, the demographic aspects of the Canadian labour force have been a principal focus of discussion, but other, interrelated changes abound. Employment in the service industries and associated part-time and white-collar employment increased rapidly between 1956 and 1979, especially before 1973. The share of employment in manufacturing declined, and employment in

FIGURE 2-3 Female Participation Rates by Age, Canada



Source: D.K. Foot, "The Impact of Population Growth and Aging on Future Canadian Labour Force," in *Canadian Labour Markets in the 1980's* (Kingston: Queen's University, 1983), Chart 2.

primary industries declined absolutely (see Tables 2-3 to 2-5). Women have been and are employed principally in services, manufacturing, and trade, but the proportion of female employees in every industry group has increased substantially (see Table 2-6). Women and youths are far more likely than adult men to hold or to seek part-time jobs (see Table 2-7). The number of households that had more than one member in the labour force also increased greatly over this period (see Table 2-8 for some indirect evidence).

TABLE 2-3 Industrial Composition of Employment Growth in Canada

	Average Annual Rates of Growth				Percent Contribution to Overall Employment Growth			
	1956–66	1966–73	1973–79	1979–83	1956–66	1966–73	1973–79	1979–83
Primary Goods	−2.9	−1.7	1.2	0.0	−16.6	−5.4	2.9	−0.6
Mining	0.9	2.1	4.3	—	0.6	1.0	2.1	—
Other Primary	−3.5	−2.4	0.4	—	−17.2	−6.4	0.7	—
Secondary Goods	2.8	2.1	2.3	−2.5	32.5	20.4	19.4	−77.6
Manufacturing	2.6	2.1	1.8	−2.3	23.7	15.9	12.2	−54.6
Construction	3.5	2.2	3.8	−3.2	8.8	4.5	7.2	−23.0
Services	4.2	4.4	3.8	2.1	84.1	85.0	77.7	178.2
Total	2.6	3.1	3.2	0.8	100.0	100.0	100.0	100.0

Source: Based on Statistics Canada, *Labour Force Survey*.

TABLE 2-4 Occupational Composition of Employment Growth in Canada

	Average Annual Rates of Growth			Percent Contribution to Overall Employment Growth		
	1966–73	1973–79	1979–83	1966–73	1973–79	1979–83
White-collar occupations[a]	4.4	4.2	2.4	84.7	81.1	194.4
Blue-collar occupations[b]	1.0	1.6	−2.2	15.3	18.9	−94.4
Total economy	3.1	3.2	0.8	100.0	100.0	100.0

Sources: Based on Statistics Canada, *Labour Force Survey*; Canada, Department of Employment and Immigration, *Labour Market Developments in the 1980's: Report of a Task Force* (Ottawa: Minister of Supply and Services Canada, 1981), Tables 2-5, 2-6; Statistics Canada, cat. no. 71–529, pp. 220–24, 239–42.

a. Managerial, professional, clerical, sales and services occupations.

b. Primary occupations, processing, construction, transportation, materials handling and other crafts.

TABLE 2-5 Part-time/Full-time Employment for Demographic Groups and Industries

	Average Annual Percent Rate of Growth			Percent Contribution to Overall Employment Growth		
	1966–73	1973–79	1979–83	1966–73	1973–79	1979–83
Total employment	2.7	3.4	0.8	100.0	100.0	100.0
Full-time	2.3	3.3	0.0	74.0	85.6	0.0
Part-time	6.9	4.0	6.1	26.0	14.4	100.0
Part-time employment	6.9	4.0	6.2	100.0	100.0	100.0
Youth	10.8	6.0	4.6	55.5	62.6	32.7
Adult women	4.8	3.6	6.5	35.9	43.5	48.9
Adult men	4.8	−2.6	12.3	8.6	−6.4	18.4
Goods-producing Industries	3.7	0.2	6.2	10.2	1.0	7.7
Services-producing Industries	7.6	4.7	6.4	89.8	99.0	92.3
Full-time employment	2.3	3.3	0.0	100.0	100.0	100.0
Youth	2.6	3.6	−5.2	26.2	23.9	—
Adult women	4.6	6.7	3.7	37.1	43.0	—
Adult men	1.4	2.0	0.2	36.7	33.0	—
Goods-producing Industries	0.5	2.2	−2.2	10.0	25.1	—
Services-producing Industries	3.5	4.0	1.1	90.0	74.9	—

Sources: Canada, Department of Employment and Immigration, *Labour Market Developments in the 1980's: Report of a Task Force* (Ottawa: Minister of Supply and Services Canada, 1981), Table 2-7; Statistics Canada, cat. no. 71–529, pp. 301–5, 319–23.

Labour Market Imbalances and Frictions

Three recent documents[5] dealing with the Canadian labour market (from which the projections mentioned above were taken), after reviewing the evidence, proceeded to deal with the difficulties or imbalances that developed or threatened. The term "imbalance" can be used in two somewhat different senses in connection with labour markets. The micro or structural imbalances with which these documents (Hasan, 1983, p. 42; Tate, 1983, pp. 39–40) were principally concerned, because of their focus on the longer term, occur in situations in which there are mismatches between such relevant characteristics and circumstances as skills, experience and location of individuals seeking work and those required to perform (or, at any rate, to obtain) vacant jobs. There can, in addition, be macro or aggregate imbalances that result from an overall excess supply of or excess demand for labour, regardless of individual characteristics.

A factor that complicates assessing or measuring either sort of imbalance is that even when the labour market is in both overall and structural balance, it is not characterized by a neat, day-by-day clearing, with each worker in a job and no vacancies or unemployment. This is the result of the constant flux or dynamism of any real life labour market — the gross flows mentioned in the introduction.[6] Jobs and firms come into being, change and expire. Workers enter the labour force or leave it, re-enter, and change jobs, employers and locations. The notion of frictional unemployment — unemployment deriving from the fact that changes do not occur instantaneously — corresponds to this aspect of the market. Needless to say, frictional, structural, and demand deficiency unemployment are not, in practice, always easy to separate from one another; indeed, they may not even be separable or independent in principle, but the heuristic classification can help diagnosis.

Frictional unemployment has been the subject of important analytical and empirical research in the past decade — the analysis of "the new unemployment" (Feldstein, 1973b). Such unemployment is perhaps the purest form of what is sometimes described as "normal" or "equilibrium" or "natural" unemployment.[7] It may be thought of as an equilibrium phenomenon in the double sense that it is not a manifestation of either the macro or the micro imbalances described above. It occurs whenever the individual micro labour markets, however perfectly they function in all other respects, are characterized by such realistic friction as scarcity of information and cost of acquiring it. The micro or structural imbalances capable of contributing to "normal" unemployment can also be thought of as a result of friction: a product of the time and resources that it takes to adapt to change.

TABLE 2-6A Historical Composition of Employment of Men and Women by Industry (Percentage of Total Industry Employment)

	1956		1966		1973			1979			1983			Industry Share of Employment		
Industry	Men	Women	Men	Women	Men	Women	% of Female Employment	Men	Women	% of Female Employment	Men	Women	% of Female Employment	1973	1979	1983
Mining	96.6	3.4	95.9	4.1	94.3	5.7	0.2	89.8	10.2	0.4	77.8	22.2	3.7	1.4	1.6	7.0
Other primary	95.6	4.4	89.3	10.7	87.3	12.7	2.4	78.1	21.9	3.2				6.1	5.7	
Manufacturing	78.9	21.1	78.0	22.0	76.0	24.0	15.6	73.5	26.5	13.6	71.8	28.2	11.8	22.4	20.0	17.5
Construction	97.6	2.4	96.6	3.4	95.2	4.8	0.9	92.0	8.0	1.3	89.9	10.1	1.3	6.3	6.2	5.2
Transportation	86.1	13.9	85.5	14.5	83.2	16.8	4.3	79.3	20.7	4.6	76.0	24.0	4.6	8.9	8.7	8.1
Trade	70.9	29.1	67.2	32.8	62.4	37.6	18.7	57.9	42.1	18.9	56.7	43.3	17.8	17.1	17.4	17.2
Finance, Ins.	54.9	45.1	52.3	47.7	45.3	54.7	7.5	40.7	59.3	8.2	41.2	58.8	7.9	4.7	5.3	5.6
Services	43.3	56.7	39.6	60.4	41.0	59.0	45.1	40.3	59.7	43.7	39.1	60.9	46.4	26.1	28.4	31.9
Public Admin.	77.2	22.8	77.3	22.7	72.7	27.3	5.3	65.3	34.7	6.1	63.0	37.0	6.4	6.7	6.7	7.3
Total	76.4	23.6	69.7	30.3	65.7	34.3	100.0	61.2	38.8	100.0	58.1	41.9	100.0	100.0	100.0	100.0

Source: Based on Statistics Canada, *Labour Force Survey*.

TABLE 2-6B Occupational Contribution to Female Employment Growth by Industry, 1975–79

	Agriculture	Other Primary	Manufacturing	Construction	Transportation, Communications Utilities	Trade	Finance, Insurance, Real Estate	Services	Public Administration	Total Women	Total Men
					(percent)						
Highly Qualified Occupations		55.3	23.5	39.7	28.4	14.5	32.5	29.0	74.1	28.0	42.9
Clerical	24.1	44.7	15.9	26.0	34.9	35.7	35.7	17.1	0.7	22.9	
Sales			5.9		11.0	42.4	21.2	3.3		12.5	−6.3
Service[a]			1.2		3.1	6.3	10.3	49.1	25.3	24.9	10.6
Primary Occupations	75.9									1.6	5.4
Processing[b]			39.5			1.6		1.1		6.2	30.5
Construction				34.3						0.8	3.4
Transportation					22.6					1.3	7.9
Material Handling			14.0					0.4		1.9	6.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Canada, Department of Employment and Immigration, *Labour Market Developments in the 1980's: Report of a Task Force* (Ottawa: Minister of Supply and Services Canada, 1981), Tables 2-8, 2-9; Statistics Canada, cat. no. 71–529, p. 232.

Notes: This table shows the extent to which employment of women increased between 1975 and 1979 in various occupational categories. For example, in manufacturing industries, 23.5 percent of the total increase in employment of women occurred in highly qualified occupations.

a. Includes occupations such as waiters, chambermaids, janitors, dry cleaning occupations, etc.

b. Includes occupations in metal processing, rubber and plastic processing, food and beverage processing, wood processing and textile processing.

TABLE 2-7 The Composition of Employment and Unemployment by Type of Work Sought, Canada, 1981

Sex and Age Group (Years)	Employment		Unemployment		Labour Force	
	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time
Male	64.6	28.0	58.0	37.0	64.1	28.7
15–19	3.3	16.2	10.7	27.7	3.8	17.1
20–24	8.7	4.0	15.6	4.2	9.2	4.0
25–44	32.9	2.8	22.0	2.5	32.1	2.8
45–64	18.6	2.5	9.7	2.5	18.0	2.5
65+	1.0	2.4	0.1	0.0	1.0	2.3
Female	35.4	72.0	42.0	63.0	35.9	71.3
15–19	2.5	17.1	8.4	23.5	2.9	17.5
20–24	6.9	6.8	10.3	6.7	7.1	6.8
25–44	17.6	29.9	18.4	22.7	17.7	29.4
45–64	8.0	16.7	4.9	9.2	7.8	16.1
65+	0.3	1.6	0.0	0.8	0.3	1.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Statistics Canada, *The Labour Force*, cat. no. 71–001 (Ottawa: Minister of Supply and Services Canada, monthly), December 1981, p. 100, and unpublished data with estimates and calculations by the author. As reproduced in D.K. Foot, "The Impact of Population Growth and Aging on Future Canadian Labour Force," in *Canadian Labour Markets in the 1980's* (Kingston: Queen's University, 1983), Table 5.

TABLE 2-8 Family Units with at Least One Unemployed Person, by Number Employed in Family, Selected Annual Averages, 1961–83

Year	Total	None	Some Member(s) Employed	Number Employed in Family		
				One	Two	Three or More
			(percent)			
1961	100	45	55	33	15	7
1966	100	38	62	36	17	8
1971	100	36	64	39	16	8
1974	100	33	67	41	17	9
1975	100	28	72	47	25	
1976	100	27	73	47	26	
1977	100	26	74	48	26	
1978	100	26	74	48	27	
1979	100	26	74	48	26	
1980	100	26	74	47	27	
1981	100	26	74	48	27	
1982	100	28	72	47	25	
1983	100	30	70	47	23	

Sources: Economic Council of Canada, *People and Jobs* (Ottawa: Minister of Supply and Services Canada, 1970), Table 10-6; Statistics Canada, cat. no. 71–201, pp. 147–48; 71–529, 475–83.

Note: Data for 1961–74 and 1975–82 are not strictly comparable.

The Analytics of the New Unemployment

The "flavour" of the new unemployment analysis might be best conveyed by two quotations:

> Most macroeconomic analyses of unemployment are based on ideas about the causes and structure of unemployment that are inappropriate and out of date. The conventional view of postwar unemployment might be described as follows: "The growth of demand for goods and services does not keep pace with the expansion of the labor force and the rise in output per man. Firms therefore lay off employees and fail to hire new members of the labour force at a sufficient rate. The result is a pool of potential workers who are unable to find jobs. Only policies to increase the growth of demand can create the jobs needed to absorb the unemployed.
>
> This picture of a hard core of unemployed persons unable to find jobs is an inaccurate description of our economy and a misleading basis for policy. A more accurate description is an active labour market in which almost everyone who is out of work can find his usual type of job in a relatively short time. The problem is not that these jobs are unavailable but that they are unattractive. Much of the unemployment and even more of the lost manpower occurs among individuals who find that the availble jobs are neither appealing in themselves nor rewarding as pathways to better jobs in the future. (Feldstein, 1973a, p. 11)

> In a nutshell, unemployment is viewed by the turnover school as primarily "frictional" (because of the time involved in moving from one job to another) or "voluntary" (because workers choose not to accept the jobs that are available). This conclusion has led many labour market analysts to suggest that appropriate measures to reduce unemployment should focus on facilitating rapid job search and increased job holding, rather than on increasing the number of available jobs. (Economic Council of Canada, 1982, pp. 47, 48)

Feldstein and those search theorists who were not "neoclassical" in spirit[8] might well deny that except perhaps for their time and place — the United States in the late 1960s and the early 1970s — they were making claims about the relative extent of frictional and other forms of unemployment, but there is no question that they were frequently interpreted as doing so.[9] In any event, their theories were meant to provide a solid, new foundation for unemployment as a voluntary[10] process or state of searching or waiting resulting from individual utility maximization subject to constraints. Search theory was intended to explain the process of job searching, implicit contract theory the state of waiting.

Search Theory and Evidence

Theory

The broad outlines of search theory are simple and well known; the differentiating details that are sometimes quite complex need not concern us here.[11] To be brief, then, the basic reason for job search is that knowledge of the nature of available jobs and the attributes of available workers is neither perfect nor free. As a consequence of this imperfect knowledge and perhaps also of genuine heterogeneity of labour, there exists in any labour market not a single wage but a distribution of wages.[12] Thus, when an employee becomes dissatisfied with his/her present situation, it must be because he/she *suspects* that his/her present job is inferior to others that he/she might be able to get. In other words, the worker knows his/her present wage and, at least in a general way (Rothschild, 1974), the distribution of wages in the relevant market. He/she does not know where jobs paying particular wages are to be found. Thus, having resolved to find another job, he/she seeks a "good" or (relatively) well-paying one.

The process of search continues as long as the expected marginal returns from continuing it — the present value of the increased wage stream expected — exceed the marginal cost of searching — that is, the sum of additional forgone earnings, out-of-pocket expenses, and psychic costs. In most models these conditions for utility maximization are translated into a "stopping rule": a job seeker will continue to search until receiving an offer that exceeds an appropriately set lowest acceptable or "reservation" wage.

This is not only familiar, but also sensible and intuitively appealing. Clearly people do "look around" before accepting a job, and they would be foolish not to do so. How important is this activity? How many people change jobs how often? Clearly, the answer depends on a variety of social, economic and institutional factors. How dynamic or stable is the economy — that is, at what rates do jobs (and firms) come into existence and expire? At what rate do new entrants and re-entrants join the labour force? How frequently, on average, do workers change jobs?[13] The "turnover view" stresses the importance of "employment instability." Some recent re-examinations of this view (e.g., Clark and Summers, 1979) emphasize the frequency of exit from and re-entry into the labour force.

Search theory itself lays stress on the components of cost and expected gain. The determinants of these components include the attitude toward leisure and being unemployed, the arrangements for disseminating labour-market information, the level and variance of real wages, the segmentation and geographic extent of labour markets, the real rate of interest, and the duration of newly found jobs. The last of these factors seems seldom to have been much examined in search theory, although employment instability implies not only that an individual searches often but also that he/she should not invest much in any given search.[14]

How long does a typical newly found job last? The turnover view suggests that it might last only briefly, and there is some evidence to bear this out. Jenness (1974) estimated the mean duration of a newly found job in Canada in the mid-1960s at 3.3 to 16.6 months, depending on the industry providing the employment. De Broucker and Hasan (1982, Table 3) estimated that a completed employment spell ending in 1980 averaged 24.3 months, varying from 8 months for persons aged 15 to 19 to over 50 months for men of 25 and over.[15]

Thus the first piece of labour market information that a typical searcher ought to discover is that jobs do not last long, and that to invest much in looking for a job that is a little better is not likely to prove worthwhile. Contrary to Alchian (1970, p. 30), I would think that such information is most readily available on the job, not off it. The preceding discussion begs the question of whether searchers can look for a *durable* job. I suspect that an investment in information is needed, but that it would turn out to be preliminary to a larger investment in skill training, developing good work habits, etc. If this additional investment is to be made in the context of the *right sort* of employment, it may indeed necessitate a prolonged search or period of waiting.

Given that people engage in job search, the question arises why they should choose to do so while unemployed rather than before leaving a job they hold or after accepting a temporary one (Tobin, 1972, p. 6).[16] The search theorists, of course, anticipated this question:

> Like any other production activity, specialization in information is efficient. Gathering and disseminating information about goods or about oneself is in some circumstances more efficiently done while the good or person is not employed, and thus able to specialize (i.e. while specializing) in the production of information. (Alchian, 1970, p. 29)

Tobin and Alchian agree that this is an empirical question. Does the unemployed seeker's improved access to generally available sources of labour market information offset the loss of information that is available only in the work place and the loss of access to internal promotion ladders? Obviously, the answer must depend on the characteristics of a particular labour market. One suspects that it is different for executives and day labourers.

Is the additional efficiency of unemployed search plus the value of any additional leisure that may be enjoyed great enough to compensate the unemployed job seeker for forgone earnings plus the adverse signals to prospective employers and any psychic discomfort that may result from being out of work? The answer, if confined to readily measurable factors, must depend on how much income is actually forgone. Income-maintenance schemes such as welfare or, for those entitled to draw benefits, unemployment insurance (UI), affect the maximizing choice. If a job seeker chooses unemployed search, such payments reduce its marginal costs and thus may extend its duration.[17]

Evidence

From this analysis, one would expect to find both unemployed and employed search, depending on the circumstances of the searcher. Data from the revised Canadian Labour Force Survey (LFS), presented in Table 2-9, confirm that both are indeed to be found. There are also a number of less intensive[18] or "discouraged" searchers outside the labour force. These people did not search for work in the four weeks preceding the survey, as required to be classified as unemployed, but indicated in response to the March special survey that they wanted work, were available for work, but did not seek it for "labour market related reasons."[19] A few figures from that survey are shown in Table 2-10. They suggest that the number of discouraged searchers is smaller than that of employed searchers, but hardly negligible. Both the number of discouraged workers and the proportion of those who believe that no work is available seem to be positively related to the unemployment rate.

In a recent analysis of employed and unemployed job search, Hasan and Gera stress the importance of both forms of search. They find, as suggested above, that men, part-time workers, the highly educated, and those in managerial, professional, and service occupations[20] are most likely to engage in employed search (Hasan and Gera, 1982, p. 6). Among a group of unemployed[21] they find some evidence of search-theoretic

TABLE 2-9 Employed and Unemployed Searchers: Canada, Annual Averages, 1975–83

Year	(1) Employed	(2) Unemployed	(3) = (1)/(2)	Unemployment Rate
	(000s)		(percent)	
1975	264	596	44.3	6.9
1976	244	643	37.9	7.1
1977	276	767	36.0	8.1
1978	299	830	36.0	8.4
1979	348	765	45.5	7.5
1980	359	785	45.7	7.5
1981	390	811	48.1	7.6
1982	387	1,192	37.9	11.0
1983	435	1,359	32.0	11.9

Source: Statistics Canada, cat. no. 71–529, pp. 342–50, 403–11, 430.

behaviour with reservation wages that both vary with the searcher's circumstances and decline with the duration of search. They further discover that while a majority both of those who quit their jobs and of those who were laid off received lower real wages after their search, the former group had a higher average post-employment wage and the latter a lower one. "These data are consistent with the hypothesis that voluntary (quit) turnover leads to improved post-turnover wages, whereas involuntary (laid-off) turnover results in reduced wages" (p. 39).[22] The data also suggest, however, that more than half the quitters made the wrong decision (ex post) if they set out to look for a better-paying job (Table 5-2).

The same study also shows that additional search time contributes to wage gain for both men and women who search for 15 weeks or less, but detracts from wage gain for women who search for more than 15 weeks; that UI beneficiaries search longer than others, and that search duration declines with higher unemployment rates.[23] The last two results suggest that searchers have some control over the duration of their search. Glenday and Alam (1982) in a careful study that is outstanding both for its detailed modelling of the UI system and for the effort to control for other influences confirm the effect of UI entitlements on the duration of unemployment spells.

Another interesting result concerning the influence of UI on job search can be gleaned from Table 2-9. The ratio of employed to unemployed searchers shows a marked discontinuity between 1976–78 and 1979–81. There was a major revision of UI in 1979 that reduced benefits and tightened qualification requirements. Three studies (Beach and Kaliski, 1983b; Fortin and Newton, 1982; and Riddell and Smith, 1982) have detected an impact of these revisions on unemployment. According to Riddell and Smith (1982, p. 390), the natural unemployment rate dropped

TABLE 2-10 Persons Outside the Labour Force Who Want Work and Are Available for Work, but Are Not Seeking It for Economic (Labour Market Related) Reasons, March 1979–84

	Thousands			Percentage		
March of	(1) All Economic Reasons	(2) Believe No Work Available	(3) Waiting for Recall	(4) (2)/(1)	(5) (3)/(1)	(6) Unemployment Rate (Seasonally Adjusted)
1979	170	83	47	49.0	27.4	7.8
1980	225	110	66	48.9	29.3	7.5
1981	218	101	70	46.3	32.1	7.4
1982	283	158	81	55.8	28.6	9.3
1983	335	197	87	58.8	25.9	12.5
1984	302	154	96	51.0	31.7	11.4

Source: Statistics Canada, cat. no. 71–001 (March 1983), pp. 141–53, and (March 1984), p. 115.

by nearly half a percentage point. Beach and Kaliski detect an increase in the flow from unemployment to employment and a reduced duration of unemployment. The discontinuity shown in Table 2-9 suggests that searchers, faced with an increased relative cost of unemployment, substituted employed for unemployed search. I interpret the marked decline in 1982–83 to mean that faced with an increasing shortage of jobs, many searchers no longer had this option: they were engaged in involuntary search for any job, not necessarily a better one.

Hasan and Gera (1982) conclude that job-search contributes to an understanding of labour market behaviour in Canada, but that the search for jobs cannot account for more than half the unemployment of 1977. They express concern that individuals are too prone to quit their jobs and to search too long, and that too much search is unproductive in that it does not lead to finding a job or to making a wage gain.

A more general conclusion might be that the insights of search theory contribute to our understanding the labour market behaviour of both the employed and the unemployed. The importance of voluntary search varies with time, macroeconomic conditions and individual circumstances.

Implicit Contracts

Implicit contract theory was devised to explain an aspect of the new unemployment that search theory cannot explain: waiting for re-employment during layoffs.[24] This theory, too, is an attempt to explain the phenomenon as a result of maximization of expected utility and profit in a situation of uncertainty. Again, it turns out that the result only obtains in particular, but not unlikely, empirical circumstances.

Implicit contract theory concerns itself with the attempt by firms and their workers to reach an understanding about variations in wages and employment in the face of uncertain demand.[25] Whenever there is any form of investment in firm-specific human capital, broadly defined to include the costs of search, hiring, screening and orientation, as well as on-the-job training, firms and workers have an incentive to remain together in order to realize their returns on this investment. Temporary layoffs, with appropriate understandings about recall, can be viewed as a device for keeping workers and firms together while making adjustments to temporary reductions in demand.[26]

A firm facing stochastic fluctuations in demand (or price in the case of pure competition) can adjust in a variety of ways: it can produce steadily and use inventories as a buffer; it can rent (or buy) its non-human inputs on a variable basis; or it can adjust its labour costs. Only this last form of adjustment is typically considered in contract theory and often not all aspects of that.[27] The problem is to determine under what circumstances

fixed wages and hours and variable employment are favoured over other forms of adjustment.

There are two, rather different, branches of contract theory. The first deals with homogeneous workers and random layoffs, the second with differentiated workers and systematic layoffs. In both branches workers are typically assumed to prefer steady income (or utility) streams, whereas firms are indifferent to the time pattern of expected income streams with an equal present value. The reason may be that workers are intrinsically more risk averse than entrepreneurs, or that they have worse access to capital markets and less opportunity to differentiate their portfolios (Gordon, 1974). In an optimal contract, firms insure workers' incomes and collect an implicit premium in the form of somewhat lower wages.

Since constant wages, hours and employment all contribute to stability of income, it has become clear, after considerable debate, that if workers are risk averse and information is symmetrical — that is, if both parties have the same access to observations on all relevant variables — firms should provide contracts that yield workers a constant stream of utility. This implies that both earnings and employment will be constant unless workers attach sufficient value to command over the time they might otherwise spend at work. In this last case, if workers' reservation wages (including an allowance for UI) exceed their marginal value product in slack times, they might be put on layoff, but they should receive sufficient supplementary UI from their firms to make them as well off as if they were working (Akerlof and Miyazaki, 1980; Schwartz, 1982). If information is asymmetric because, say, workers are better able to determine their reservation wage and firms, the demand for their products, the situation becomes a great deal more complicated (Azariadis and Stiglitz, 1983). Since few contracts, explicit or implicit in observed behaviour, seem to provide for random layoffs, it might be concluded that this branch of contract theory is not particularly relevant in any case.[28]

The other branch of contract theory points out that, given differentiated workers and systematic layoffs, the dilemma of choosing between steady work and constant rates of pay need not arise (Gordon, 1974). The typical case here is the explicit contract (or collective agreement), and workers are designated as tenured or untenured or ranked according to seniority.[29] If layoffs occasioned by demand fluctuations normally affect less than half of the labour force, the majority of a union's members — altruistic considerations aside — should favour a contract that provides constant wages and employment fluctuations, provided that layoffs are made on some systematic basis such as seniority. That arrangement would offer the majority both steady wages and constant employment. A firm would especially favour such a contract if only senior or tenured

workers represented much specific capital investment, but can be induced by lower wages to accept it, regardless of that. Such a contract is particularly favourable if untenured (junior) workers are less risk averse or have a stronger preference for leisure relative to income or have access to unemployment insurance.

Unemployment insurance again enters the picture because, as in the case of search theory, it lowers the costs of being on layoff and so affects the workers' reservation wage. Moreover, UI is available to laid-off workers but not for other means of adjustment.[30] When such insurance involves a subsidy — that is, when the premiums of a given risk class of employers and employees do not pay the full costs of their unemployment benefits[31] — firms have an incentive to adjust to demand fluctuations through layoffs. Such a UI system provides a subsidy to industries that face particularly variable demand because it allows them to pay smaller wage premiums. In consequence, such industries loom larger in the economy (Feldstein, 1976).

Feldstein (1975, 1976) was first drawn to analyze layoffs because they accounted for a large proportion of American unemployment and because they could not be explained by search theory, since few laid-off workers searched for alternative employment. Other researchers (e.g., Bradshaw and Scholl, 1976) have argued subsequently that Feldstein's figures for layoffs were too high, and that he underestimated the extent of search by workers on layoff. Clark and Summers (1979, pp. 48–49) estimate that only half of the 13 percent of the unemployed workers nominally on temporary layoffs in 1976 returned to work for the same employer. They estimate that those on layoff searched, on average, for about 70 percent as many hours as other unemployed persons.[32]

Surprisingly, in view of the absence of UI experience rating in Canada, layoffs as measured by Canadian and U.S. official surveys typically account for only about half as large a proportion of unemployment in Canada as they do in the United States (some 7–12 percent as compared to 12–21 percent) and nearly twice as many laid-off Canadians search for other jobs (17–24 percent as compared to Feldstein's 10 percent). These differences do not appear to result from differences either in statistical conventions or in broad demographic and industrial composition (Hasan and Gera, 1982, pp. 11–13; Kaliski, 1979, pp. 223–28).

Hasan and Magun (1983) confirm that in postwar Canadian recessions, employment rather than money or real wages varied. Like Hall (1982), who investigated this phenomenon as it applied to the United States, they find that while most jobs lasted a short time, most employees, especially men over 40, held long-term jobs, and long-term jobs accounted for most employment. They also find that layoffs were systematic; that is to say, tenure with an employer reduced the probability of layoff in the period from 1975 to 1979. Age, sex, industry and province of

residence also affected layoffs, to which men and older workers (given tenure) were more subject. The global unemployment rate had no significant effect on layoff probability.

Layoffs are a relatively small proportion of total unemployment, and only 30 percent of layoffs end in a return to the original employer.

Positive, Normative and Policy Implications

The positive implications of the new unemployment analysis are that there will always be some frictional unemployment of the search variety, and so long as demand for particular products fluctuates, there are likely to be periodic layoffs. The volume of job-search unemployment depends on the availability of labour market information, customs with respect to hiring, the relative cost and efficiency of employed and unemployed search, and the level of turnover in employment. Turnover, in turn, depends on habits relating to moving between jobs, occupations (including non-market ones) and locations, the transition between school and work, and so on.

Temporary layoff unemployment depends on the extent of cyclical and seasonal variations in demand, price, and wage flexibility; the relative costs of adjusting to variations in sales through changes in inventory and in production, and of adjusting production by varying labour and other inputs; and the number of employees and their average hours of work.

While, in principle, the several agents act in a privately optimizing fashion, there are very likely to be important externalities involved. These impinge both upon other private parties (through congestion effects, externalities in gathering information, conflict between the interests of tenured and untenured workers, high-risk and low-risk UI contributors, and the like) and upon society as a whole (through unemployment insurance and other income-maintenance programs).[33]

It is important to bear in mind, moreover, that search unemployment, at least, is a process of productive investment in information. Thus, in this context, unlike in the contexts of demand deficient and structural unemployment, it is simply not true that apart from costs of policy (including side effects), less unemployment is always better than more. There is a socially optimal level of job search, and too little search may be as costly as too much. Given demand fluctuations, layoff unemployment, too, may be optimal. An important lesson for macroeconomic policy is that even aside from instability, the Phillips Curve may not represent a convex menu of normative choices (Reuber, 1964) which offers the policy maker the opportunity to decide how much additional inflation is worth incurring in order to reduce unemployment by a given amount, or vice versa. As some search theorists saw it, both the unan-

ticipated inflation brought about by expansionary economic policy and the reduction in unemployment it induced could be "bads."[34]

More generally, the turnover approach focussed attention on specific labour market policies to reduce employment instability and ease and speed search. Partly, perhaps, for ideological reasons, perverse incentives provided by such social policies as unemployment insurance and minimum wages were subjected to especially close scrutiny.

More Stylized Facts about Unemployment and their Interpretation

It has already been suggested that the turnover view, as its name implies, stresses transition between labour market states rather than the resulting stocks. With the newer data now available, there can be no question that in relation to unemployment, the flows are very much larger than the stocks. In 1977, for instance, there were on average 850,000 unemployed persons in Canada. Gross flows between the twelve monthly surveys of that year indicate, however, that there were over 4 million entries into and exits from the state of unemployment.[35] These numbers, of course, imply that the average completed spell of unemployment must have been fairly short, something of the order of 2 1/2 months. Similar results were obtained for each of the years from 1976 to 1980 (Beach and Kaliski, 1982; Hasan and de Broucker, 1982).

The measurement of duration is a large and complex subject which cannot be explored here (see Kaliski, 1979; Hasan and de Broucker, 1982; Beach and Kaliski, 1983a; and Beach, Kaliski, and Skulmis, 1983, and references therein). Suffice it to say that durations of unemployment, as reported directly in periodic surveys such as the Labour Force Survey (LFS), are seriously misleading because they both intercept spells in progress, thus underestimating their total or complete duration, and underrepresent the number of short spells; that (completed) durations calculated from gross flow data derived from such surveys avoid some of these problems but introduce others; and that durations calculated from longitudinal data, such as the Annual Work Patterns Survey (AWPS), suffer both from any peculiarities of these data and from the fact that the time segment is necessarily finite, resulting in truncation of long spells and those beginning late in the period sampled.[36] It is unlikely that any very adequate measures of the duration of unemployment in Canada have so far been devised. Such measures as we have, however, suggest that average duration is short, but that a substantial amount of unemployment is concentrated in such long spells as occur[37] (see Table 2-11).

There is now a fairly comprehensive and consistent body of information about several dimensions of unemployment in Canada. Beach and Kaliski (1982) and Hasan and de Broucker (1982) have both analyzed

TABLE 2-11 Summary of Empirical Results on Average Duration and Concentration of Unemployment

	Date Source	Date	Average Duration or Average Total Weeks of Unemployment: per Person or per Spell in Weeks	Weeks	Concentration of Unemployment Percent of Unemployed Persons, Spells, or Total Weeks of Unemployment Accounted for by Unemployment of 11 Weeks or Longer (i.e., Upper Tail of Each Distribution): Unemployed Persons	Unemployment Spells	Total Weeks of Unemployment by a Person within a Year
For United States: Clark & Summers (1979)							
Table 4	Annual work survey taken with March CPS	1969[g]	2.4(15.9)[a] weeks/person/yr.	27+	11.0		34.9
				40+	4.0		15.8
		1974	15.0(19.9)[a] weeks/person/yr.	27+	16.2 (32.4)[a]		41.8 (66.7)[a]
				40+	6.8 (16.6)[a]		20.7 (41.1)[a]
		1975	18.8 weeks/person/yr.	27+	25.1		54.8
				40+	12.6		32.5
Table 6	Longitudinal survey of work experience: men 45–59	1965–68[g]	20.3(21.2)[a] weeks/person/4yrs.	71+	4.3 (5.6)[a]		21.7 (25.4)[a]
				111+	0.9 (1.4)[a]		7.1 (8.3)[a]
Table 1	Gross flow data from CPS	1969[h]	6.4(9.1)[b] weeks/spell	27+		[79][c]	3.0
				13.5+			24.0 (51.0)[b]
		1974	8.7(15.2)[b] weeks/spell	27+		[60][c]	19.0
				13.5+			49.0 (64.0)[b]
		1975	10.0(19.0)[b] weeks/spell	27+		[55][c]	27.0
				13.5+			58.0 (70.0)[b]

For Canada:							
Hasan & de Broucker (1982)							
Table 5	Gross flow data from LFS	1976[h]	9.3(18.9)[b] weeks/spell	27+		3.6 [57][c]	15.5 (54.1)[b]
				13.5+		14.4	40.0 (66.1)[b]
		1977	10.2(20.6)[b] weeks/spell	27+		5.2 [53][c]	20.7 (57.4)[b]
				13.5+		17.5	46.3 (70.0)[b]
		1978	10.4(20.8)[b] weeks/spell	27+		5.4 [52][c]	21.6 (57.8)[b]
				13.5+		18.0	47.2 (70.6)[b]
		1979	9.7(19.8)[b] weeks/spell	27+		4.5 [56][c]	18.9 (55.9)[b]
				13.5+		15.8	43.4 (68.2)[b]
		1980	9.9(20.2)[b] weeks/spell	27+		4.9 [55][c]	20.6 (57.2)[b]
				13.5+		16.4	45.0 (69.0)[b]
Table 9	Annual work patterns survey	1979[i]		27+	16.2		45.1
				13.5+	36.8		74.0
Magun (1982)							
Tables 8 & 10	CEIC longitudinal file	1975–79[f]	49.9 weeks/person/5yrs.	29+		13.0	32.6
			16.2 weeks/spell	45+		5.6	16.3
Glenday & Jenkins (1981)							
Tables 1 & 4	CEIC longitudinal file	1974–79[j]	12.0[d](17.6)[e]weeks/spell	29+		17.5 (24.4)[f]	57.9
				45+		9.3 (13.0)[f]	33.5
				29+	29.9[e]	19.2[e]	44.7[e]
				45+	14.1[e]	7.9[e]	23.2[e]

Source: C.M. Beach and S.F. Kaliski, "Duration Shares and the Distribution of Unemployment," QUIER Discussion Paper 550, 1984, Table 1.

a. Figures in brackets show non-employment; i.e., unemployed, or out of the labour force but "looking for" or "unable to find work."
b. Figures in brackets are for indomitable seekers; i.e., they exclude persons whose unemployment was terminated by withdrawal from the labour force.
c. Figures in square brackets refer instead to the lower tail of the spell distribution and are the proportion of spells ending within one month.
d. All spells.
e. Spells of at least one week's duration. These figures refer to averages per individual, and are for individuals in the labour force for six years or more.
f. Excluding spells of less than one week's duration.
g. No discussion is provided of adjustment of data for biases.
h. Completed spells calculated from duration-dependent hazard function.
i. Each spell measured as recorded during the year including that, if an individual had a spell in progress at both the end and beginning of the year, the two were combined.
j. Completed spells only. Unemployment defined as drawing UI benefits.

matched gross flows from the LFS. They confirm that average durations of completed unemployment spells are in general short, lasting 2 to 2 1/2 months, and that they differ by age-sex and regional groupings: younger persons experience shorter spells of unemployment than do older persons, and women shorter ones than men. This implies that observed higher unemployment rates for young persons and women are the result of higher frequency or incidence of periods of unemployment that more than offsets differences in duration. Beach and Kaliski (1983b) regress durations on seasonal and annual dummies and on such economic variables as unemployment and participation rates and changes in unemployment insurance. They find both sets of variables significant, and this finding, in turn, suggests that the stationarity assumption underlying the calculation of durations is not appropriate. Hasan and de Broucker present an alternative set of calculations based on an escape rate that depends on time spent in unemployment. These calculations are statistically significantly different from their Markov calculations,[38] but the differences in duration are not great. They also have a finer disaggregation by age and region than was previously available. Finally, they confirm Clark and Summers' (1979) findings that unemployment is nonetheless concentrated in long spells, and that those spells that end in employment are longer than those that end in exit from the labour force.

Hasan and de Broucker (1982) also present some results based on two sets of longitudinal data: the Labour Force Tracking Survey (LFTS) and the Annual Work Patterns Survey (AWPS). These findings reinforce their results with respect to concentration of unemployment, both because some persons suffer long durations and because some persons suffer repeated spells of unemployment. Some experimental calculations using AWPS recall data reported by Beach, Kaliski and Skulmis (1983) confirm that the average completed spell of unemployment is short, but that much unemployment is accounted for by quite long spells.

Using another data set, a sample of the Longitudinal Labour Force Data Base covering workers insured by the Canada Unemployment Insurance Commissions,[39] Magun (1982) also largely confirms these findings. Most spells of unemployment last less than 21 weeks, but most unemployment is concentrated in long and repeated spells of chronic sufferers that are found in all demographic and regional groupings. Those that suffer much unemployment in one year (1975) are likely to suffer more in subsequent years (1976–78). Glenday and Jenkins (1981), using the same data for a longer period (1972–79), confirm that distributions of durations of unemployment are highly skewed to the right, and that those who suffer unemployment or joblessness (that is, unemployment and/or being out of the labour force) in one year are likely to suffer it again. However, they find only a low (but significant) correlation between the duration of consecutive periods of unemployment of a given

individual. These results on the duration and concentration of unemployment are summarized in Table 2-11.

In summary, work on several bodies of data that have fairly recently become available in Canada suggests that the average duration of a completed spell of unemployment is short. This conclusion is quite compatible with the finding that some individuals experience long durations of unemployment, and that it is they who bear a substantial portion of the total burden of unemployment. This last consideration is reinforced by the finding that some such individuals are "chronically" unemployed; that is to say, they suffer repeated spells of joblessness and are unemployed (or not working) for a large proportion of their working lives.

Feldstein used this brevity of spells of unemployment as one of the pieces of evidence that unemployment was voluntary in the sense that jobs were readily available.[40] More recently, Clark and Summers (1979) argued that this inference was unwarranted because many spells of unemployment did not end in securing a job, but in exit from the labour force. Unemployment that ended in employment was, on average, much longer. They argued that the combined periods of joblessness — unemployment plus withdrawal from the labour force — might be much longer, and that the two states were, for those involved, "functionally indistinguishable" (p. 31). For Canada, Hasan and de Broucker (1982, pp. 743–45) confirm that some 45 percent of unemployment spells end in withdrawal from the labour force, and this proportion increases with the length of the spell. They, too, find that spells of unemployment ending in employment are longer, on average. They also focus attention on the fact, already documented for Canada, that unemployment is highly concentrated: a relatively "small number of workers out of work a large part of the time" (p. 755) bear a large proportion of it.

What are we to make of these facts? Magun (1983, p. 36) concludes:

> We find that the long-run structure of unemployment in Canada is not consistent with the "dynamic" or the "turnover" view of the labor market. According to this view, the characteristics of the unemployment problem are rapid job turnover and brief spells of unemployment, and the burden of unemployment is not concentrated, but is widely shared among workers. This "benevolent" viewpoint of unemployment contends that unemployment is mainly frictional and voluntary. The benign view, by rejecting the existence of chronic and persistent unemployment, de-emphasizes the social and economic costs of joblessness. Our results do not support the turnover view.

Clark and Summers, too, clearly believe that they have upset the "turnover view." Hall (1979, p. 66) argues to the contrary:

> I am totally unconvinced that Clark and Summers have upset a new view of

> the labor market that prevailed before their paper was written. It seems to me that the new view attacked here is almost entirely fictitious. The fictitious new view contends that unemployment is a benign, even socially useful phenomenon. The authors effectively demolish the *fictitious* new view. The naive reader might think that the paper will save the profession from a profound error. But the more knowledgeable reader will recognize that no serious student of the facts about the contemporary American labor market holds an opinion anything like the fictitious new view. Clark and Summers make only one attempt to establish that anyone actually advocates the view they are attacking in a brief quotation from an undergraduate textbook coauthored by a distinguished monetary economist and an equally distinguished trade economist [Dornbusch and Fischer, 1978]. Others, including me, are implicated by footnote; but my reading of the papers cited does not confirm at all that the view being attacked is supported in them.

One might be tempted to dismiss Hall's response as a definition of a "serious student," but that would be quite unfair.[41] My tentative conclusion, reached lately after restudying the earlier literature with the new insights provided by Clark and Summers in mind, is that Hall is at least partly right, and that the Economic Council's view of the matter (see subsection "The Analytics of the New Unemployment" above) is probably more accurate than Magun's. I would add, however, that, as the council seems to imply, some, at least, of the "serious students" have lent themselves to misinterpretation.

Youth Unemployment

Feldstein (1973b, pp. 9–17) drew attention to the very high rates of unemployment among teenagers and young adults aged 20 to 24. His view of the situation of these groups is far from cheerful. He pictures new entrants as unprepared for the world and poorly served by employment services. Youth unemployment rates are "outrageously high" and the "non-employment rate" is higher yet. "For many young workers . . . available jobs are dead-end jobs." Their low productivity and the minimum-wage laws combine to deprive these young workers of meaningful opportunities for on-the-job training. They are, in some sense, voluntarily unemployed, since "comparable jobs are easy to find" and "high wages encourage an increased demand for leisure," but these circumstances clearly represent choices within shockingly narrow limits. Even the leisure must be read as opportunity not to do work that one finds "unattractive" or worse.

Concern with youth unemployment continues both in the United States and elsewhere, although a recent volume (Freeman and Wise, 1982) suggests that only a relatively small minority of young people, as of adults, suffer much unemployment, and that their chances of steadier employment in the future are not greatly compromised. However, the

authors of the several papers in the volume differ to some extent on this point.

In Canada, "less than 10 percent of the youths surveyed accounted for over half of the total monthly unemployment of the entire group" (Canada, Department of Employment and Immigration, 1980, cited in Canada, Department of Employment and Immigration, 1981, p. 100). As in the U.S. studies, most of these youths were said to be school dropouts; many of them were living in high unemployment areas and had difficulty in obtaining a first job. Unlike the youth dealt with in the U.S. studies, their future employment prospects were said to be damaged. Labour market experience during schooling was found to ease entry problems to a marked extent (see also Hall and Carleton, 1977). The Employment and Immigration Task Force recommended special programs to ease transition to work. (Some of these have now been implemented.) They also expressed confidence that a declining cohort of entrants would ease the unemployment problem. While this factor will likely play a role,[42] the higher general rates of unemployment, which affect youth rates in Canada as in the United States, may well offset it (see below).

Very recently, there has been considerable recognition that youth unemployment is a serious problem in Canada. All three major political parties focussed on the problem in the federal election campaign of summer 1984, and all proposed remedies; so, too, did the Canadian Chamber of Commerce. The Minister of State (Youth)(1984, p. 1) stressed "that Canadians *must* agree on means of addressing a host of youth questions — especially youth unemployment — and yet have hardly begun to do so." I share this view (Kaliski, 1984, p. 138). Unfortunately, little systematic work has been done on which one could report at greater length.

Conclusions

What are we left with, then, after this review of the analytical basis and stylized facts (revised and unrevised) relating to the new unemployment?

- The dynamic view of the labour market, including a dynamic redefinition of hard-core unemployment, provides a permanent improvement in understanding that is of some relevance even to very slack labour markets.
- Although the stress on supply-side incentives may not be relevant to a situation where there are serious general job shortages, these incentives should not be forgotten. Problems of the sort described do exist, and if nothing is done about them, they will reassert themselves when the "permanent rate of unemployment" again becomes a live issue.

Even now, some demographic differences in unemployment rates may be "structural."

- A careful reading of the texts suggests that the "new unemployment" view was probably never quite as "benign" as some made it out to be. Excessive attention to productive search, to the choice of "leisure," and to the fact that with UI, other income maintenance and multi-earner families,[43] no one suffers "much" — whatever that means — may have distracted us from some of the more sombre aspects of the story. The Clark and Summers picture is clearly painted in darker tones than that of Feldstein, but it may differ only in degree.
- The analytical underpinnings of the new unemployment — search and implicit contracts — ultimately fail to assure us that unemployment is harmless or useful. Feldstein's principal message is that the interaction of unemployment insurance and the tax system drives a wedge between private and social costs of unemployed search and layoffs that makes both excessive. Yet without such social arrangements, or such other externalities as those imposed on untenured workers by their tenured colleagues, it is difficult to believe that voluntary unemployed search and layoffs would be important components of unemployment.

The Rise and Fall of "Normal" Rates of Unemployment

We have just seen that both demographic composition and social legislation are among the proximate determinants of the frictional level of unemployment. Various sorts of structural imbalances also contribute to "normal" unemployment. These three factors and others are interrelated in complex ways, as will be explained more fully below. Labour force participation rates, for instance, are partly a response to unemployment insurance (UI), minimum wage, and other social legislation, and to other policy and exogenous variables; and the 1979 UI changes were aimed, in part, at sporadic participants in the labour market (Beach and Kaliski, 1983b). Again, the demographic structure of the labour force and the industrial structure of the economy are interrelated.

The matter of demography is part of the fundamental background to the stylized facts of the new unemployment. One reason for the employment instability, so strongly stressed, is that, as outlined above, the demographic composition of the labour force had shifted so dramatically toward women, youth and multiple-earner families. The impact of UI on both the duration and incidence of unemployment has also been reviewed as has that of minimum wages.[44]

Increases in Unemployment in the 1960s and 1970s

The standard explanation of the rise of unemployment in Canada in the 1960s and 1970s was that, cycles aside, the "normal" rate rose. Its rise, in

turn, was attributed to changes in demography and social legislation. More recently, changes in industrial structure have been put forward as an alternative or additional explanation. Another recent explanation for rising unemployment is that real wages have become too high to be compatible with the profitable employment of all those who wish to work at these wages. While this explanation attributes rising unemployment to "classical disequilibrium" rather than to increases in the "normal" rate, it would clearly be wrong to ignore it for that reason.[45]

Finally, structural unemployment — the micro imbalances in labour force demand and supply reviewed above — clearly matters. It will scarcely be surprising that when any of these influences changes, so does the "normal" rate of unemployment. That phenomenon, indeed, was the focus of the remedies proposed to lower the unemployment rate.

Unfortunately, as often occurs in empirical economics, the two new explanations were tested, until recently, only for their compatibility with the observed facts and not in competition with the previously received structural explanation.[46] A difficulty arises if the sets of explanatory variables involved in the several competing explanations are correlated over the sample period, as they must be if each set alone provides a statistically significant explanation of the same dependent variable. In such case, each separate explanation seems to be better than it actually is, and the only way to ascribe to each its true partial contribution to the total "goodness of fit" is to consider them all together in a larger statistical model. Until this has been done satisfactorily — and it will not be easy in this instance — there is need for caution in accepting any of the explanations at their face value.

So far in this paper, the standard explanation has been adduced, essentially at its face value, partly because it has been most fully integrated with the stylized facts, and partly because, as will be shown below, there is some reason to be skeptical of the newer alternatives. It will now be presented more systematically without constant reminders of the doubts just raised about it. The reader should, nonetheless, keep these doubts in mind.

Demography and Social Legislation

Two demographic considerations have been adduced to explain the rise in unemployment in Canada in the late 1960s and the 1970s. First, as was considered in the first section of this paper, the working-age (source) population grew quite rapidly. The labour force grew even faster. The economy generated additional jobs at quite a rapid rate, but as Table 2-1 shows, it did not quite keep up with the increase in the supply of labour. Both employment and unemployment grew. Indeed, over the 1970s, the employment-to-population ratio, which some thought a better indicator of the economy's performance over this period than unemployment

TABLE 2-12 Actual and "Equilibrium" Rates of Unemployment and the Employment-to-Population Ratio: Canada, Annual Averages, 1966–83

Year	Employment to Population Ratio	Unemployment Rate (Actual)[a]	Equilibrium Unemployment Rate
1966	55.4	3.4	5.0
1967	55.4	3.8	5.1
1968	55.0	4.5	5.2
1969	55.3	4.4	5.3
1970	54.5	5.7	5.4
1971	54.5	6.2	5.6
1972	54.9	6.2	6.1
1973	56.4	5.5	6.4
1974	57.3	5.3	6.5
1975	56.9	6.9	6.6
1976	56.7	7.1	6.6
1977	56.6	8.1	6.7
1978	57.5	8.3	6.6
1979	58.7	7.4	6.2
1980	59.3	7.5	6.3
1981	59.9	7.5	
1982	57.0	11.0	
1983	56.7	11.9	
Average 1960–69	52.7	5.0	4.9
Average 1970–79	56.4	6.7	6.3

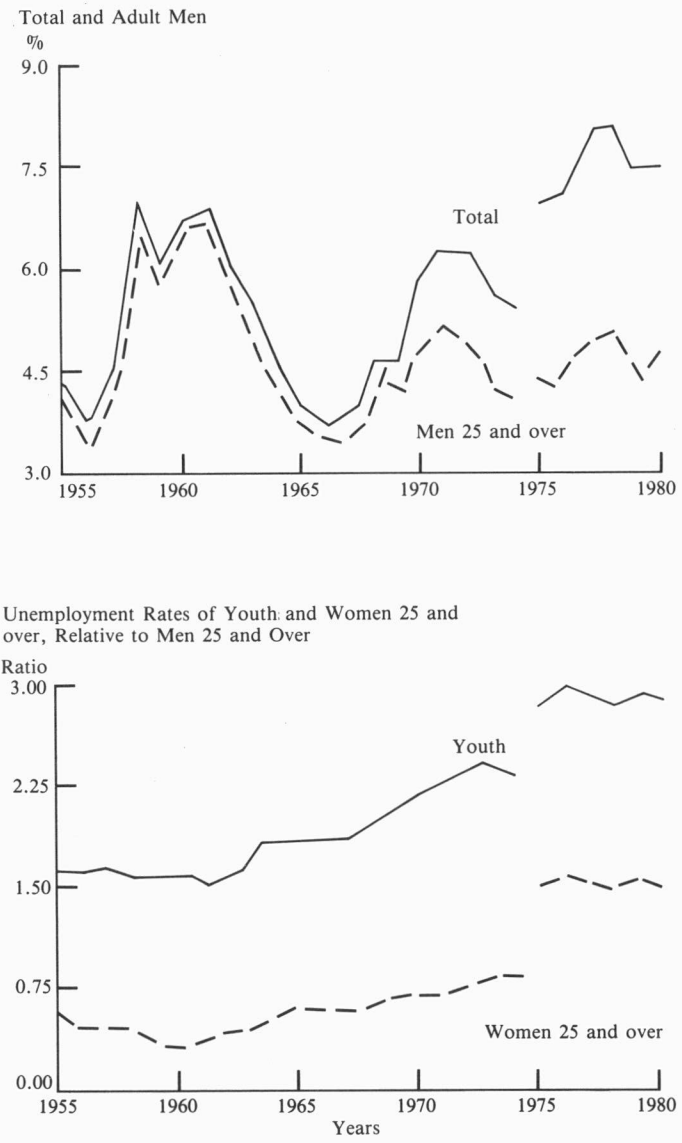
Sources: P. Fortin and L. Phaneuf, "Why is the Unemployment Rate so High in Canada?" Paper presented to the Canadian Economics Association annual meeting, 1979; W.C. Riddell and P.M. Smith, "Expected Inflation and Wage Changes in Canada," *Canadian Journal of Economics* 15 (August): 377–94; Statistics Canada, cat. no. 71–201 (1982), pp. 181, 245; Statistics Canada, cat. no. 71–529, pp. 9–16.

a. Figures not adjusted for 1981 benchmark change to maintain comparability.

(Green, 1977), also rose (Table 2-12). Whether or not a high or rising employment/population ratio is a good indicator of success in macroeconomic policy is arguable (Kaliski, 1977). Nevertheless, despite their positive impact on aggregate demand, a rapidly growing population and labour force clearly can present difficult challenges for employment creation.

Second, as a result of the demographic and participation changes discussed,[47] the demographic composition of the labour force altered: women and youth became a much larger share of the total, adult men a smaller one. Now, women and youth typically have higher unemployment rates than adult men.[48] Thus, if everything else had remained the same, this larger weight attaching to groups with higher unemployment rates would, by itself, have raised the average rate. Investigators have

FIGURE 2-4 Unemployment Rates



Source: Canada, Department of Employment and Immigration, *Labour Market Developments in the 1980s: Report of a Task Force* (Ottawa: Minister of Supply and Services Canada, 1981).

Note: The historical series break in 1975, the year in which major revisions were made to the labour force survey. The most abrupt break occurs in the case of the less-than-25 group. Prior to the revisions, this group consisted of 14–24 year olds. With the revisions, it was redefined to comprise 15–24 years olds.

found that the effect of this change in labour force composition has been positive but small: something in the order of 0.3 percentage points (Reid and Smith, 1981).

There is, however, another aspect to the rapid growth of the female and youth labour force that might matter. If the demand for labour is structured by age-sex groupings,[49] then groups that grow more rapidly will experience increasing difficulty in finding work, and their unemployment rates will rise for structural reasons. At first sight, it makes little sense to think of demand for young or female workers, but characteristics that are genuinely relevant to the production process can be associated with sex and age. Thus, young entrants into the labour force, however energetic or well educated, must, of necessity, be inexperienced. As we have already noted, women, too, have, on average, different skill and occupational characteristics from men, and seek full- and part-time work in different proportions. If the production process is designed, at any given moment, to use fairly rigid mixes of different skills and occupations, then structural unemployment can result from disproportionate growth (Berman, 1965).[50] Reid and Smith estimated that this structural demographic problem was more important than the change in weights and might have added about 1 percentage point to the average rate of unemployment.

There were other changes in the 1970s that might have raised the "equilibrium" or "normal" rate of unemployment. One sort of influence which has been extensively examined is that of labour market legislation, particularly that relating to minimum wages and unemployment insurance. Minimum wages can make workers whose contribution to output falls below the minimum wage permanently unemployable. They also make it difficult for young unskilled entrants to obtain jobs with a large training component, which represents a cost rather than a source of income to the employer. Such entrants are thus faced with unpleasant, dull, dead-end jobs which they quit and change frequently, and between which they are unemployed or out of the labour force (Feldstein, 1973a). It has been said that in Canada, minimum wages rose rapidly relative to the prevailing average level of wages in the early 1970s, with a resulting increase in unemployment (Fortin and Phaneuf, 1979).

Unemployment insurance makes insured unemployment less costly to those covered. Despite some offsetting influences (Glenday and Alam, 1982), this effect can increase both turnover and the duration of unemployed job search, and it can encourage layoffs as a form of adjustment to a firm's demand fluctuations. Again, most Canadian researchers found that the 1971 revisions of the Unemployment Insurance Act, which increased the generosity of the UI scheme in several dimensions, increased unemployment by some 0.5 to 1.3 percentage points (Bodkin and Cournoyer, 1978).[51]

Thus, in consequence of both demographic and legislative developments, the equilibrium unemployment rate rose in the late 1960s and the 1970s. Fortin and Phaneuf, among others, estimated the combined effect of these developments.[52] Their calculations (as extended by Riddell and Smith, 1982) are shown in the last column of Table 2-12. They show the equilibrium unemployment rate rising steadily from 5 percent in 1966 to a peak of 6.6 to 6.7 percent in 1975–78. The authors also point out, however, that the forces involved were largely spent during the 1970s. This is confirmed by a decline of the rate for 1979–80, as estimated by Riddell and Smith.

More precisely, the rate of growth of the labour force (both domestic and immigration derived) has declined and is projected to decline further, quite aside from cyclical circumstances (see Table 2-1). Women's participation rates are projected to continue increasing, though perhaps at a declining rate (see Figure 2-1). The baby-boom generation is now largely of working age and is being followed by a smaller cohort of youth (see Figure 2-2). Minimum wages have been declining in relation to the average wage, and judging by the present temper of provincial governments, this trend is unlikely to reverse soon. The 1971 Unemployment Insurance revisions were soon followed by a gradual tightening up of both law and administration, culminating in the 1979 revisions that are reflected in the coincident large decline in the equilibrium rate of unemployment (see Table 2-12). In brief, the very forces that caused the equilibrium rate to rise from 1966 to 1977–78 should now be causing it to fall.

Industrial Structure

A New View of Equilibrium Unemployment

An alternative "natural rate" explanation of rising unemployment has recently been advanced. For the United States, where demographic-legislative explanations similar to these offered for Canada had been accepted, Lilien (1982) has alleged that the rise in unemployment could also be explained by an increase in the rate of change in industrial structure, especially in the 1970s. Lilien's results have now been replicated in two studies (Charette and Kaufmann, 1984; Samson, 1984) that use Canadian data.[53]

The basic idea involved can be put very simply. We know that the level of natural unemployment varies with the average duration of job search. Now, it is very reasonable to suppose that this duration lengthens if the job openings are in different industries (and likely locations) from the jobs that expire. Thus, if the industrial structure changes more rapidly, the natural rate of unemployment increases. Very much in the spirit of the turnover view, the natural rate itself is dynamized to become a

TABLE 2-13 Actual (U) and Variable Natural (UN) Rate of Unemployment

	Charette and Kaufmann (1984)					Samson (1984)	
	Equation S4			Equation C2			
	U	UN	U-UN	UN	U-UN	UN	U-UN
1962	5.9	6.7	−0.8	6.3	−0.4	6.5	−.6
1963	5.5	4.9	0.6	5.0	0.5	4.8	0.7
1964	4.7	3.7	1.0	4.2	0.5	3.8	0.9
1965	3.9	3.6	0.3	4.3	−0.4	4.0	−0.1
1966	3.4	3.3	0.1	4.0	−0.6	3.6	−0.2
1967	3.8	4.2	−0.4	4.7	−0.9	4.5	−0.7
1968	4.5	5.1	−0.6	5.4	−0.9	5.3	−0.8
1969	4.4	5.0	−0.6	5.3	−0.9	5.2	−0.8
1970	5.7	5.7	0.0	5.9	−0.2	5.9	−0.2
1971	6.2	5.7	0.5	5.7	0.5	5.7	0.5
1972	6.2	5.7	0.5	5.7	0.5	5.5	0.7
1973	5.5	5.6	−0.1	5.6	−0.1	5.4	0.1
1974	5.3	6.0	−0.7	5.9	−0.6	5.8	−0.5
1975	6.9	7.1	−0.2	6.8	0.1	6.8	0.1
1976	7.1	6.4	0.7	6.2	0.9	6.8	0.3
1977	8.1	7.3	0.8	7.0	1.1	7.5	0.6
1978	8.4	7.8	0.6	7.4	1.0	7.8	0.6
1979	7.5	8.2	−0.7	7.6	−0.1	7.9	−0.4
1980	7.5	8.9	−1.3	8.1	−0.6	8.4	−0.9
1981	7.6	9.0	−1.4	—	—	8.5	−0.9
1982	11.0	11.0	0.0	—	—	10.6	0.4

Sources: M.F. Charette and B. Kaufmann, "Short Run Variations in the Natural Rate of Unemployment," mimeo (1984), Table V; L. Samson, "A Study of the Impact of Sectoral Shifts on Aggregate Unemployment in Canada," paper presented to the Canadian Economics Association annual meeting, 1984, Table 4.

Notes: Equation S4 uses coefficients estimated over the period 1956–82. Equation C2, over 1956–80.

variable, not a constant or a trend. The studies cited all find that this variable natural rate tracks the actual rate, including cycles in it, very closely. The Canadian results are shown in Table 2-13.

While it is well beyond the scope of this paper to offer a detailed critique of this new line of work, it is possible to outline a few considerations that incline the writer to be skeptical of the results it has so far produced. In the first place, the results are simply not very plausible. Is it really credible that the actual rate never diverged from the natural by as much as 1.5 percentage points since 1962?[54] Or that excess supply in the labour market never exceeded 1 percent of the labour force? Or that in 1982, by all accounts the worst year for the economy since the 1930s, the labour market was in exact balance (0.4 percent excess supply)? More generally, although one cannot expect annual data to trace cycles very precisely, these results seem to conform very badly to what is known

about slack and tightness in the economy on the basis of a broader range of more eclectic data.

Second, the above considerations lead one to wonder if the estimates are, in any significant sense, those of a natural rate. How are the estimates obtained? Again, omitting the differentiating details, the actual unemployment rate (*U*) is regressed on unexpected changes in money supply (*M*), and a measure of change in industrial structure (σ). *M* is the standard monetarist-neoclassical cause of disequilibrium, the validity of which cannot really be examined here. σ, the novelty introduced in this line of work, is a measure of dispersion (the standard deviation) of percentage changes in employment in individual industries. To calculate the natural rate (*UN*), the unanticipated elements — *M* and the residual error of the regression equation — are left out, and only the systematic influences remain. In effect, *UN* consists of a (possibly trended) constant plus an allowance for changes in industrial structure as measured by σ. Clearly, a great deal depends on the adequacy of σ as a measure of the contribution of changes in industrial structure to the equilibrium rate of unemployment. There are two issues, one of them quite complex.

First, since we are concerned with the increased search necessitated by changes in structure, it would clearly be useful for σ to incorporate notions of differences between industries in terms of location, mixes of skill and occupational requirements, and so on. No such explicit "weighting" has been done, but Charette and Kaufmann have shown that their results are relatively insensitive to the level of aggregation varying from 9 to 160 industry groups, which must surely correspond to marked changes in average differences between groups.

Another qualitative issue, discussed extensively in the previous section, relates to the fact that the labour force, too, was changing in composition over the period. To the extent that changes in the supply of and demand for labour accommodate one another, structural unemployment is reduced, not increased. And that was precisely the nature of what occurred. This is simply the flip side of the discussion earlier in this paper.

Although Charette and Kaufmann do not test for such interaction between changes in the labour force and industrial structure, they, unlike the authors of the other two papers, do try to allow for the possible influence of changes in the labour force, in UI and in minimum wages. Only the first of these factors, "measured by the percentage of the labour force accounted for by adult female and young workers" (p. 18), ultimately replaced by a time trend in their preferred equation, shows up as significant.

Second, even if σ were an adequate measure of relevant changes in the industrial pattern of employment, one might ask whether it causes changes in equilibrium unemployment or results from changes in

demand deficient unemployment. The question is particularly apt because the second alternative has a long history: Lipsey (1960) and Archibald (1969), working in a Keynesian, demand deficiency framework, pointed out that since industries vary in their vulnerability to recessions, one might expect the dispersion of unemployment rates to increase with the average level of unemployment.[55]

Our studies address this issue by resorting to tests for "Granger causality." Roughly, such tests assume that causes precede consequences. Thus, if x is correlated to past values of y, but not vice versa, it may be concluded that x does not cause y. In this sense, σ does not depend on M or U and is termed "exogenous" with respect to them.

Unfortunately, Granger tests are particularly unreliable in situations, common in economic systems, in which neither variable is truly exogenous, but both respond to some other set of causes. In such a case, if one variable responds more quickly than the other, the one will be shown to be Granger-independent of the other. This is precisely the situation with which we are dealing. Old-fashioned time-series analysis[56] suggests that changes in employment typically lead unemployment rates over the business cycle, and dispersion indexes typically lead the series from which they are compiled.

Thus, in my opinion, the Granger tests fail to resolve the issue. One can argue the contrary only if one believes that money surprises are the *only* possible source of disequilibrium in a satisfactorily realistic model of the Canadian economy over this period. Once again, Charette and Kaufmann address this question. They include (first differences in) money supply and government expenditure in their unemployment equation and find them jointly insignificant.

It is important to recognize both the validity of the suggestion that rapid exogenous changes in industrial structure can contribute to normal unemployment and the important advances that Charette and Kaufmann have made in testing that suggestion. Nevertheless, I remain skeptical at the present stage of this work. It could be argued that not much has yet been demonstrated beyond the fact that regardless of the underlying theory, any regression which contains a trend and a cyclical variable will track the Canadian unemployment rate in the 1960s and 1970s quite well.

Technology and De-industrialization

A much larger and looser body of literature that attributes high and rising unemployment rates to increasing differences between expiring and newly created jobs focusses not on changes in the industrial mix as such, but on technical change. Much of this literature, moreover, seeks not to explain the past, but to predict the future. Partly for that reason, no doubt, it is seldom explicit about timing; thus it is often hard to tell whether two authors disagree in their predictions or differ in their time horizons.

Technical change, like change in industrial mix and the birth and death of firms is, of course, always going on. It is claimed, however, that there is or is about to be great acceleration in the rate of this change, and that the particular change that is coming will have a particularly severe impact on the nature of work and the amount of it which will be available. Such consequences, it is asserted, are characteristic of the incoming or spreading technology based on microelectronics, robotics, computer-assisted design and manufacturing and, further into the future, bio-technology.

Again, a satisfactory discussion of this vast topic is well beyond the scope of this paper. It is also beyond my ability and purpose to present a systematic guide to the literature. In this brief digression, I shall attempt only to suggest a few principles that it is well to keep in mind while reading the literature.[57]

The details of what is to happen — its quantitative importance and its differential impact on particular countries, regions, groups of people, industrial sectors, and so on — are highly uncertain. Nearly all studies admit this explicitly (e.g., Commission of European Communities, 1982) or implicitly. Moreover, what we think we can predict with confidence often turns out to be wrong. A short time ago, nothing seemed more certain, in part because of Japanese technological superiority, than the demise of the North American automobile industry. At the time of writing (Summer, 1984) that industry is showing considerable vigour, not only because of increased protection.

The more imaginative scenarios need not be taken seriously within a reasonable planning horizon. We shall *not* all be processing information in a few years' time. What would the information be about? Nor will anyone who has ever seen a computer program "debugged" believe that we are about to enter an age in which the engineer-designer puts basic formulae into a computer and finished goods emerge at the other end.

Technology per se does not lead to general unemployment (Allen, 1985). It increases potential output, given the primary inputs into the economy. To obtain unemployment (of labour or other inputs), we need to know what the output limitation is. Some analysts (e.g., Stout, 1980) saw it in energy shortages. That view is less compelling now.

It is worth noting that new technology may lead to sustained booms, either because much capital needs to be replaced, or because new consumer goods are developed that enjoy a large sale until a saturation point is reached and demand declines to replacement levels. The home computer could well succeed stereos, colour TV and VCRs as examples of this process. The "backward linkage" to capital goods is said to be weak for the "new wave" technology, however, because robots, say, can be and are most efficiently made by other robots.

Linkages, however, must always be borne in mind. This is important because some of the best studies are those of *particular* industries that

have experienced major technical change. Such studies are necessarily incomplete, since they neglect the impact on the rest of the economy of that industry's experience.

To take account of such considerations is not to deny that a pace of technical progress that exceeds the labour force's ability to adapt can make particular skills redundant and produce temporary technological unemployment. A particular example of skill obsolescence that is stressed in the literature is the thesis of the disappearance of "middle" occupations. (There is also a counter-literature that denies any such trend. See, for example, *U.S. News and World Report*, August 20, 1984, p. 65.) While I have dismissed the extreme designer-to-deliveryman scenario, it is quite possible that it is the skilled (as distinguished from the professional or highly skilled) draughtsmen or machinists and well-paid semi-skilled, assembly-line workers who will be most affected, although the majority of European studies are most anxious about the prospects of less-skilled workers and of women (OECD, 1982a, 1982b).

It is important here to distinguish two alternative situations. The first is that of a new technology that by its technical requirements displaces skilled and semi-skilled workers for any sustainable structure of relative wages.[58] The second replaces "middle workers," given their relative rates of pay and productivity and may be a response to those rates of pay. It is clearly most profitable to use a given technology to replace those workers whose compensation is high relative to their productivity, perhaps because they share in the rents of an oligopoly situation. It may not be economical to use that same technology to replace other workers who are comparably skilled, but more modestly compensated.

The obvious conclusion is not that the well-paid workers will not be disadvantaged or displaced by the new technology. They may be. But they or the next generation of semi-skilled workers will have choices other than to become either highly skilled robot and software developers or unskilled helpers to robots. Middle-skill jobs will continue to exist, although some of them may be relatively less well paid. Fundamentally, serious thinking about the implications of technology must take into account such adjustment mechanisms as relative prices and wages.

An alternative version of the de-skilling/de-industrialization thesis argues that international specialization is changing rapidly, and that we shall find ourselves unable to compete with Third World countries in labour-intensive industries and with technologically more advanced countries in technology-intensive industries. A recent Economic Council study (1983a) sees little evidence for this contention.

If the council should be wrong or if the trend should change, it should be quite clear that a country cannot be *generally* uncompetitive, except, perhaps, very briefly. In order to import some goods we must export others. If some of our export industries are about to lose their arkets, we must ask which ones will replace them, and how they will differ in

their labour and other requirements. Once more, changes in international specialization can impose painful adjustments. They can also make us all poorer if our terms of trade deteriorate. They cannot, however, throw us all out of work. It should be clear, moreover, that an open economy does not have the option of avoiding adjustment by resisting technological change. Such resistance would simply accelerate the rate at which markets are lost to foreign competitors.

In sum, technological change is not new, although its pace could well be accelerating or be about to accelerate. It can produce painful dislocations, erode established positions and patterns, and produce structural unemployment for a time. It should not, unless we mismanage our affairs very badly, produce permanent mass unemployment.

If I am correct in holding that the details of the forthcoming technological changes are (and perhaps can be) only dimly perceived, the only preparation that we can now undertake is to strive for flexibility in our institutions and attitudes. That, too, can be painful.

Real Wages and Productivity

Malinvaud (1982) and others have been arguing that real wages may have increased faster than labour productivity, thus generating increasing unemployment. Explanations of this general sort[59] have been used to explain the rising trend of unemployment in Europe in the 1970s (Grubb, Jackman, and Layard, 1983). In Canada, Helliwell (1983, 1984) has suggested that the Anti-inflation Board, by preventing wages from rising too rapidly, may have saved us from this particular problem. Clearly, this is one more competing hypothesis that should be verified jointly with the others.

Conclusions

It is generally accepted that beyond any deterioration there may have been in the economy's cyclical performance, frictional and structural forces contributed to the rising rate of unemployment in Canada in the 1960s and 1970s. It had been generally accepted that these forces were the result of changes in demography, in labour force participation, and in social legislation. Some more recent work suggests that too much may have been attributed to these causes, and that changes in industrial structure and technology, at least, may also be part of the explanation. Until integration of the several lines of analysis has been achieved, the quantitative importance of these claims cannot really be assessed. At the moment, the analytical and empirical support for the contention that industrial change and technology constitute a satisfactory *alternative* explanation does not appear strong. The issue is important because the demographic-legislative forces have now, on balance, gone into reverse,

whereas those of industrial change may well be continuing unabated or even accelerating.

The 1983–84 Recovery

It is quite clear that the present (mid-1984) high rates of unemployment reflect demand deficiency, as well as frictional and structural forces. The trough of the recession is now past, and a modest recovery is taking place. Unemployment, typically a lagging cyclical indicator, reached its peak of 12.8 percent of the labour force, seasonally adjusted, in December 1982, declined to 11.1 percent by November 1983, and has been hovering at 11 to 11.5 percent in the first half of 1984. Employment has not quite regained its peak level of just over 11 million, seasonally adjusted, reached in mid-1981, and full-time employment was still more than 3 percent below that peak in mid-1984 (Statistics Canada, cat. no. 71–001, June 1984, pp. 93–106). Moreover, unemployment is expected to remain high, possibly in excess of 11 percent, for some years to come (see Table 2-14.)

If, as I argued above, there is good reason to think that frictional and structural trends are now favourable, why is the labour market so slack 18 months into the process of recovery, and why are its prospects judged to be so grim? It is clearly because of the position from which we start and the rate at which we plan to move from it. Only a brief general examination focussing on the analytical issues is offered here, since the data, projections and plans change continually and may well be unrecognizably different by the time that this paper is read.[60]

First, particularly in a deep recession, measured unemployment is only one manifestation of labour-market slack. To be classified as unemployed in the official count,[61] a person must not have worked during the reference week of the survey, must have been available for work, and must have searched for a job in the four weeks preceding the survey and/or had one from which she or he was laid off less than six months previously and to which he or she expected to return, or one that was to start within four weeks. Persons who do not meet these strict criteria might still be fully or partly out of work: some may be discouraged seekers who have given up looking for work because they believe none to be available or who are still waiting for recall after more than six months on layoff. Others may be working fewer hours than they normally do because of work sharing or other forms of reduced hours. Such persons will gradually be reabsorbed into the labour force as the economy recovers,[62] and hours typically lead unemployment over the cycle. Still other workers are employed, but working less intensively or at lower-skilled tasks than in normal times. For the 1960s, Siedule and Newton (1980) estimate that the "hoarding rate is typically more than half the unemployment rate." Thus, for any given increase in output,

measured unemployment will decline by less than if such "hidden unemployment" were not overhanging the labour market.

Let us try to quantify some of these notions. A March enquiry taken annually in connection with the Labour Force Survey yields one estimate of discouraged workers.[63] Those who wanted work, were available for it, but were not seeking it for economic (as distinguished from personal and "other") reasons[64] numbered some 300,000 in March 1984 (Table 2-10), about one-fifth the number of the million and a half who were unemployed. It is worth noting that the proportion of these "discouraged workers" who believed that no work was available increased from 1981 to 1982, then diminished in response to varying slack in the market. The proportion who were confident enough of recall to wait for more than six months without searching for another job declined and then recovered. There were also, in March 1984, another 454,000 workers working part-time (less than 30 hours per week) because they could find no full-time work (Statistics Canada, cat. no. 71–001, March 1984, p. 63). In addition, 160,000 full- and part-time workers lost working time during the survey week because of short-time work, being laid off for part of the week, or finding or losing a job during the week.

A second reason that unemployment will decline so slowly, given the rate of expansion of the economy, is that the labour force, although growing at a slower rate than in the 1966–79 period, will continue to grow at some 2 percent per annum (Table 2-1), quite aside from the reabsorption of discouraged workers, just discussed. Thus, an employment increase of that magnitude is needed merely to prevent the unemployment rate from rising.

But how is output growth averaging some 4.2 percent per year for 1983–87 (Table 2-14) "given"? It is said to be compatible with the government's "medium term fiscal plan" (Canada, Department of Finance, 1983a, p. 17).[65] In brief, it reflects the government's view of what is possible and desirable. What are the elements in that view? In part, in an open economy, such as the Canadian, they are what is assumed about the behaviour of other national economies, which behaviour, in turn, is affected by the views and actions of the several governments of those economies.[66]

In part, too, the rate of growth reflects what the government believes to be prudent. Recent budget statements (Canada, Department of Finance, 1983b, 1984a) have made it quite clear what this means. The stress has been on "responsibility" — on preserving the government's commitment to strive to contain its deficit, continue to reduce inflation, and maintain the value of Canada's currency. Any more expansionary posture has been characterized as "irresponsible" and as likely to "have jeopardized the recovery" (Canada, Department of Finance, 1983a, p. 22).

This is not the place to debate macroeconomic policy issues. It should be clear, however, that just as a number of commentators have stressed

TABLE 2-14 Economic Outlook, 1982–88

	Annual Average Changes												
	1982	1983			1984			1985			1986		
	A	A	B	C	A	B	C	A	B	C	A	B	C
Gross national expenditure													
Value	5.3	10.0			10.2			9.3			9.2		
Volume	−4.8	2.3	2.9	2.9	5.2	4.9	4.3	4.4	3.5	3.9	4.4	3.9	1.8
Price	10.6	7.5	6.2		4.7	5.2		4.7	5.7		4.5	5.1	
CPI	10.8	6.3	5.8	5.7	5.0	5.2	4.8	4.5	5.3	5.1	4.0	4.8	5.9
Labour Market													
Labour force	0.5	1.0	1.5	1.8	2.3	2.3	1.9	2.5	1.7	1.7	2.3	1.8	1.6
Employment	−3.2	−0.6	0.6	0.6	3.4	3.5	2.4	3.3	2.5	2.2	3.4	2.6	1.3
Unemployment rate (%)	11.1	12.4	11.9	12.1	11.4	10.9	11.7	10.7	10.1	11.2	9.8	9.4	11.4
Output per person employed[a]	−1.6	2.9	2.3	2.3	1.7	1.3	1.9	1.1	0.9	1.7	1.0	1.2	0.5
Output per person hr[b]				3.1			2.4			2.4			1.2
Real wage rate	−1.0	1.2		1.8	0.4		1.2	0.9		2.8	1.2		2.6

TABLE 2-14 (cont'd)

	Annual Average Changes									
	1987			1988	1971–82	1982–87		1985–87		1985–88
	A	B	C	B	A	A	C	A	C	B
Gross National Expenditure										
Value	8.7				12.4	9.5		9.1		
Volume	4.7	4.0	2.6	3.7	3.1	4.2	3.1	4.5	2.8	3.8
Price	3.9	4.2		4.9	9.0	5.1		4.4		5.0
CPI	3.7	4.5	6.7	4.6	8.6	4.7	5.6	4.1	5.9	4.8
Labour Market										
Labour force	2.4	2.0	1.4	1.7	2.9	2.1	1.7	2.4	1.6	1.8
Employment	3.5	2.8	1.8	2.7	2.4	2.6	1.7	3.4	1.8	2.7
Unemployment rate (%)	8.8	8.6	11.1	7.7	7.3	10.6	11.5	9.8	11.2	9.0
Output per person employed[a]	1.1	1.2	0.8	1.0	0.9	1.2	1.4	1.0	1.0	1.1
Output per person hr[b]		1.6					2.1		1.7	
Real wage rate		2.2			1.0	1.0	2.1	1.1	2.5	1.2

Sources: (A) Canada, Department of Finance, *The Economic Outlook for Canada* (Ottawa: Minister of Supply and Services Canada, 1983), Table 7.
(B) Canada, Department of Finance, *The Canadian Economy in Recovery* (Ottawa: Minister of Supply and Services Canada, 1984), Table 8.
(C) Economic Council of Canada, *On the Mend* (Ottawa: Minister of Supply and Services Canada, 1983), Table 3-9, "base case."

a. Constant dollar GNE per employed person.
b. Constant dollar GDP per person hour.

that the recession was deliberately induced by policy measures designed to halt inflation (Laidler, 1983; Lipsey, 1981 and elsewhere; Riddell, 1983) — although it is doubtful if those responsible correctly foresaw the magnitude of the recession — so the slowness of the recovery can be characterized as induced by measures designed to avoid rekindling it. Of course, no one wants slow recovery for its own sake, just as no one wanted the recession. The authorities and those commentators who support them clearly take the view that any faster recovery would involve serious risks. As Lipsey suggests, we have too little experience of ending inflations to say with any great confidence whether or not this is so.

One possible risk is that a faster recovery will encounter structural bottlenecks. Such bottlenecks may slow down the recovery, or the attempt to bypass or overcome them may generate rising costs and prices. I do not believe that this is a grave risk, given the present degree of slack in the economy. As I have noted, the upward trend in the normal rate of unemployment in the 1970s has gone into reverse, but whether or not there has been such a reversal hardly matters at present unemployment rates. The government's view of the prudent rate of recovery may incorporate notions about structural employment, but if so, it must be of the Berman type, with shortages of skilled workers hampering the re-employment of the unskilled. Such shortages can be overcome by training or immigration, but these processes take time. Shortages of skills predicted by three reports issued some time ago[67] may well re-emerge as the economy approaches capacity, but in my opinion they are unlikely to constitute a binding constraint on the early years of the recovery. There must be quite enough skilled workers unemployed or underemployed to meet the demand.

Worry has also been expressed about the continuing sluggishness of investment, not only as an element in aggregate demand, but also as an essential cooperating factor permitting re-employment of labour (e.g., Malinvaud, 1982). Given the gestation time of investment projects, this could become a binding constraint. At first sight this seems unlikely, given a capacity utilization that averaged, on one set of figures, less than 74 percent in the first quarter of 1984, five quarters after the trough of 66 percent. Only a few industries — rubber and leather products, wood, furniture and primary metals — had utilization rates that both exceeded 85 percent and had risen much since 1982. Current investment intentions, too, signal little worry about capacity. There is, however, reason to suspect that our capacity measures are exaggerated at this time. The substantial increases in the real price of energy in 1973 and 1979 must have made some existing capital obsolete before its time. Some of this capital may not have been scrapped and replaced, at first because of considerable uncertainty about future domestic prices of various sorts of energy, and then because of very high real rates of interest and increasing

excess capacity. Even if it were replaced, it would still be included in the capital-stock figures. Thus, the usable capital capacity is likely to be lower than that recorded.[68]

Finally, I have already suggested that while we know too little of technological unemployment to be certain, this sort of structural unemployment, too, seems largely irrelevant to near-term cyclical policy.

Some Questions of Policy

Over most of the period examined, the Canadian economy has provided additional jobs nearly rapidly enough to employ a very fast-growing labour force.[69] Nonetheless, frictional and structural unemployment have risen and may well be excessive. Even aside from unemployment, rapid turnover, such as that observed, may be costly in terms of resources devoted to hiring, screening and transportation, as well as lost human capital and other costs. Finally, at times, most notably recently, there were serious problems of unemployment resulting from demand deficiency. If it were possible to devise policies to improve the operation of the labour market in these respects without incurring costs that exceed the benefits, this would clearly be worth doing. Not surprisingly, many policy proposals have been and continue to be made. What follows is confined to a *general* discussion of a few *kinds* of policy. The detail is too voluminous and changeable to consider in a general survey.

Macroeconomic Policies

The previous section suggested that the 1982–83 recession resulted from efforts on the part of governments to reduce inflation, and that the pace of the recovery, too, was dominated by concern with inflation. It would take us too far into macroeconomics to examine the nature and legitimacy of that concern (see Riddell, 1985), but one aspect of it that especially relates to the operation of labour markets must be considered.

It is quite generally agreed that the reason that considerable and prolonged slack is created by attempts to reduce inflation is that prices do not respond quickly enough. Thus, a decline in nominal aggregate demand produced by tighter monetary or fiscal policy has its impact initially, and perhaps for some time, on output and employment. Some attribute this sluggishness in prices to expectations of inflation that for one reason or another are slow to adjust. But a number of prominent economists (e.g., Tobin, 1972; Okun, 1981) have attributed it to inertia in the economy.[70]

A principal source of such inertia is the labour market. In particular, the overlapping multi-year collective agreements that are typical in North America are said to make it difficult to alter the rate of change of money wages quickly (Taylor, 1983; Helliwell, 1983, 1984; Riddell, 1983).

In part this is so because a typical contract predetermines wages for some time ahead. In part it is because those workers who are currently settling are anxious to keep in step with those who have already done so. This last consideration generalizes the inertia to unorganized workers and those on short contracts. As Riddell (1983) has pointed out, there are periods, such as the present, when wage inflation has slowed dramatically, which make inertia a favourable circumstance: employment can be increased with less fear of a dramatic acceleration in wage rates. There is no question, however, that such persistence can lead to prolonged slack if policy makers are determined to reduce the rate of inflation. Such inertia also makes it difficult to adjust nominal wages quickly if trends in productivity or goods' prices alter suddenly. Thus, it can give rise to the excessive real wages and their accompanying "classical" unemployment dealt with earlier in this paper.

Two sorts of remedies have been suggested: a different structure of agreements and incomes policy. If all agreements were short — say, annual — each of them could be renegotiated quite promptly to reflect any changes in current conditions. If, in addition, they were synchronized, then each party to a negotiation could proceed in the knowledge that its rivals were bargaining in the same circumstances and so were unlikely to get far out of line.

Incomes policy, of which there are countless varieties, is intended to offer the same assurance to negotiators. Moreover, in some versions, the law or voluntary compliance might override the provisions of an agreement, permitting even faster adjustment.

It is usually conceded by those advocating such reforms (e.g., Rotstein, 1984, p. 22) that to work well they require the consent of those affected — a social consensus, in fact. Now, such consensus may be no easy matter. It should be recalled that labour law in most sectors is a provincial matter in Canada; thus the ten provinces would have to be part of any consensus. There are, moreover, few consensus-forming institutions, and the process of multiplying such institutions will not be easy (see Waldie, 1985). One could go beyond this to suggest that there are not even organizations that can represent in a binding way such major interests as "labour," "business" or "agriculture." There is no need to despair of reaching consensus, but it must, I think, be conceded that it is a project with a rather long horizon. It seems quite unrealistic to hope that consensus, or any reorganization for which it is a prerequisite, can accelerate the recovery.

The above discussion also suggests that it is folly to imitate, without very careful consideration, institutions that work well elsewhere. Such institutions may well be imbedded in a quite different political and social culture. Synchronized annual bargaining could lead to an annual paralysis of the economy instead of to more rapid wage adjustment. Incomes policy can lead to a breakdown of relations between governments, or

between government and business or labour or both, or to a disintegration of such organizations of various interests as choose to cooperate.

Removing Adverse Incentives

Encouragement of steadier job attachments, more intensive or employed search, and fewer layoffs has been on the agenda of the "turnover view" since the beginning (Feldstein, 1973a). The principal suggestions here have been for reforming unemployment insurance and counteracting minimum wages. Clearly, any reduction in the generosity of UI will increase incentives to retain jobs and find new ones quickly. There have been many suggestions along these lines. All necessarily erode the value of UI as a device to provide income maintenance and to serve as an automatic stabilizer. But technical improvements — changes that improve incentives, given the level of generosity — are also possible (Kaliski, 1980). One that has been favoured by most economic commentators, but consistently rejected by the administrators has been experience rating to reduce subsidy to layoffs (see above). Others favour generalizing the subsidy to work sharing (Reid, 1985).

A number of critics have urged that the preferential treatment of claimants from high unemployment regions is excessive and should be modified. It is argued that the present system unduly inhibits labour mobility (or induces reverse migration) and so perpetuates the regional differentials. This modification would not be a purely technical change, of course — perhaps few such changes are possible — but it might have the desired effect, among others.[71]

In contrast to UI, one seldom hears suggestions for reducing minimum wages, although, as we have already noted, minimum wages have been allowed to erode as a result of wage inflation recently. Feldstein (1973a), who noted the adverse impact of minimum wages on the ability of young people to obtain training and career jobs, and to maintain steady job attachment, suggested instead "training scholarships" to offset minimum wages. Many of the typically very limited youth-employment plans now in place in Canada or currently being canvassed are essentially of this sort. They provide either a direct subsidy for training or, more generally, a wage subsidy. Such plans are clearly intended to remove the disincentives that high starting wages, whether caused by minimum wage laws or not, constitute to on-the-job training. I have seen little systematic evaluation of such arrangements, and opinion as to their success varies widely.

Another of Feldstein's suggestions — that for a special youth employment service — is now being tried in Canada on a very limited scale. Beyond that experimentation, there are suggestions for reform of the apprenticeship system and of educational institutions. Once more, it should be kept in mind that the educational system, for example, has

other aims besides that of job training. Moreover, the youth unemployment problem is, in part, one of incomplete recovery, and such institutional reform has a much longer time horizon than does even a very slow recovery.

Easing Structural Adjustment

Policies for easing structural adjustment range from identifying future requirements for particular skills, to such aspects of "industrial strategy" as identifying and promoting promising firms and industries, improving productivity, and encouraging R&D and the spread of technology. Some of these policies are examined elsewhere in this commission's research; they cannot be discussed here in any detail. Suffice it to say once more that the evidence concerning the results of such endeavours is mixed and inconclusive, that they often require major reorganization with a background of consensus, and that their gestation periods are likely to be long.

To conclude, the only way to reduce the present large volume of unemployment is through an economic recovery. Policies are conceivable that will improve the future performance of the labour market, but most have undesirable side effects or have not been tried in the Canadian environment. Whatever their ultimate merits, they will not — with the possible exception of those aimed at UI or wage incentives — take hold quickly.

Summary and Conclusions

I have attempted in this paper to bring together the analytical and empirical knowledge that exists concerning the operation of the Canadian labour market. Often, this review has then taken the form of examining the extent and nature of unemployment. This is so because unemployment is not only the major labour market policy problem, but also the prime indicator of labour market frictions and imbalances. To analyze unemployment satisfactorily, one must understand and explain the underlying causes of these frictions and imbalances. In my opinion, our current understanding of some of these phenomena, while much improved, is still far from definitive.

Current labour market analysis stresses movement or flux. This "new" or "turnover" view and the data that it has led us to collect have greatly enlarged our understanding. We know now that there is indeed much movement, but that the movers are a relatively small proportion of all market participants. Most of the employed have long and steady jobs. Much of the unemployment is borne by a few workers who suffer long

and repeated spells of unemployment. Young people are particularly vulnerable to unsteady job attachments and frequent unemployment.

Although the "new view" has permanently enlarged our understanding, it essentially failed in its program (if such it was) to offer an explanation of unemployment as a normal aspect of optimal labour market operation. In part this is so because unemployment caused by demand deficiency looms much larger now than anyone would have anticipated ten years ago. In part it is because, on closer examination, both the analysis and the data have turned out to be subtly different than they seemed earlier. Both job search and layoffs *are* important phenomena. Both result, at least in part, from private maximization. But it seems unlikely that *unemployed* search, and ex ante *voluntary* layoffs and other forms of "wait" unemployment, would be nearly as important as they are if those involved bore the full cost of their choices. This, of course, is the policy aspect of the new unemployment program: to seek ways to reduce the distortions that make the social costs of normal unemployment exceed its private costs.

The labour force grew rapidly in the 1960s and 1970s, largely through an influx of persons with, on average, relatively unstable participation and job attachments — women and youth. In consequence, the mix altered toward those with higher "normal" unemployment rates and the average rate of unemployment rose. It rose further because, despite favourable alterations in industrial structure, the increased supply of the new entrants taxed the labour market's capacity to absorb them. In addition, increases in UI benefits and coverage and in minimum wages led to some further increase. These forces have now gone into reverse, and the trend in normal unemployment should be declining.

In my opinion, newer explanations of the unemployment trends in terms of the rate of change in technology and in industrial structure are likely to affect the quantitative impact of the above explanation, but not to replace it. Until the difficult work of integrating the several lines of analysis has been done, one cannot go beyond an opinion.

The major problem of unemployment that confronts us in mid-1984 has nothing to do with such trends in frictional and structural unemployment. It is, quite simply, a matter of a deep and prolonged world-wide policy-induced recession. Though the diagnosis is simple, effective solutions to this problem are far less so.

Can policy conclusions be drawn from this analysis? Those that have been presented are likely to strike the reader as unsatisfying. They strike the writer in the same way. There are two sorts of reasons for this. First, as has been suggested, the major current problem is one of slack in the economy. No reform of labour market arrangements will remedy this fault. The cure for it is economic recovery. How to bring such a recovery about, at what rate to allow it to proceed, and what weight to attach to

unemployment and other costs of slack relative to other objectives are all important policy issues. But they are questions of macroeconomic, not labour market, policy. They are dealt with elsewhere in the research of this Royal Commission.

There are, to be sure, labour market aspects to these questions. Is labour market inertia an important obstacle to good macroeconomic management? If so, how can it be reduced? It must be realized, however, that these are questions relevant to avoiding or getting out of the next recession. We may not know nearly enough about the workings of the various policies involved, but we do know, I think, that they will take much longer to bear fruit than should any sensible program for recovery.

Nor is the relevance of policies to reduce frictional or avoid structural unemployment immediate. Policies to improve or restructure labour supply cannot offset demand deficiency. But such policies may make for a longer or fuller recovery and for a labour market that works more efficiently in more normal times. Paradoxically, while periods of slack are the ideal time to carry out retraining, say (as they are for other forms of investment), because resources need not be diverted from current production, it is not clear that this can be done effectively. Incentives for the investment are weak because there is no immediate payoff in terms of vacancies (orders) to be filled. Worse, the shape of the next plateau — the newly normally operating economy's industrial structure and skill (capital) requirements — are difficult to discern from the bottom of the valley.

Second, as has been suggested repeatedly, while we have a richer body of knowledge about the labour market than ever before, that knowledge is seriously incomplete. We know, for example, that the explanation of rising normal unemployment in terms of changes in the labour force and in social legislation fits the facts, and that in terms of changing industrial structure this may be capable of being refined so that it does so, too. We know also that both explanations in terms of expectations and credibility of policy and those in terms of inertia can account for some of the problems of macroeconomic management. What we do not know, because the necessary integrative work has not been done, is how much each of these partial explanations contributes. In a way, we are better placed to design research projects than to make firm policy recommendations. Perhaps this is always so. Certainly, policy changes, such as those proposed in UI, for example, always have multiple effects, not all of them desirable.

Notes

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My recent empirical work on labour markets has been undertaken jointly with Charles Beach under a grant from the Social Sciences and Humanities Research Council of Canada (SSHRC). Earlier versions of part of this material were included in a state-of-the-art review, "The Rise and Fall of the New Unemployment," presented at the 1983 annual meetings of the Canadian Economics Association, also supported by the SSHRC. Richard Arnott, Glenn MacDonald, Michael Parkin and Craig Riddell commented most helpfully on some of the material. A revised version of a portion of that paper appeared in *Canadian Public Policy* 10 (June 1984) under the title "Why must Unemployment Remain so High?" Finally, Craig Riddell, Morley Gunderson and other members of the Royal Commission's Labour Research Advisory Group and anonymous referees made helpful comments on the original draft of the present paper. Steve Murphy and Jean St-Gelais assisted with the revision; Charlotte David did the typing. The usual caveats apply.

1. Roughly speaking, the civilian non-institutional population 15 years of age and over, excluding the Territories and Indian reserves, which are not covered by the Labour Force Survey.
2. Roughly speaking, worked or sought work.
3. As the note to Figure 2-1 indicates, the 1975 revision of the sample and definitions of the Labour Force Survey produces important discontinuities that plague the comparison of age-sex specific variables.
4. For more detailed treatment see, e.g., Foot (1983), Sims (1983) and references cited in these works.
5. Canada, Department of Employment and Immigration (1981); Canada, House of Commons (1981); and Economic Council of Canada (1982). See Smith (1983) for an enlightening review of the three.
6. This is not, of course, to suggest that *all* of the labour market is always in a flux; only that *some* of it always is; see below.
7. See Riddell's (1985) paper in this volume for a further discussion of this important concept.
8. For my views about the connection between search theory and the new classical models see Kaliski (1981).
9. Hall (1970, p. 370) is quite explicit about that. Feldstein (1973a; 1973b) argues that little can be achieved by expanding aggregate demand, starting in 1972.
10. The term "voluntary" is an extraordinarily elastic one in this literature. It is used in at least three senses. First, in typical search theory a worker voluntarily quits his job to find a better one and remains voluntarily unemployed, offer by offer, as he decides whether to accept a job or to continue searching. Second, in implicit contract theory a worker voluntarily enters an understanding that involves accepting a given probability of unemployment, although, when the time comes, he/she has no control over whether he/she is to be laid off and for how long. Third, in much popular and some professional writing, unemployed "job leavers" — those whose reasons for leaving their last job were *not* that they "lost [their] job or [were] laid off" (Statistics Canada, cat. no. 71–001) — are referred to as voluntarily unemployed. Clearly, only the first of these notions relates to unemployment that is voluntary both ex ante and ex post.
11. For a pioneering discussion of some of these details and of search theory more generally see Phelps et al. (1970).
12. Real-life jobs will of course differ along any number of dimensions that affect their value to the worker. If he/she is to maximize, he/she must be able to evaluate each job package in terms of income or of utility. It is thus a useful simplification to express all non-pecuniary differences in terms of differing wages for a standard job.
13. The typical exposition of search theory is in terms of workers who quit to search for better jobs. But the analysis is equally applicable to new entrants and re-entrants into the labour force and to job losers.
14. See Clark and Summers (1979, p. 52) for a similar line of argument.

15. These short durations of the average completed spell are, of course, quite compatible with the average employed person having quite long (complete) tenure. In 1980, these are estimated at over 17 years for men and nearly 11 years for women (de Broucker and Hasan, 1982, p. 25). See also Hall (1982, p. 716). We shall have occasion to return to this point in the context of the duration of unemployment, but it need not delay us here, for the long-term employees clearly are seldom among the searchers.
16. The phrasing here is quite deliberate. I personally believe that even in "normal" times, this option is unavailable to many unemployed searchers. However, their behaviour cannot be explained by a theory of voluntary search.
17. In connection with UI, however, it should be noted that for the unentitled, including all new entrants, the cost of search is unaffected, whereas the expected returns from accepting a job, unless it is deemed permanent and continuous, include the benefits of future entitlement. For the entitled, the expected-return effect is also present and partly offsets the marginal cost effect in all cases, and dominates it as exhaustion of benefits approaches, i.e., as the searcher uses up the maximum period for which he may draw UI (Mortensen, 1977, p. 510).
18. There is little information on the intensity of search: the ratio of active searching to leisure and waiting. Hasan and Gera (1982, pp. 59, 61) cite American studies that estimate that the unemployed spend only 8 to 17 or 18 hours per week on search activity. Clark and Summers (1979) estimate an average of 25 hours in 1976. The only measure available from the LFS is the "number of search methods" used, a poor indicator (see Hasan and Gera, 1982, pp. 15–18).
19. These are that they were "waiting for recall," "waiting for replies" or "believe[d] no work available (in area or suited to skills)" (Statistics Canada, cat. no. 71–001, March 1983, pp. 141–52). Except in 1981, the last reason was as important as or more important than the others combined. More strictly, only some 70 percent of these "discouraged workers" might be thought of as searches. Those waiting for recall might be thought of as being on prolonged layoff. Statistics Canada (cat. no. 71–528, pp. 40 and 51) classifies those on layoff and expecting recall but not searching as unemployed for a maximum of six months. Those on longer layoff and those in seasonal industries who are on layoff during the off season are classified as out of the labour force. One might speculate that they might search if they thought it worthwhile.
20. Clearly these are overlapping categories.
21. A rather atypical one, as they warn.
22. Hasan and Gera (1982, p. 59) warn that "voluntary unemployment is an extremely slippery concept," and are clearly aware of the difficulties noted in note 9 above. They are usually careful to speak of "voluntarily initiated" unemployment. But they insist that "Clearly, on-the-job search is a [voluntary] search for a better job, rather than any job" (pp. 8, 18, 59). Yet, a moment's reflection suggests that one may initially search on being told, or having good reason to suppose, that one's job is coming to an end. And, if unemployed search is sufficiently more efficient, might one not quit in the same circumstances?
23. Presumably, this partial regression result for searchers can be reconciled with the gross association of high unemployment and long duration.
24. Strictly speaking (temporary) layoffs are only one form of waiting — waiting for recall by the same employer. It has already been suggested that the search process may have a large component of waiting — for appointments, replies to applications, etc., and that some discouraged workers wait long enough to be classified as not in the labour force. Others wait for new jobs that are to start at some specified time in the future.

    As in the case of search, the question arises why one should not wait while employed in some other job. (See note 52 below.) The answer, presumably, is that in some circumstances it is not practical or worthwhile to do so. Perhaps the most famous analysis of this case is the Harris and Todaro (1970) model in which employed rural persons in less developed economies rationally migrate to the cities, despite involuntary urban unemployment, in search of better-paying work. There may be Canadian equivalents, although our peripheral regions are typically characterized by low pay as well as high unemployment.

    One can conceive of cases in which known jobs will definitely become available at

some future time, but must be queued for on site. That would be a pure case of waiting. Some hiring halls and arrangements for hiring casual agricultural labour seem to operate in this fashion.

25. There are countless references. For some of them and an exposition of the theory by a major contributor see Azariadis (1979).
26. See Okun (1981, chap. 3) for a fuller exposition. Firm-specific capital refers to skill or knowledge not transferable to other employments.
27. See, e.g., Sargent (1979, chap. 8), who, like many writers, holds hours of work fixed; but contrast Okun (1981, chap. 3).
28. But it could, in principle, explain the importance of labour hoarding in slack times; see below.
29. Carmichael (1981) has shown that ranking workers by seniority for wage increases or fringe benefits is an efficient way of preserving joint investment in specific human capital.
30. Canadian UI has recently been willing to finance work sharing — a reduction in weekly hours for the whole of a plant's labour force in lieu of layoffs. The program has proved popular, perhaps because, from the point of view of the recipients collectively, it clearly dominates individual UI benefits to those who would otherwise be laid off for several reasons: 1) The two-week waiting period for benefits is waived; 2) receipt of work-sharing payments does not affect a worker's future entitlement to benefits; 3) the total utility of smaller amounts of leisure more widely spread is likely to be larger; 4) the employer reduces risk of losing valuable workers (but incurs some costs for additional fringe benefits). It has been estimated that, on average, workers covered by work-sharing agreements reduced their hours by 20 percent, but their take-home pay only by about 7 percent (Canada, Department of Employment and Immigration, 1982; Reid, 1982). See Reid (1985) for fuller treatment.
31. In principle, this could be overcome by basing UI premiums on experience rating. There is no rating in Canada and only partial rating in the United States (Feldstein, 1975, 1976).
32. They use a special survey and matched Current Population Survey records as contrasted to aggregate turnover and rehire figures used by others.
33. See Phelps (1972) for an extended treatment.
34. For a fuller treatment of these issues see Riddell (1985).
35. It is not quite correct to say that over 4,000,000 *persons* entered and exited. We know from other sources, the Annual Work Patterns Survey (AWPS) data, for example, that some persons have more than one spell of unemployment during a year; 31 percent of the men and 21 percent of the women employed in 1978 experienced more than one spell of unemployment (Beach and Kaliski, 1981, Table 4.1).
36. See Hasan and de Broucker (1982); Magun (1982); Beach, Kaliski and Skulmis (1983) for some attempts to cope with these difficulties.
37. The paradox here is only apparent: since each of the long spells contains more weeks of unemployment, fewer of these can readily account for more of the total unemployment than the more numerous short spells. Whether or not this is so depends simply on the average duration and number of each sort of spell. Moreover, while spells that are of average duration or shorter must necessarily account for half of the total unemployment, the remainder could all be accounted for by very long spells, depending on the shape of the distribution.
38. It is difficult to offer an adequate brief explanation of these rather technical matters. Roughly, the method used to calculate average duration is valid only if underlying time series are free of systematic variations over time, i.e., seasonality, cycles and trends. The Markov process assumes that the probability of escaping unemployment remains constant so that, say, one-quarter of those in the pool at the beginning of one week will have left by the beginning of the next. See Beach and Kaliski (1983a).
39. This set necessarily excludes new entrants.
40. Feldstein's stylized facts were largely found to be applicable to Canada (Economic Council of Canada, 1976).

41. I will, however, yield to the temptation of saying that, definition aside, if Hall was right in 1979, he may have seen to it that he is no longer so in 1983 (Hall, 1983).
42. Fortin and Phaneuf (1979) estimate the elasticity of the unemployment rate of young people (15–24) with respect to their proportion in the source population at 0.5 to 0.6.
43. Even when unemployment peaked in December 1982, nearly 70 percent of families with one or more persons unemployed had at least one person working. In more than half such families, the unemployed person was not the head (Statistics Canada, cat. no. 71–001, December 1982: Tables 50, 51). See Table 2-8 above.
44. Other social arrangements — taxation, transfer payments, schooling, daycare centres, the employment service — can clearly be important, but little is known about their quantitative impact.
45. This explanation is not in the spirit of "natural" or "normal" rates because it attributes the unemployment to macro disequilibrium resulting from institutional forces or disappointed expectations.
46. A recent paper by Charette and Kaufmann (1984), to be discussed, does attempt some integration.
47. Obviously, in the context of a more complete model, participation rates, employment, unemployment, wages, industrial structure and many other variables of interest would all be determined by more basic exogenous variables, not all of them economic. Even policy decisions have more basic determinants. Even within the more partial framework considered here, unemployment rates, participation rates, UI, etc., are known to interact.

    The baby boom presumably was independent of future labour legislation as were some of the long-trend changes in women's participation rates. A number of researchers have shown, however, that participation rates, especially those of youth and women, increase with the generosity of UI (see, e.g., Siedule, Skoulas, and Newton, 1976) and respond to unemployment rates. And Swidinsky (1980), among others, has shown that teenagers' labour-force participation responds to minimum wages.
48. At least as measured by the revised Labour Force Survey (see Figure 2-4 and note). One assumes that the revision that produced the sharp increase in the unemployment rate of women relative to men was the lengthening of the search criterion for unemployment from the preceding week to the preceding four weeks. See Reid and Smith (1981) for a further discussion of the impact of the revision and of changes in composition on overall unemployment.
49. Merrilees (1982) finds that labour is substitute for capital in production in Canada, but that the four major demographic groups are complementary inputs.
50. Of course, "the production process" is itself an abstraction for a heterogeneous mix of different industrial processes. To the extent that the service industries, including trade, which, as a group, employ greater proportions of women, youth, and part-time workers, grew at a faster rate than manufacturing, construction and the primary industries, they reduced the structural problem. More of this below.
51. See Cousineau's 1985 paper.
52. They also include the influence of public sector wages. I have not discussed these here because I do not understand their supposed role. I can see that relatively higher wages may cause workers to apply and wait for public sector jobs. I can see no reason why they should wish to be unemployed while waiting.
53. Strictly speaking, only Samson's study is a replication. Charette and Kaufmann make important advances that are discussed below. For a recent critical reinterpretation in the light of U.S. data see Abraham and Katz (1984).
54. Figures in brackets relate to the Samson paper — the last two columns of Table 2-13; those without brackets to Charette and Kaufmann's Equation S4, the first three columns. The correlation coefficient between Charette and Kaufmann's two series is said to be 0.99 (p. 28).
55. Since, over short periods, the labour force is approximately constant, the dispersions of employment and unemployment must vary together. See Abraham and Katz (1984) for a fuller exposition of this issue.

56. See, e.g., Moore (1961).
57. For further discussion see Allen (1985) and Globerman (1985).
58. That is, any set of relative wages that will make continuing investment in the human capital involved worthwhile.
59. There are, in fact, analytically important and interesting differences between the several versions of the real wage level/rigidity explanation that cannot be explored here.
60. For more detailed exposition and more documentation see Kaliski (1984).
61. But see Statistics Canada (cat. no. 71–001, April 1984, pp. 91–121) for alternative counts.
62. There are likely also some "additional workers" who will leave the labour force when the "principal bread winner" is re-employed. In Canada, however, that number has always been smaller than that of discouraged workers. Participation rates decline when unemployment rises.
63. See Statistics Canada (cat. no. 71–001, March 1984, pp. 101–18) for a discussion of this survey and interpretation of the results.
64. In addition to the two listed, the total includes a smaller number (50,000 in 1983) who were "awaiting replies."
65. A more recent projection by the Economic Council of Canada is also shown in Table 2-14 for comparison. It reflects the better-than-predicted performance since the 1983 budget, but offers an even less promising view of future prospects.
66. There is a little sign that these governments (or the Government of Canada) have accepted the recent recommendation by "26 economists from fourteen countries for an internationally coordinated shift in the near-term stance of monetary and fiscal and monetary policies toward expansion" (Institute for International Economics, 1982). Hence, an uncoordinated expansion at widely differing rates is probably the best that can be hoped for. The danger of countries resorting to increased protection in an attempt to speed up their own recovery or to make it broader continues, and isolated instances of their actually so doing continue to mount.
67. Economic Council of Canada (1982); Canada, Department of Employment and Immigration (1981); Canada, House of Commons (1981).
68. See Bank of Canada (1980, p. 11). This matter is being investigated by a number of government agencies.
69. Once again, this elliptical way of putting things is not intended to imply one-directional causality.
70. Once more, the two explanations are not necessarily mutually exclusive.
71. See Cousineau (1985) for a further discussion of these and other suggestions.

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3

Reductions in Work Time
An Assessment of Employment Sharing to Reduce Unemployment

FRANK REID

The idea of shortening work hours to combat unemployment is not new. In 1887 Samuel Gompers, the president of the American Federation of Labour, declared: "So long as there is one man who seeks employment and cannot find it, the hours of work are too long" (quoted in McGaughey, 1981, p. 239). The Canadian Labour Congress (CLC), at its 1984 biennial convention, reiterated this tenet by passing a resolution pledging itself to use both political action and collective bargaining to fight for reduced work hours with no reduction in pay. The CLC's objective was to reduce work time by any combination of reduced weekly hours, increased vacation, paid educational leave, and earlier retirement (Deverell, 1984). Following Meltz, Reid and Swartz (1981), the term "employment sharing" will be used in this paper to describe the whole range of policies that involve a reduction of work time.

In the early 1980s governments in Canada and elsewhere have shown a renewed interest in policies to share employment. In January 1982, for example, the Canadian government introduced a work-sharing program which permits unemployment insurance to be paid as short-time compensation in situations where the work week is reduced to prevent layoffs (EIC, 1984a). The British government, in 1983, introduced a scheme to pay employers £750 for splitting a full-time job into two part-time jobs for at least 12 months. The French government, in 1982, reduced the standard work week from 40 to 39 hours, raised the minimum annual paid vacation to six weeks, and lowered the retirement age to 60 (OECD, 1984). In the Netherlands a government statement issued in November 1982 endorsed work-time reductions as a means of increasing employment, but left the implementation of such reductions to the collective bargaining process. Both labour and management agreed with

this proposal, and subsequent negotiations have reduced work time in various ways such as establishing a shorter work week, increasing holidays, and arranging earlier retirement (OECD, 1984). In the United States, Arizona, Oregon, Florida, Washington and Illinois introduced short-time compensation schemes during 1982–83, modelled on the Californian plan introduced in 1978 (MaCoy and Morand 1984, p. xiv).

Although the recent interest in employment sharing has been stimulated by the recession of the early 1980s, reduced work time has also been advocated at other times in order to improve the quality of life through increasing leisure time. Even in an economy characterized by "full employment," economic well-being may be less than is attainable if there are institutional constraints which, incidentally, prevent employers and employees from adopting alternative work arrangements that are advantageous to both groups.

Advocates of employment sharing emphasize that such policies do not eliminate the need to strive for full employment. Monetary and fiscal policies provide an alternative method of dealing with deficient demand unemployment, but there are constraints on the use of stimulative policies because of concerns about inflation and the size of the government deficit.

If stimulative polices are not to be used to eliminate a recession, then employment-sharing policies intended to ameliorate recessionary effects may be desirable in terms of both equity and efficiency. In terms of equity, it seems unfair that the drop in income during a recession should be borne by the small minority of the labour force which suffers the burden of increased unemployment. In terms of efficiency, the market mechanism may be failing to provide appropriate signals to employers and current employees because their joint decisions with respect to reductions in hours of work as contrasted with reductions in employment may not fully reflect the cost that society bears in terms of unemployment insurance, welfare and other social programs.

One of the features which makes employment sharing such a tempting policy option is that a relatively small adjustment in work time can dramatically reduce unemployment. A 5 percentage point increase in the Canadian unemployment rate is enough to move the economy from a "normal" or target rate of, say, 6 percent unemployment to a serious recession with 11 percent unemployment. Yet, to illustrate with a crude example, an equivalent reduction in total hours of employment would be achieved by reducing the average length of the work week from, say, 40 hours to 38 hours, other factors remaining constant. There are, of course, many complicating factors which will affect the extent to which such a reduction in weekly hours could be translated into increased employment. Those to be considered include the impact on productivity, costs, total hours of employment, and participation rates. The importance of each factor will depend on the particular employment-sharing

policy under consideration. The striking potential effect on unemployment of a rather minor change in hours does, however, indicate the importance of analyzing employment-sharing policies.

The purpose of this paper is to assess the equity and efficiency of various employment-sharing policies which have been advocated. The proposals are analyzed in varying degrees of detail since some are simply suggestions which have not yet been well formulated, and others represent policies which have been applied for a number of years and systematically evaluated.

In the following sections of this paper a theoretical framework for each analysis is specified, followed by some descriptive material on current patterns and historical trends of employment in Canada. The next section analyzes employment sharing at the establishment level, through short-time compensation policies. Various proposals to facilitate employment sharing on an employee-by-employee basis are then considered, and proposals are assessed which advocate implementing employment sharing through collective bargaining or through a legislated reduction in the standard work week. The paper concludes with suggestions to eliminate several barriers which incidentally restrict the use of employment sharing.

Theoretical Framework

Work schedules, like wages and other working conditions, appear to be set unilaterally by the employer in non-union environments. Employers have an economic incentive, however, to take into account the work preferences of their employees. As a result, work schedules are determined by an interaction in the labour market between employer and employee preferences. An employee's preferences for the number of hours of work in each time period will depend on demographic factors such as the individual's age, health and number of dependents; environmental factors such as the temperature and cleanliness of the work site; the physical nature of the work; and monetary factors such as the wage rate offered and the individual's other sources of income. The net effect of these factors will determine a preferred number of hours of work for each individual.

Intuition reveals the effects of a change in most of these factors, given that the others remain constant. The effect of a change in the wage rate, however, is ambiguous. On the one hand, the substitution effect of an increase in the wage rate makes work more attractive relative to leisure and induces the individual to work more hours; on the other hand, the income effect of an increase in the wage rate makes the individual more wealthy and normally induces him or her to consume more leisure — that is, to work fewer hours. Empirical evidence suggests that for most workers the income effect tends to dominate — that is, increased real

wage rates generally reduce the number of hours the individual wishes to work.

An employer's need for interaction among employees may require working hours to be standardized to some degree rather than allowing each employee to work his or her preferred number of hours. Other factors being equal, a firm has an incentive to offer a work schedule which corresponds as closely as possible to the typical employee's preferred hours. The greater the divergence of actual hours from preferred hours, the greater the tendency in a competitive labour market for employees to leave the firm in order to obtain their preferred hours elsewhere, and the higher the wage the employer must pay to attract and retain the desired work force.

The employer must also consider certain person-specific costs of employment, such as costs for dental insurance premiums which are a fixed amount per employee. Costs of hiring and training employees, amortized over some expected duration of employment at the firm, are also of this nature. Person-specific costs give an employer an incentive to increase the number of hours of work per employee beyond the employee's preferred hours in order to reduce the number of employees and hence reduce these costs. Longer hours, however, may reduce job satisfaction, increase employee fatigue, and necessitate payment of premium-wage rates for hours worked beyond some standard level set by legislation or collective agreement. It is assumed that the employer will choose a work schedule which minimizes costs based on the net effect of these various factors (Donaldson and Eaton, 1984).

A fundamental theorem of neoclassical economics demonstrates that if all markets were perfectly competitive, and if there were no other market imperfections, the outcome would be "efficient" in the sense that there would be no change that could make someone better off without making someone else worse off. In the simplest terms, the competitive model assumes that all mutually beneficial changes in organization will already have taken place; hence there is no scope for further changes that are beneficial to all concerned. If the assumption of perfect markets were valid, it would follow that the work schedules generated by the market were efficient, and any government intervention which altered the outcome would impose an inefficiency on the economy. For example, an inefficiency would be created if the structure of a payroll tax such as unemployment insurance premiums affected the division of total labour hours between the number of employees and the average hours of work per employee.

Even if all markets were perfectly competitive, the outcome might not be efficient if decisions affect parties who were not involved in the transaction and who had no market mechanism through which they could convey their concerns to the decision makers. In such circum-

stances, the "external" factors might require collective action or regulation to achieve efficiency. If employment sharing were proposed during a period of deficient demand unemployment, there would be no economic incentive for the employer and employees to take account of the potential savings to other taxpayers in terms of reduced expenditure on unemployment insurance, social assistance and other social programs.

Recent empirical evidence for Canada (MacLaren et al., 1983) has shown that in addition to adverse economic effects, layoffs and unemployment have adverse social and psychological effects on the unemployed. A sample of 187 laid-off workers was compared to a control group of 191 workers who were engaged in employment sharing under the federal government's work-sharing program. The two groups were matched in a number of characteristics including age, sex, education, martial status and industry. It was found that in the six-month period following a layoff or the beginning of employment sharing, the group of laid-off workers experienced substantially higher increases in a number of stress-related symptoms such as headaches, dizzy spells, nightmares, memory lapse, insomnia and loss of appetite.

Overall earlier research in the United States (Brenner, 1976) has shown a correlation between increases in the unemployment rate and increases in various stress indicators such as admissions to mental hospitals and prisons, and deaths from cirrhosis of the liver and cardiovascular disease. Thus unemployment not only entails tragic consequences for the workers themselves, but also imposes real costs on society in terms of the additional resources required to deal with its wider social consequences. Since these effects represent "externalities" which are not taken into account when employers and employees make decisions, the result is a less than optimal amount of employment sharing in the economy, given the existence of deficient demand unemployment. Although we might argue that the effects of externalities could be removed by eliminating the social programs established to deal with them, such a proposal would be neither equitable nor politically realistic.

The market mechanism may not produce an efficient amount of employment sharing for another reason: when a fixed amount of resources is devoted to income-support programs for unemployed persons, institutional constraints prevent generally advantageous exchanges from taking place. Since individuals are generally eligible for income-support programs only if they are wholly unemployed, they are prevented from using their income support to induce those currently employed to engage in employment sharing. The results are an inefficient and less than optimal use of employment sharing and a situation that offers some justification for collective action to encourage employment sharing during periods of deficient demand for labour.

Employment Patterns in Canada

As a preliminary to the review of policies intended to encourage employment sharing in Canada, some basic descriptive material is presented concerning current patterns and historical trends in weekly and annual work schedules.

Patterns in weekly hours of work can be examined in terms of actual hours of work, paid hours or standard hours. Actual hours of work in any given week are affected by factors such as the proportion of part-time and full-time employees, the industrial mix, the proportion of office and non-office employees, cyclical fluctuations in labour demand, industrial disputes, and the incidence of holidays and vacations. Paid hours are affected by all of these factors except the occurrence of paid holidays and vacations. Standard hours, defined as the number of hours of work beyond which overtime is normally payable for full-time employees, are not affected by any of the factors named above, except the industrial mix and the proportion of office and non-office workers.

There is considerable diversity in actual hours worked per week by both male and female employees in the Canadian labour market. Data taken from Statistics Canada's Labour Force Survey and presented in Table 3-1 indicate that during 1983, just over half of all employees surveyed worked "typical" work weeks of between 30 and 40 hours. Nearly one-fifth of all employees were in part-time jobs, according to the Labour Force Survey definition which describes a part-time employee as someone who usually works less than 30 hours a week.[1] Even during a year of severe recession, however, when the unemployment rate averaged 11.9 percent, over 20 percent of employees worked more than 40 hours a week and, of these, 12.6 percent worked more than 50 hours a week. The fact that a significant number of employees worked such long hours at the same time that other employees were completely unemployed creates substantial interest in the possibility of encouraging a reduction of the standard work week to increase employment.

Some of the employees who work the long hours shown in Table 3-1 hold more than one job. Since employment-sharing policies apply to the job rather than to the employee, it is useful to examine hours worked on the main job. Table 3-2 shows that for all employees, on average, the difference is small: hours worked on the main job are only 0.5 hours per week less than hours worked on all jobs. It also shows that the number of hours usually worked by full-time employees on their main job, a more relevant measure for employment sharing, is 41.5 hours per week.

For an analysis of employment sharing the most relevant concept is the length of the standard work week (and work year) for full-time employees. The distribution of standard hours for office and non-office employees, shown in Table 3-3, is based on the most recently published data from Labour Canada's annual survey of wages and working condi-

TABLE 3-1 The Distribution of Employed Persons by Hours Worked at All Jobs, Canada, 1983

	Both Sexes		Male		Female	
Hours	**000s**	**%**	**000s**	**%**	**000s**	**%**
0	797	7.4	442	7.1	335	7.9
1–29	1,982	18.5	680	10.9	1,302	29.0
30–34	1,038	9.7	541	8.7	497	11.1
35–39	1,656	15.4	720	11.5	937	20.8
40	2,932	27.3	2,021	32.4	912	20.3
41–49	973	9.1	720	11.5	253	5.6
50 or over	1,356	12.6	1,116	17.9	240	5.3
Total	10,734	100.0	6,240	100.0	4,495	100.0

Source: Statistics Canada, *Labour Force Annual Averages, 1975–83* (Catalogue 71-529, Occasional, 1984), p. 269, and tabulations by the author.

TABLE 3-2 Average Hours Worked, by Employee Category, Canada, 1983

Employee Category	Actual Hours	Usual Hours
All jobs		
All employees	37.3	37.8
Full-time employees	41.3	42.0
Part-time employees	15.3	14.9
Main job		
All employees	36.8	37.3
Full-time employees	40.8	41.5
Part-time employees	15.1	14.7

Source: Statistics Canada, *Labour Force Annual Averages, 1975–83* (Catalogue 71-529, Occasional, 1984), pp. 287, 296.

Note: Averages are calculated excluding persons who were employed, but not at work, during the reference week.

tions in establishments of 20 or more employees. Not surprisingly, the most common length of work week in all industries is 40 hours for non-office employees and 37.5 hours for office employees. The average length of work week for workers in all industries is 39.5 hours for non-office employees and 36.7 hours for office employees, with an overall average of 38.2 hours per week.

Standard hours in manufacturing are fairly close to hours for all industries (within 0.3 hours) for office and non-office employees. The heavier weighting on non-office workers in manufacturing creates a somewhat greater differential (1.0 hour) for the combined office and non-office categories, but the differential is still not large.

Data on standard hours in manufacturing are available for a much

TABLE 3-3 Standard Weekly Hours in Manufacturing and All Industries, Canada, 1982

Hours per Week	All Industries	Manufacturing
	(percent)	
Office employees		
Less than 35 hours	3	2
35 hours	29	21
Between 35 and 37.5 hours	15	11
37.5 hours	43	39
More than 37.5 hours	10	27
Average for office employees	36.7	37.4
Non-office employees		
Less than 37.5 hours	6	5
37.5 hours	10	3
Between 37.5 and 40 hours	7	2
40 hours	68	82
More than 40 hours	6	7
Average for non-office employees	39.5	39.8
Average for office and non-office employees	38.2	39.2

Source: Canada, Department of Labour, *Working Conditions in Canadian Industry 1982* (Ottawa: The Department, 1983), and tabulations by the author.

Note: Averages are calculated using the method specified in Chan F. Aw, "Standard Hours of Work: Determinants and Implications" (Ottawa: Department of Labour, Economics and Industrial Relations Research Branch, 1982).

longer period than are data for standard hours in the economy as a whole. Data on standard weekly hours in manufacturing are shown in Table 3-4 for intermittent years over the period 1870 to 1946 and annually, based on Labour Canada's survey of working conditions, for the 1949–82 period. The data are also plotted in Figure 3-1. The evidence shows that the standard work week declined fairly steadily over most of the last century, but that the decline became very gradual during the 1960s and 1970s. Relatively sharp declines in the standard work week were observed immediately following World War I and World War II. Poulin-Simon (1983) has suggested that it was the fear of a substantial increase in unemployment, as a result of soldiers returning after the two world wars, that increased pressure to reduce the work week during those times. Another possibility is that the long-run decline was halted because of a need to maintain output during the wars, but the rate of reduction of standard hours returned to its normal path following the wars.

Data on standard hours for industries other than manufacturing and the all-industry composite are available from Labour Canada only from 1963 on. Tabulations by Aw (1982, p. 64) for the period 1963–79 show that not all industries experienced the levelling-out of standard working hours during the 1960s and 1970s. Over the period 1963–79, standard

TABLE 3-4 Standard Weekly Hours in Manufacturing, Selected Years, Canada, 1870–1982

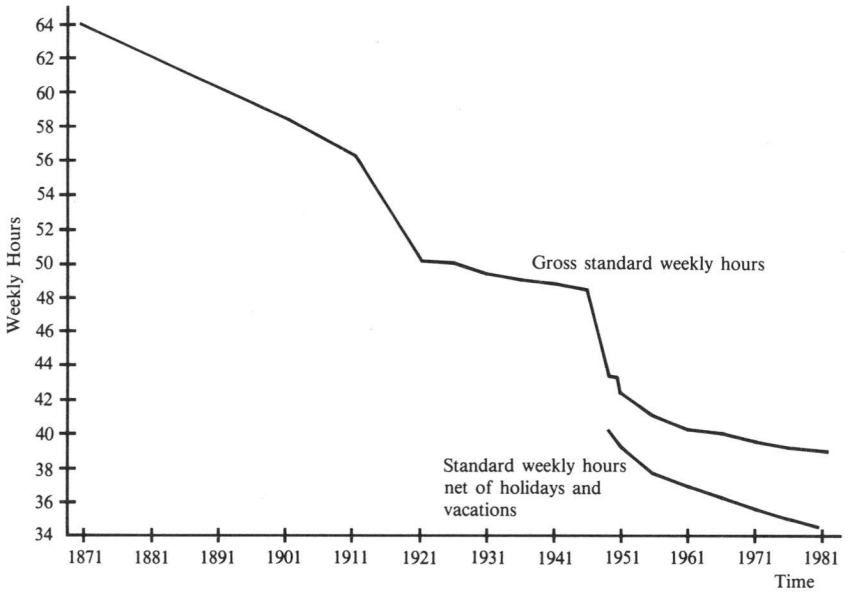
Year	Hours	Year	Hours
1870	64.0	1962	40.4
1901	58.6	1963	40.3
1911	56.5	1964	40.2
1921	50.3	1965	40.2
1926	50.2	1966	40.2
1931	49.6	1967	40.0
1936	49.2	1968	39.9
1941	49.0	1969	39.9
1946	48.7	1970	39.8
1949	43.5	1971	39.8
1950	43.2	1972	39.7
1951	42.6	1973	39.6
1952	42.3	1974	39.5
1953	42.0	1975	39.4
1954	41.5	1976	39.4
1955	41.3	1977	39.3
1956	41.1	1978	39.3
1957	40.0	1979	39.3
1958	40.7	1980	39.2
1959	40.6	1981	39.2
1960	40.6	1982	39.2
1961	40.4		

Sources: 1870: calculations by O.J. Firestone, cited in Sylvia Ostry and Mahmood Zaidi, *Labour Economics in Canada* (Toronto: Macmillan, 1979), p. 80; 1901–46: calculations by G. Saunders and S.M.A. Hameed using unpublished Labour Canada data, reported in ibid., p. 80; 1949–79: calculations by F. Aw, "Standard Hours of Work: Determinants and Implications" (Ottawa: Department of Labour, Economics and Industrial Relations Research Branch, 1982), using Canada, Department of Labour, *Working Conditions in Canadian Industry* (various years); 1980–82: calculations by the author using Canada, Department of Labour, *Working Conditions in Canadian Industry, 1982* (Ottawa: The Department, 1983).

weekly time of work decreased by 1.0 hours in manufacturing and by a similar or smaller amount in transportation and communication, trade and finance. Standard weekly work time decreased by more than two hours over this period in forestry and mining and by five hours in service. The average decline in weekly working time for all industries was 1.8 hours.

Econometric analyses of the Canadian postwar data on weekly work hours (Hameed, 1975; Newton and Leckie, 1979; Aw, 1982) suggest that one of the important factors in the long-run decline is the rise in the real wage rate over time. If the income effect dominates the substitution effect, as suggested previously, then a rise in real wages will induce workers to take part of their gain as increased leisure time — that is, in a reduced work week.[2]

FIGURE 3-1 Standard Weekly Hours in Canadian Manufacturing, 1870–1981



Source: Table 3-4

Decreases in the standard work week over time have been accompanied by decreases in the work year resulting from more holidays and longer annual vacations. Over the 30-year period from 1949 to 1979, as Table 3-5 indicates, holidays in manufacturing have increased from 6.9 days per year to 11.1 days per year, and annual vacations have risen from 2.3 weeks per year to 3.6 weeks per year. Net standard hours are defined as the gross standard work week minus the average hours per week spent on holidays and vacations. Taking into account the increase in holidays and vacations, the net standard work week in manufacturing has dropped from 40.4 hours to 34.9 hours over the 1949–79 period. For all industries, it has dropped from 36.7 hours to 34.0 hours over the 1964–79 period. These declines are close to the long-run trend over the last century of a decline in weekly working time of about two hours per decade.

Short-Time Compensation Policies

The conventional unemployment insurance (UI) system imposes one of the most serious legislative barriers to an optimal degree of employment

TABLE 3-5 Trends in Holiday and Vacation Time, Selected Years, Canada, 1949–79

	Manufacturing				All Industries	
Year	Gross Standard Hours	Holidays in Days per Year	Vacation in Weeks per Year	Net Standard Hours	Gross Standard Hours	Net Standard Hours
1949	43.5	6.9	2.3	40.4		
1954	41.5	7.4	2.4	38.4		
1959	40.6	7.8	2.7	37.3		
1964	40.2	8.0	2.8	36.8	40.1	36.7
1969	39.9	8.8	3.1	36.2	39.5	35.8
1974	39.5	10.1	3.4	35.4	38.8	34.8
1979	39.3	11.1	3.6	34.9	38.3	34.0

Source: Chan F. Aw, "Standard Hours of Work: Determinants and Implications" (Ottawa: Department of Labour, Economics and Industrial Relations Research Branch, 1982), pp. 16, 64.

sharing in the Canadian economy because, generally, it is geared to persons out of work for the full week.[3] This provision biases employers and employees toward layoffs rather than reductions of working hours as a means of responding to temporary declines in demand for labour. This unintended bias toward layoffs in conventional UI arrangements can be eliminated through the use of a short-time compensation (STC) program. The basic principle of STC is that, instead of laying off a proportion of its work force, a firm reduces hours of work, and the employees receive UI as partial compensation for the reduction of hours.

Suppose, for instance, that instead of laying off 40 percent of its employees, a firm reduces its work week to three days and its employees draw UI on the remaining two days. Essentially, the scheme entails a redistribution of UI benefits that would otherwise have been paid to the laid-off workers. Thus, for each five employees, instead of two workers drawing UI benefits for five days per week, five workers draw benefits for two days per week. The firm pays for the same total number of hours of employment as it would under the layoff alternative. Although STC merely redistributes employment, UI benefits and leisure, it is both more efficient and more equitable than the alternative of full layoffs for some workers and their dependence on conventional unemployment insurance.

In January 1982 an STC program was introduced in Canada and work-sharing agreements were implemented during 1982 and 1983 at 14,549 firms involving 275,000 employees. Layoffs of 122,000 employees were averted and total UI expenditure through the STC program totalled $166 million (EIC, 1984a, p. 23). STC agreements were limited to nine months' duration (26 weeks with a possible 12-week extension), seasonal work reductions were excluded from the program, and employees participating in the STC program were required to qualify under UI criteria. The

usual two-week waiting period before drawing benefits was waived to make the program more attractive to employees. In addition, if layoffs occurred following the termination of the STC program, an individual's eligibility for conventional UI benefits was not affected by his or her participation in the program. Participation required the agreement of both the employer and the employees involved.

From the point of view of an employee, a primary consideration in evaluating the STC program is the effect on income and leisure compared to the layoff alternative. During 1982–83, the average STC agreement lasted 24 weeks and the average work reduction was 30 percent, amounting to one-and-a-half days per week (Canada, EIC, 1984a, pp. 33–35). The typical employee with earnings below the UI ceiling level thus received 70 percent of his or her normal weekly earnings plus UI benefits worth 18 percent (.60 x 30 percent) of the same amount, making a total income of 88 percent of normal weekly earnings.[4] The average employee also received an extra one-and-a-half days of leisure per week.

The STC program was very popular with the great majority of the employees participating: 94 percent of those surveyed in a study conducted by Employment and Immigration Canada expressed satisfaction with the program and said that they would be willing to participate again. In a study carried out by Simon and Tremblay (1984, p. 32), 66 percent of the participants surveyed expressed positive satisfaction, and only 7 percent dissatisfaction. The reason is that the typical employee receives an extra day-and-a-half of leisure each week with only a 12 percent drop in income. It is not surprising, therefore, that many employees, even senior workers who had no fear of layoff, found such a program attractive.[5] For the junior employees who otherwise would have been laid off, the benefits are even greater. STC prevented the more substantial loss of income which would have resulted if they had been laid off and drawing unemployment insurance for the whole week. In addition, the STC program reduces or eliminates the loss of self-esteem and the increased stress that often results from layoffs, thus ameliorating the detrimental social and psychological consequences already mentioned.

Since almost half of the employees originally designated for layoff were actually laid off following the termination of the STC agreements, the nine-month time limit on the agreements was obviously too short to eliminate all layoffs, although the program did reduce the duration of these layoffs. In the absence of the program, these employees would have been laid off for the period of the STC agreement plus the period of the layoff following the termination of the agreement.

Employers were primarily concerned about the effect on labour costs of STC compared to the costs related to the layoff alternative. Fringe-benefit costs tended to be higher under STC than under the layoff alternative because of the quasi-fixed nature of some fringe costs and the fact that STC kept more employees on the payroll. Employers also

experienced an increase in administrative costs, since it was necessary to provide information on the number of hours worked each week for employees on STC. However, employers on STC also experienced some cost savings compared to savings under the layoff alternative. Wage costs were generally reduced because the STC program reduced all employees' hours proportionately, rather than eliminating only the remuneration of the lower-wage junior employees. The extent to which this effect was offset by the lower productivity of the more junior employees is not clear. The employer also saved the costs, estimated at an average of $325 per employee, involved in laying off and recalling employees; this estimate includes the cost of a period of reduced productivity until recalled employees regained their former productivity level. In addition, potential cost is involved in that some laid-off employees may not respond to recall when full production resumes; if this happens, replacement employees must be hired and trained at an estimated average cost of $944 per employee.[6]

In a survey of 104 firms involved in STC (DPA Consulting, 1983), an attempt was made to determine the effect of this program on productivity. Although the majority of managers believed that productivity was higher under STC than it would have been with layoffs, these comparisons are merely hypothetical and cannot be given much weight.

The positive and negative effects on costs roughly offset one another, with the net result that STC had very little effect on employer costs: the average was a slight reduction of about .5 percent compared to the layoff alternative. Employers surveyed also reported positive intangible benefits such as improved labour/management relations and an improved public image. A sample survey of participating employers indicated a high level of satisfaction with the program: 81 percent indicated some degree of positive satisfaction, and only 7 percent some degree of dissatisfaction. The single most important source of dissatisfaction appeared to be needlessly complex administrative requirements.

An analysis (EIC, Canada, 1984a, p. 138) indicated that UI expenditures under the STC program were 1.35 times the estimated level of expenditures under conventional UI arrangements. One of the two main reasons for the increased expenditure was the elimination of the waiting period before benefits. The other was that in the three months following termination of the STC agreement, 16 percent of the work sharers were laid off — that is, about half the employees who were designated for layoff. Since the program did not reduce their eligibility for conventional UI benefits, these employees were able to draw benefits through both STC and the conventional program, thus raising costs. Both these factors, however, were peculiar characteristics of this program which are not inherent in the STC concept.

If the increased benefit cost of the current STC program were deemed unacceptable, a waiting period could be introduced, or the level of

benefits under STC could be lowered slightly to compensate for the absence of a waiting period. For example, reducing the level of STC benefits from .60 to .50 of normal earnings would more than offset the lack of a waiting period, but typical participants with a one-and-a-half day work reduction would still receive 85 percent (instead of 88 percent) of their normal weekly earnings. The impact of the program's costs could also be diminished by reducing the maximum amount of conventional UI benefits that a laid-off employee could draw by the amount of any UI benefits drawn through the STC program.

STC also reduces government expenditure by reducing the expense of dealing with the social costs of layoffs. Although such costs are difficult to measure with precision, rough estimates for their total suggest that, overall, STC is probably less expensive for the government than conventional UI benefits, which involve higher direct expenditure.

In an assessment of STC from the point of view of society as a whole, many of the effects wash out when aggregated over labour, management and government. For example, an increase in expenditure on fringe benefits involves a cost to the firm but a benefit to the employees, and result in no net gain or loss for society as a whole. The items that remain after aggregating are the savings on layoff, recall, hiring and training; the extra cost of administration; savings on the social costs of unemployment; and the effects on productivity. Omitting the last two variables because of lack of data, Employment and Immigration Canada calculated an overall benefit cost ratio of 1.3 for the STC program. Reid and Meltz (1984) attempted to assign a value to the savings on the social costs of unemployment, based on Brenner's work, and found that the benefit cost ratio increased to 5.7. It must be noted, however, that these benefit/cost calculations do not include the value to the workers themselves of the reduction in stress through the avoidance of layoffs, nor do they place a value on the more equitable distribution of income and leisure which characterizes work sharing. These are the most important advantages of the STC program.

Voluntary Work-Time Reductions

Employees differ considerably in their preferences for work schedules, and even though a standard work schedule can be expected to reflect the opinions of the majority of employees, there may be significant minorities who wish to work more or fewer hours. In a 1978 survey the U.S. Department of Labor attempted to assess the extent to which employees currently working full time would prefer to reduce their work time. The survey used a sample of 954 adults representative of the American population. Given the similarity of the Canadian and American cultures, the results of the survey are likely to be suggestive of preferences of Canadian employees as well. Respondents were asked what was the

TABLE 3-6 Employee Preferences for Reductions in the Work Week and the Workday, United States, 1978

Employment-Sharing Option	Percentage of Full-Time Employees Selecting Option	Reductions as Percentage of Total Work Time
Work week reduction		
No change	73.8	0
2% of income for 50 minutes off 1 workday each week	11.6	0.232
10% of income for 4 hours off each week	7.6	0.760
20% of income for 1 full work day off each week	4.5	0.900
40% of income for 2 full work days off each week	0.9	0.360
50% of income for 2½ full work days off each week	1.6	0.800
Total	100.0	3.052
Workday reduction		
No change	77.0	0
2% of income for 10 minutes off each day	8.7	0.008
5% of income for 25 minutes off each day	5.8	0.290
12% of income for 1 hour off each day	5.5	0.660
30% of income for 2 hours off each day	1.6	0.480
50% of income for 4 hours off each day	1.5	0.750
Total	100.0	2.188

Source: Fred Best, *Work Sharing: Issues, Policy Options and Prospects* (Kalamazoo, Michigan: Upjohn, 1981), pp. 38–39, and tabulations by the author.

maximum percentage of their current yearly income that they would be willing to give up in exchange for reduced work time under each of five employment-sharing options.

Table 3-6 presents the results for reductions in the work week and the work day. As expected, a clear majority (about 75 percent of the sample) indicated satisfaction with the current work week by responding that no change was their preferred option. Of the approximately one-quarter of the sample who indicated a preference for some reduction in the work week, 4.5 percent of the full-time employees indicated that they would be willing to give up 20 percent of their income to have one additional day off per week, effecting a reduction of 0.9 percent in total work time

TABLE 3-7 Employee Preferences for Reductions in the Work Year and the Work Life, United States, 1978

Employment-Sharing Option	Percentage of Full-Time Employees Selecting Option	Reductions as Percentage of Total Work Time
Increased annual vacation		
No change	57.8	0
2% of income for 5 extra days of paid vacation	23.2	0.464
5% of income for 12.5 extra days of paid vacation	8.5	0.425
10% of income for 25 extra days of paid vacation	6.2	0.620
20% of income for 50 extra days of paid vacation	2.2	0.440
33% of income for 87.5 extra days of paid vacation	2.0	0.660
Total	100.0	2.609
Introduction of sabbatical leave		
No change	57.4	0
2% of income for 7 weeks of paid leave after 6 years of work	24.4	0.488
5% of income for 17.5 weeks paid leave after 6 years of work	8.0	0.400
10% of income for 35 weeks paid leave after 6 years of work	4.8	0.480
15% of income for 52 weeks paid leave after 6 years of work	4.8	0.720
Total	100.0	2.088
Early retirement		
No change	64.0	0
2% of income for 5 days of early retirement per year worked	17.6	0.352
5% of income for 12.5 days of early retirement per year worked	8.1	0.405
10% of income for 25 days of early retirement per year worked	5.9	0.590
20% of income for 50 days of early retirement per year worked	4.4	0.880
Total	100.0	2.227

Source: Fred Best, *Work Sharing: Issues, Policy Options and Prospects* (Kalamazoo, Michigan: Upjohn, 1981, pp. 38–39), and tabulations by the author.
Note: Percentages may not sum to 100 percent because of rounding.

(i.e., .20 times 4.5 percent). Similarly, 1.6 percent of the full-time employees indicated a willingness to work 2.5 days per week and accept a 50 percent reduction in income, effecting a 0.8 percent reduction in total work time. A total of the preferences expressed for the various degrees of reduction in the work week indicated that 26.2 percent of full-time employees would prefer a shorter work week involving a total reduction in work time of 3.1 percent. The data in Table 3-6 indicate that 23 percent of employees were willing to work a shorter work day involving a total reduction in work time of 2.2 percent.

Employee preferences for various degrees of increased vacation, sabbatical leave, and early retirement, based on the same survey, are given in Table 3-7. The data indicate that 42.2 percent of employees were willing to give up some percentage of their annual income to obtain a proportionate decrease in work time in the form of increased annual vacation. The hypothetical reduction in total work time is 2.6 percent.

Somewhat surprisingly, since it is so rarely available in the work force, 42.6 percent of full-time employees also indicated that they would be willing to give up some proportion of their annual income for an extended paid leave after six years' work, with a total work-time reduction of 2.1 percent. Almost 5 percent of workers, for example, would be willing to give up 15 percent of their annual income in return for a full year of paid leave every seven years.

Early retirement was preferred by 36 percent of the employees in the sample, with a total reduction in work time of 2.2 percent. The most popular option was a 2 percent reduction in annual income to obtain five days of earlier retirement for each year worked.

It would not be appropriate to add up all the preferences for work-time reductions for the five employment-sharing options considered because there is a danger of double counting. Employees, for example, might have expressed a willingness to shorten both their work week and work year, when the options were presented separately, but it is not clear that they would wish to do both simultaneously. If only one employment-sharing option is counted for each employee (the one with the greatest proportionate reduction in work time), the data indicate that 59.3 percent of the respondents expressed a desire for employment sharing corresponding to a 4.7 percent reduction in total work time.

The amount of this reduction is small compared to total work time, but large relative to the degree of deficient demand unemployment. These numbers imply that if society were to help full-time employees who prefer such a reduction to reduce their work time voluntarily (and accept a proportionate reduction in income), and if this reduction were translated into increased employment, the unemployment rate could be lowered by almost 5 percentage points. The actual effect would be smaller, however, because it would be partly offset by induced increases in measured productivity.

Evidence reviewed in the following section suggests that there is enough slack in work patterns of many firms to allow for minor reductions in the work week without any change in output or employment. Given minor modifications to the work day (10 minutes per day) and work week (one hour per week), only a fraction (perhaps one-fifth) of the potential effect would be translated into increased employment (Gorres, 1981). More substantial work reductions, however (one hour or more per day, one day or more per week, sabbaticals and early retirement), would allow less scope for induced productivity effects to offset much of the increase in employment. Evidence suggests that under these circumstances about one-half of the work reduction would be translated into increased employment. Assuming a replacement rate of .2 for reductions of 5 percent or less, a replacement rate of .5 for reductions of 10 percent or more, and fixed participation rates, the 4.7 percent reduction in work time would translate into a 2.0 percentage point drop in the unemployment rate.

We might ask why employees who wish to work shorter hours do not do so to an optimal extent under existing arrangements. They could, for example, take part-time jobs to reduce their work week or save 15 percent of their income and withdraw from the labour force for a year after six years to obtain a quasi-sabbatical. The apparent reason why these options are generally not pursued is that employers impose economic penalties on employees who choose them. Part-time workers, for example, tend to be paid less than full-time employees even when both groups are doing identical work. Employees who give up their jobs after six years might lose seniority or fear that they might be denied promotion. According to conventional economic analysis, such "penalties" imposed by profit-maximizing employers in a competitive labour market must reflect true economic costs. It is also possible, however, that there is some element of non-rational discrimination in this behaviour (Wallace, 1983, p. 21). Most importantly, however, the employer in imposing those penalties has no incentive to take account of the benefit of employment sharing to society in terms of reduced expenditure on unemployment insurance and social assistance. The employer will thus permit less than the socially optimal amount of employment sharing.

Reductions in the Standard Work Week

The Canadian labour movement has advocated a reduction in the standard work week, without loss of pay, as a method of increasing employment. A complementary policy often suggested is to increase the overtime rate from time-and-a-half to double time. Such changes could be accomplished either by means of a change in employment standards legislation or by means of the collective bargaining process.

Starting from a standard work week of 40 hours, each one-hour

reduction without change in weekly pay is equivalent to a nominal wage increase of approximately 2.5 percent. For example, a reduction of weekly working time from 40 hours to 36 hours, with no reduction in the nominal weekly wage, if it were implemented over a typical two-year agreement, would be equivalent to an hourly wage increase of about 5 percent per year.[7]

Bob White, the Canadian director of the United Auto Workers, has expressed his union's position as follows: "Suppose in negotiations we have a six percent wage increase on the table. What's wrong with taking that increase as a three percent increase in weekly wages and three percent in reduced hours?"[8] In this example, the union's proposal for a reduced standard work week without a drop in pay simply reflects a desire to take a nominal increase in the hourly wage rate, partly in the form of reduced weekly hours and partly in increased weekly wages.

An alternative interpretation of the labour movement's proposal is that the reduction in weekly hours is meant to be implemented along with the usual increase in nominal weekly wages. Applied to the previous example, such a change is equivalent to an increase in the hourly wage of about an additional 5 percent per year. Although this interpretation may accurately reflect union objectives, it would be certain to generate intense opposition from employers. Any union with enough bargaining power to negotiate such an increase would have been able, instead, to negotiate a higher-than-average wage increase, neglecting any induced effect on productivity as a result of the reduction in work hours. In this sense, the union which negotiated reduced hours would, in fact, be trading off the reduction in weekly hours against a potential increase in weekly wages. For this reason, the proposed reduction in the standard work week will be assessed on the assumption that potential wage increases will be traded off for increases in leisure time, as proposed by the United Auto Workers.

As Table 3-2 indicated, the average full-time employee in Canada, excluding those who were absent from work during the reference week, worked 40.8 hours per week during 1983 at his or her main job. Simple calculations indicate that if average working time were reduced to, say, 35 hours per week, and if the reduced hours were translated into additional jobs, the result would be a 17 percent increase in full-time employment ($40.8/35 = 1.17$). It is likely, however, that the actual effects on employment would be considerably smaller because a policy of negotiated or legislated reductions in the standard work week is limited in a number of ways.

One limitation is the breadth of coverage of such changes. For most employees, legislation governing standard hours is superfluous because a lower standard has been set by personnel policies or collective bargaining. In five Canadian jurisdictions — the federal government, British Columbia, Manitoba, Saskatchewan, and the Yukon — employment

standards legislation specifies a standard work week of 40 hours. In most jurisdictions however — Ontario, Quebec, Alberta, New Brunswick, Newfoundland, and the Northwest Territories — the standard work week beyond which overtime is payable is 44 hours; in two other jurisdictions — Nova Scotia and Prince Edward Island — it is 48 hours per week.[9] These facts do not imply that changes in employment standards legislation could not affect hours worked, but it does mean that in most jurisdictions a significant reduction in the standard work week would be required before it began to have any effect at all on the work schedules of most employees. It is likely that considerably greater resources would need to be devoted to enforcement if the legislation became a binding constraint on a substantially larger number of employment relationships.

Another limitation on any legislated change in the standard work week is that many employees already work fewer than 35 hours per week (28.2 percent according to Table 3-1). In addition, a legislated reduction in the standard work week would have no effect on those employees who are not covered by the overtime provisions of employment standards legislation. In Ontario excluded groups include managerial and supervisory employees, most professional groups, commission salespersons who work away from the employer's establishment, employees in fishing and farming, taxi drivers, firefighters and domestic servants (Ontario Ministry of Labour, 1984, s. 6). Nor would such a reduction have any effect on persons who worked hours in excess of the standard work week on a second job. A reduction in the standard work week negotiated through collective bargaining would not suffer from any of the drawbacks cited above. The effect would still be less than universal, however, because fewer than 60 percent of employees are covered by collective agreements and only about 40 percent are union members (Chaison, 1982, p. 150). In addition, some unions may have insufficient bargaining power to negotiate reduced standard hours as a trade-off against potential wage increases.

A further problem with negotiated or legislated reductions in the standard work week is that some employers may find that it costs them more to hire additional workers than to maintain existing employment levels and pay additional overtime. This would tend to occur in situations where hiring and training costs or other person-specific costs of employment are particularly high or where a firm is unable to find additional employees with the appropriate skills to fill certain jobs.

It has been suggested that legislated or negotiated reductions in standard hours often induce a productivity increase which partly or totally offsets the increase in employment. When the standard work week in France was reduced in 1982 from 40 to 39 hours, for example, most firms adapted with very little change in work patterns: "Nearly one reduction in two took the form of earlier closing on Friday evenings. Nearly one in

four was achieved as the result of a 12-minute reduction at the end of each day" (Barou, 1984, p. 10). According to government preferred estimates, the 2.5 percent reduction in average hours increased employment by only 0.5 percent. Estimates made by another government agency suggest that the effect on employment was even smaller and the induced productivity effect correspondingly larger (Barou, 1984, p. 12). Similarly, a reduction of the work week in Belgium by one-half to one hour, legislated in 1983, has had a minimal effect on employment. Following a review of the European empirical evidence on the extent of the induced productivity effect, Gorres (1981, p. 15) writes:

> There exist astonishingly coherent results from empirical studies across several countries and distinct time periods. Most reported values vary between .3 and .7 (that is, any reduction in weekly hours is compensated 30 percent to 70 percent by a rise in hourly productivity) and show a strong average and median around .5.

The finding of induced productivity effects appears, at first glance, to be inconsistent with the conventional assumption of profit maximization, since if shortening the work week could increase productivity, a profit-maximizing firm should take this step voluntarily. An alternative interpretation, however, is that the normal work schedule involves a pace of work that includes some time for socializing and other leisure activities on the job. For example, a Canadian survey conducted in 1982 indicated that the average employee engaged in "time theft" for 3 hours and 42 minutes per week (Half, 1984). Since it is likely that on-the-job and off-the-job leisure are good substitutes, the legislation of a shorter standard work week might simply induce the substitution of one for the other. According to this interpretation, the induced productivity effect is not a true productivity increase, but rather an increase in measured productivity resulting from a reduction in leisure on the job. Since the parties, when given a choice, voluntarily negotiated the longer standard work week, their choice seemed to represent the preferred solution and to indicate that employees might consider themselves worse off as a result of an induced "productivity increase."

Another factor to be considered in estimating the effect of a legislated or negotiated reduction in the standard work week is the impact on the total hours of employment. An implicit assumption in the simple calculations is that the firm's output level and demand for total hours of labour remain constant. Hourly labour costs may increase, however, as a result of the increase in person-specific costs, an increase in the number of hours worked at overtime rates, and perhaps an increase in the overtime rate from time-and-a-half to double time. Even if the firm reduces planned overtime because of a rise in overtime rates, there will still be a component of unplanned overtime which arises from machine breakdowns and other unforeseen circumstances. The induced productivity

effect, however, will moderate any increase in labour costs which would otherwise occur.

Both economic theory and empirical evidence indicate that an increase in labour costs will result in a decline in total hours of employment. The elasticity of demand for labour, which measures the percentage change in hours per percentage rise in wage costs, was found to range from -0.1 to -0.6, with a median of about -0.3, in a review of the empirical evidence made by Hamermesh (1976). A careful study by Black and Kelejian (1970) estimated an elasticity of labour demand for working hours of about -0.4.

Hamermesh and Rees (1984, p. 133) also estimate that if the overtime premium in the United States increased from time-and-a-half to double time, with no change in the proportion of time worked as overtime, total hours of employment would decline by about 0.5 percent. Nussbaum and Wise (1978, p. 327) have estimated the effect of such a policy change, allowing for an induced reduction in the number of overtime hours. They suggest that, on the same condition, overtime would be reduced by about half, equivalent to about 4 percent of total labour hours. This hypothetical reduction in overtime hours was estimated to be divided about equally between a 2 percent increase in employment and a 2 percent reduction in total labour hours.

A final effect to be considered is that the skills of the unemployed might not match the job vacancies created by the increase in employment. This possible difficulty implies that the economy is characterized by a structural unemployment problem rather than by the deficient demand employment problem which employment sharing was designed to address.

In sum, negotiated or legislated reductions in the standard work week would not affect all employees in the economy, and in those situations in which it did have an effect, the increase in employment would be offset to some extent by increased use of overtime, an induced productivity increase, and a reduction in total hours of employment stemming from a rise in costs. European experience suggests that a cautious reduction of one or two hours per week will have little or no impact on employment. A bold legislated or negotiated reduction in the standard work week from its current level to, say, 35 hours per week might, however, bring about a substantial increase in employment.

Eliminating Barriers to Employment Sharing

In terms of the theoretical framework outlined at the beginning of this paper, it was argued that efficiency would be reduced by any artificially imposed barrier which inhibits optimal adjustment of employment and working hours. This argument applies whether or not the economy is experiencing deficient demand unemployment. Several instances of

such barriers arise as a result of employment standards and labour relations legislation which has generally been written with full-time employees in view.

One problem is the ceilings on payroll taxes. Workers' compensation legislation in all jurisdictions and Canada or Quebec Pension Plan (CPP or QPP) legislation, covering all employees, requires employers to contribute a specified percentage of each employee's annual earnings up to a ceiling level per employee. For unemployment insurance, employers are required to pay premiums on earnings up to a weekly ceiling level per employee (3.22 percent of earnings up to a maximum insurable earnings level of $425 per week per employee in 1984 (Canada, EIC, 1984b). The purpose of the ceilings is to prevent benefits, which are also proportional to earnings up to the ceiling, from reaching an unseemly high level for high-income earners.

An unintended effect of the ceiling, however, is to create a person-specific cost for individuals earning compensation above the ceiling, since any portion of earnings above the ceiling is exempt from contribution. If hours are reduced and additional employees are hired, the proportion of earnings subject to contribution will rise. The annual ceilings on CPP/QPP and workers' compensation thus create a barrier against working less than a full year; the weekly ceiling on UI creates a barrier against working less than a full week. The ceiling will, of course, have no effect if the earnings of full-time employees are below its level. Simulations by Meltz, Reid and Swartz (1981) indicate that as a result of the ceilings on these statutory benefits, the replacement of one full-time by two half-time employees would increase labour costs by up to 2.5 percent, depending on the initial earnings level. The effect is directly related to the proportionate reduction in hours.

It would be desirable to eliminate these artificial barriers to employment sharing, since the bias toward longer hours and fewer employees introduces an inefficiency into the labour market. Simply to eliminate the ceilings on contributions is inappropriate, however, since the ceilings do have a social purpose. A better solution is to base unemployment insurance, workers' compensation, and Canada or Quebec Pension Plan premiums on hourly earnings and to impose a ceiling on hourly earnings, subject to contribution. This solution would eliminate the bias against employment sharing while maintaining the function of the ceilings. The weekly or annual earnings basis for premiums might have to be retained, however, in situations in which it is impractical to measure weekly hours. This is not a serious drawback, because policies to reduce weekly hours would also be impractical in such situations.

Employment standards legislation typically requires employees to have engaged in a minimum continuous period of employment in order to be eligible for benefits such as paid public holidays and the right to notice of termination of employment. For example, the Canada Labour

Code entitles an employee to nine paid holidays, provided that the individual has been employed for at least 30 days and has worked at least 15 days in the 30 calendar days preceding the holiday. This provision would disqualify an individual who worked only three days per week, although it would not affect an individual who worked only four hours per day. The bias against some types of employment sharing could be eliminated while the thrust of the employment continuity requirement could be retained by specifying, for example, that the employee must have worked at least 60 percent of his or her normally scheduled hours in the previous 30 days.

Another bias against employment sharing results from the administrative practice of some labour relations boards of specifying separate bargaining units for part-time employees. The Ontario Labour Relations Board, for example, generally excludes employees who work fewer than 24 hours per week from the bargaining unit for full-time employees. Groups of part-time employees are entitled to certification as separate bargaining units. An implication of segregating part-time employees is that a full-time employee who opts to reduce his or her weekly work time to 20 hours in order to engage in job sharing may no longer be covered by the wages and benefits provided in the collective agreement. The Ontario Labour Relations Board has expressed the view that full-time and part-time employees do not share a sufficient community of interest to be included in the same bargaining unit. The recent Commission of Inquiry into Part-time Work, however, found that the practice of segregating part-time employees contributed to their inequitable wages and working conditions. The commission recommended that labour relations boards include all part-time employees, both regular and casual, in the same bargaining unit as full-time employees (Wallace, 1983, p. 31). To adopt this recommendation would also have the beneficial effect of eliminating a potentially significant bias against employment sharing in the economy.

Privately negotiated fringe benefits can also create an unintended bias against employment sharing. Table 3-8 shows expenditures on fringe benefits in Canada during 1978, the most recent year for which published data are available for Statistics Canada's occasional survey of compensation costs. The table indicates that fringe benefits add almost 33 percent to straight time pay for hours worked. Although many of these expenditures are proportional to hours worked, some, such as medical, dental and life-insurance benefits, are person-specific costs which inhibit employment sharing. If employer contributions to these plans were prorated according to the number of hours worked, they would no longer be a barrier to employment sharing. Since such a change would not significantly increase administrative costs, prorating should be encouraged through collective bargaining, personnel policies or legislation.

During periods of deficient demand unemployment, employment sharing has additional positive effects on third parties. The additional

TABLE 3-8 Fringe Benefit Expenditures, Canada, 1978 (per employee)

Item	Average Annual Expenditure per Employee ($)	Percentage of Total Employee Station	Percentage of Basic Pay for Regular Work
Compensation			
Basic pay for regular work	12,301	74.6	100.00
Commissions, incentive bonuses	263	1.6	2.14
Overtime, including premium pay	522	3.2	4.24
Shift-work premium pay	46	0.3	0.37
Other premium pay	53	0.3	0.43
Total pay for time worked	13,185	80.0	107.18
Paid absence			
Paid holidays	586	3.6	4.76
Vacation pay	794	4.8	6.46
Sick-leave pay	170	1.0	1.38
Personal or other pay	27	0.2	0.22
Total paid absence	1,577	9.6	12.82
Miscellaneous direct payments			
Floating COLA	61	0.4	0.49
Bonuses (Christmas, etc.)	51	0.3	0.42
Severance pay	30	0.2	0.24
Taxable benefits			
Provincial medicare	82	0.5	0.67
Other benefits	57	0.4	0.46
Other payments	28	0.2	0.23
Total miscellaneous direct payments	310	1.9	2.52
Gross payroll (total direct payments)	15,071	91.4	122.51
Employer contributions to employee welfare and benefit plans			
Worker's compensation	186	1.1	1.51
Unemployment insurance	209	1.3	1.70
Canada or Quebec Pension Plan	161	1.0	1.31
Private pension plans	558	3.4	4.53
Quebec Health Insurance Board	59	0.4	0.48
Private life and health plans	203	1.2	1.65
Other benefit plans	33	0.2	0.27
Total	1,410	8.6	11.46
Total employee compensation	16,481	100.0	133.97

Source: Statistics Canada, *Employee Compensation in Canada, All Industries, 1978*, Catalogue 72-619 (Ottawa, 1981).

employment created through employment-sharing policies benefits those workers who would otherwise be unemployed as well as taxpayers in general, who pay less in terms of transfer payments and social services to deal with the consequences of unemployment. In these circumstances there are arguments for government policies to provide additional incentives for employment sharing for the duration of a period of deficient-demand unemployment. As indicated above, the British government, in 1983, adopted such a policy by giving a grant of £750 to firms which split a full-time job in half for a period of at least 12 months. Similar policies to facilitate job sharing, as well also as other forms of employment sharing during periods of high unemployment, seem to warrant serious consideration in the Canadian context. They are appealing on grounds both of efficiency and of equity.

Conclusions

The short-time compensation program introduced in Canada in 1982 was judged to be desirable from the viewpoint of both efficiency and equity. Essentially, this program eliminates an institutional barrier which biased firms toward layoffs rather than reductions of working hours when responding to reductions in labour demand.

A survey revealed that almost 60 percent of full-time employees would be willing to give up some portion of their annual income to achieve a proportionate reduction in work time in the form of a shorter work day, a shorter work week, a long annual vacation, a sabbatical leave or earlier retirement. The overall work-time reduction would total about 5 percent, an amount which is small in terms of total work time, but which could have significantly reduce unemployment.

The proposal to promote reduced hours by legislating a lower standard work week was found to suffer from several administrative drawbacks which would weaken its effect on employment. Many of those persons now working long hours would not be affected by such a change because they are exempt from employment standards legislation or because their excess hours of work are devoted to a second job. European experience has shown that much of the effect of small reductions in working time, on the order of an hour per week, can be absorbed by the existing employees working somewhat faster on the job. This induced productivity effect offsets much of the potential employment generating effect of the policy. For larger legislated reductions of work time, however, the induced productivity effect will likely be less important, and a greater proportion of the potential effect on employment will be translated into an actual increase in jobs.

Several legislative barriers which create an unintended bias against reductions in hours worked were identified above. They create inefficiencies and should be eliminated, even if there is not a problem of

deficient demand unemployment. Specifically, it is recommended that ceilings for unemployment insurance, the Canada or Quebec Pension Plan, and workers' compensation be expressed in hourly rather than weekly terms. Employment standards legislation should be reviewed to ensure that it does not inadvertently discriminate against part-time workers in eligibility requirements for legislated benefits. Labour relations boards should, as far as possible, integrate bargaining for full-time and part-time employees. Similar comments apply to privately negotiated benefits such as life, health and dental insurance. Employer contributions should be prorated to hours worked, to avoid inducing a bias against employment sharing and economic inefficiency.

During periods of deficient demand unemployment, the existence of positive results for the Canadian economy from employment sharing suggests that government policy should move from a passive policy of permitting employment sharing to an active policy of encouraging it. While such policies are certainly not a panacea, they can make a small but significant contribution to the battle against unemployment.

Notes

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1. Presumably, the 7.4 percent of employees who worked zero hours during the week mainly represents persons on vacation.
2. The models also include other factors. The most comprehensive model is the Newton and Leckie paper which uses a simultaneous equations model of both supply and demand for hours disaggregated to eight major industries. Child-rearing costs and recreational costs are included as additional variables in the supply equations, and labour productivity and capacity utilization are included in the demand equation.
3. Under Canada's conventional unemployment insurance rules (Unemployment Insurance Act, 26.4) an employee can draw benefits if unemployed part of the week, but any earnings in excess of 25 percent of the weekly benefit are deducted from benefits paid. As a result, work sharing is more attractive than conventional UI over the relevant range of reductions in working hours (i.e., situations in which work-sharing employees continue to work two or more days per week).
4. The weekly income of employees with earnings above the ceiling level ($425 per week in 1984) would be a slightly lower percentage of normal weekly earnings. For example, the weekly income of an employee earning 1.5 times the ceiling level ($33,150 per year) would be 82 percent of normal weekly earnings for a per week reduction of one-and-a-half days.
5. In terms of a conventional microeconomic leisure choice diagram, a typical employee is assumed to be in equilibrium at the initial full-time work week at a tangency between an indifference curve and a budget line. The introduction of an STC program means that an extra hour of leisure can now be purchased at a lower cost as a result of the UI subsidy. The STC program creates a kink in the budget line which allows the employee to move to a higher indifference curve with an increased level of satisfaction. See Reid (1982) for further details.
6. See Reid and Meltz (1984) for further details on these cost estimates.

7. A reduction from 40 hours to 36 hours with no loss of pay is equivalent to increasing the nominal wage to 40/36 = 1.111 times its previous level. This is equivalent to a compounded wage increase of 5.41 percent per year for two years.
8. Paraphrase of an interview on "The Journal," CBC Television, June 30, 1984.
9. Legislation in effect in 1982 is summarized in Labour Canada (1982). Original sources are the employment standards acts in the various jurisdictions.

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4

A Survey of Research on the Work Behaviour of Canadian Women

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MASAO NAKAMURA

Women have been entering the labour force in unprecedented numbers. Their increasing participation has been, and will probably continue to be, accompanied by fundamental changes in our society — in terms of family structure and finances, patterns of consumption, the incidence of poverty among women, competition for available jobs, and political pressure for legislative and legal changes of interest to women. Women have also been the most volatile component of the labour force. Understanding and predicting the labour supply and earnings of women is thus crucial to predicting the total labour supply, as well as for foreseeing and preparing for further social change related to the increased participation of women.

Questions of equity concerning opportunities for women to work and their remuneration from work are not dealt with in this study. Nor do we try to assess measures that might be taken to improve the labour market conditions of Canadian women.[1] Rather, this study surveys the available research on the determinants of the labour supply and earnings of women in Canada, and seeks to draw from the literature an explanation for the historical increase in the labour supply of women and insights into the future labour force behaviour of Canadian women.

We begin by reviewing some of the general studies of the labour force behaviour of women in Canada and elsewhere. We summarize the consensus that seems to have emerged concerning the effects on the work behaviour of women of such factors as numbers and ages of children, husband's income, education, and certain area or nation-wide variables, as well as the effects of the wage offers that women receive. We next take a critical look at the extent to which these behavioural

findings appear to be able to account for the observed historical increase in the labour supply of women, and particularly of married women.

In the following section, we consider the importance, in a research and forecasting context, of the heterogeneity of women. By heterogeneity we are referring to the phenomenon that women who are the same in terms of characteristics such as age and education, on which researchers normally have data, may still differ in terms of persistent unobservable factors such as tastes for work, and may in consequence exhibit related persistent differences in work behaviour. One problem associated with such differences, or heterogeneity, is that observable factors such as education and child status may be correlated with, and hence may act as proxies for, the effects on work behaviour of unobservable factors such as tastes for work. Such factors must be taken into account in econometric studies, as they crucially affect the inferences, policy analyses and predictions concerning the work behaviour of women. We briefly summarize some of our own research findings related to this question. A variety of implications of these findings are presented and loosely related to the economics literature in the final sections of this study.

Historical Increases in Female Labour Supply

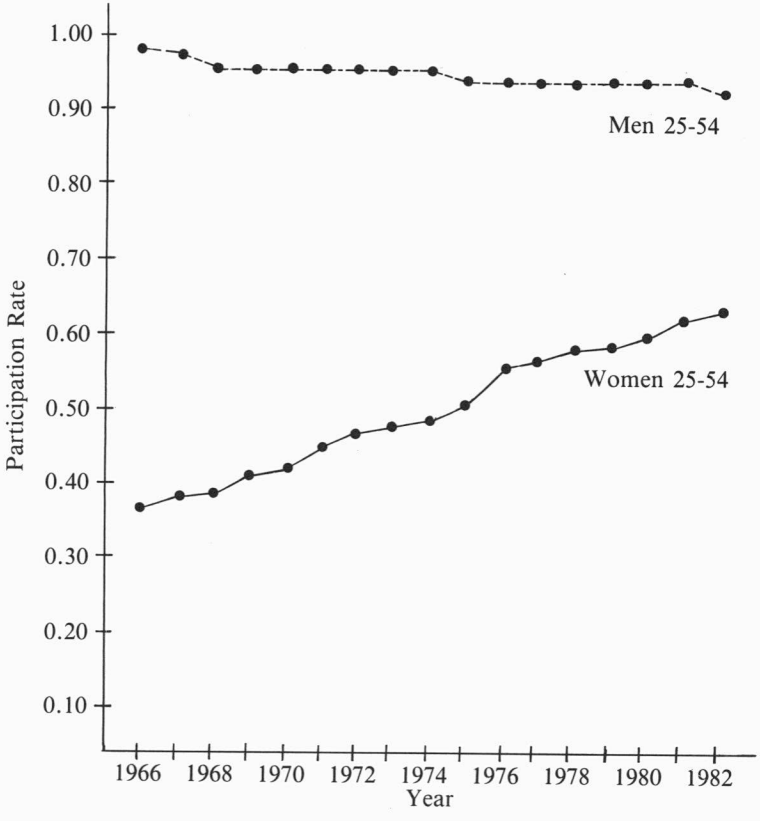
Canadian women have always worked — in the home as well as outside the home. Now, growing numbers of women in Canada are heading off to earn wages and salaries or to reap the returns from self-employment. That is, growing numbers of women are working for pay or profit. Since this study is about them, for convenience we will use the term "work" to refer to work for pay or profit.

A few figures will illustrate the magnitude of the phenomenon. In Canada in 1950, 20.5 percent of all women (defined here as at least 20 years of age) worked some time during the year, and women made up 24.1 percent of the adult work force.[2] Thirty years later, 56.2 percent of all women worked some time during the year and women made up 41.0 percent of the adult work force.[3] Further, we see from Figure 4-1 that while the labour force participation rates for prime-aged women have been rising steadily, the labour force participation rates for prime-aged men have actually been falling slightly.

These figures mask even greater changes over time in the labour force behaviour of married women and men. In 1950, only 9.5 percent of married women worked,[4] less than half the employment rate for all adult women. But by 1980, 55.9 percent of married women worked at some time during the year,[5] almost the same as the 1980 rate for all adult women. The recent trends in the labour force participation rates for married women and men and for single women and men are shown in Figure 4-2.

In this study we try to explain the findings of research studies relevant

FIGURE 4-1 Average Labour Force Participation Rates for Women and Men 25-54 Years of Age, Canada

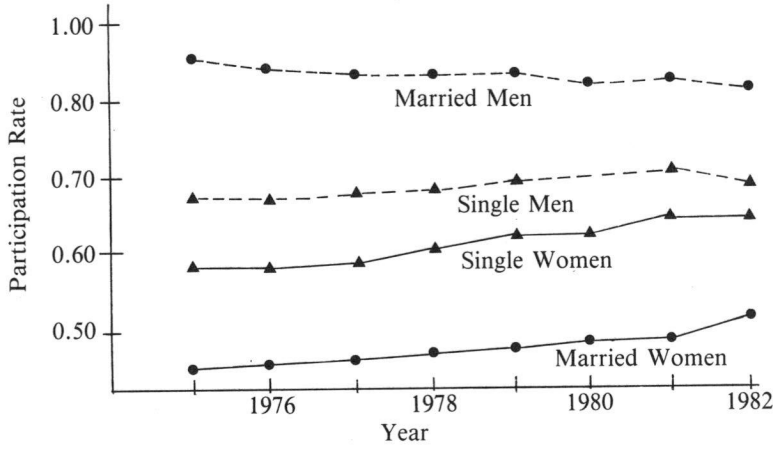


Source: Statistics Canada, *Historical Labour Force Statistics — Actual Data, Seasonal Factors, Seasonally Adjusted Data, 1982* (Ottawa: Minister of Supply and Services Canada, 1983), pp. 222–28.

to the focus of our paper in language that can be understood by those who are interested in and aware of economic happenings, but who are not familiar with the jargon of labour economics and econometrics. Nevertheless, some terms used in our discussion may still be unfamiliar to the lay reader, and we will define them here before describing the types of studies included in our research. For the student of labour economics or readers with more specialized interests, our footnotes provide related references and details.

First of all, a person is said to *participate in the labour force* during a given time period such as a year or a week if that person either worked or was classified as unemployed (i.e., looked for work but did not work) during this time period. Those who neither worked nor were unem-

FIGURE 4-2 Average Labour Force Participation Rates for Women and Men by Marital Status, Canada



Source: Statistics Canada, *Historical Labour Force Statistics — Actual Data, Seasonal Factors, Seasonally Adjusted Data, 1982* (Ottawa: Minister of Supply and Services Canada, 1983), pp. 222-28.

ployed are not in the labour force. A person's *work behaviour* may be characterized by whether the person worked in a given time period, and by the person's wage rate and hours of work in the time period if the person worked. When the unit of time used in studying the work behaviour of individuals is fairly long, such as a year, there are many ways in which hours of work can vary. Annual hours, for instance, will be less for those who do not work at all during one or more weeks; in weeks of work, some individuals may work more days than others; and, on days of work some individuals may work more hours than others. However, in most studies where hours of work are defined with respect to some unit time interval such as a year, no attempt is made to consider or explain differences among individuals in how their hours of work are distributed over the interval. By a person's *earnings history* we mean the record of the earnings of the individual over a number of time periods, and by a person's *employment history* we mean the observed sequence of periods of work and nonwork for the person over a number of time periods.

Further, much of the data on labour force behaviour collected by government agencies is collected from individuals. Often these data are *aggregated*, or added up, in some way before being released to the public. If the unit of aggregation is Canada, and if the same aggregated information is available over a period of years, we call this data *aggregate time series data* for Canada as a whole. If the units of aggregation are regions or provinces, and if data are available at one or more points in

time for several of these geographical regions, we call this *aggregate data for regions* of Canada.

Assessing the Available Data

In virtually all the earlier studies of the labour force participation, employment earnings of Canadian women (as well as men) were based on aggregate time series data for Canada or for regions of Canada.[6] Aggregate time series studies have several inherent advantages. First of all, the phenomenon of the historical rise in the labour supply of women is one that has occurred over time, as successive cohorts of women have moved through the various stages of their life cycles. Also, changes in macro variables such as the national unemployment rate or the Consumer Price Index can only be observed over time, and it is only over time that changes in such variables can be related to changes in the labour force behaviour of women. In studies based on aggregate data for geographic regions within Canada, there is the possibility of relating regional differences — for instance, in the unemployment rate or job opportunities — to observed regional differences in the labour force behaviour of women. Regional variation is of interest in its own right. It is sometimes argued as well that empirical results concerning the responsiveness of the labour force behaviour of women to regional differences in variables, such as the unemployment rate, can be used as a basis for inferring how this behaviour would be affected by changes in these variables over time.

One drawback to studies based on aggregate time series or regional data, however, is that it is difficult to control for shifts over time, or from region to region, in the proportions of the population with certain types of characteristics that affect their labour force behaviour. For instance, women with many children may be less willing than otherwise to consider working for pay because of the time and effort they must devote to caring for their children. In fact, the average number of children in Canadian families has changed over time, and has been systematically different as well from region to region in Canada. Also, older women might be expected to be less likely to start or to continue working than younger adult women, because of the increased incidence of illness and disability as people age, and also perhaps because of discrimination in the work place against older workers and particularly against older women. The age distribution for the Canadian population has changed over time, and exhibits regional differences as well. Controlling for changes of this sort in the composition of the population is a difficult econometric problem. However, compositional changes could well hold part, or all, of the answer to why the labour force behaviour of Canadian women has changed as it has over time. Thus we would like not only to control for, but also to measure the responses of the aggregate labour

force behaviour of Canadian women to various sorts of compositional changes. The proper measurement of behavioural responses to compositional change in studies based on aggregate data would appear, however, to be an even more difficult task than the task of simply controlling for these changes.

The earlier studies of the labour force behaviour of Canadian women (and men) were based on aggregate data in part at least, because until recently these were the only sort of data generally available for research of this sort. A small number of early cross-sectional studies were carried out in Canada using confidential micro, or individual, data from government surveys.[7] More recently, however, many cross-sectional studies of the labour force behaviour of Canadian women have been carried out using micro data from the Individual and Family Public Use Samples from the 1971 Canadian census,[8] in which information on individual characteristics is provided for a sample of persons or families.[9] In *cross-sectional studies* based on micro data, it is possible to take account of the characteristics of each individual in the data base, and to relate differences in the observable characteristics of individual women to differences in their observed labour force behaviour. It is also possible explicitly to include macro variables describing, for instance, regional unemployment conditions or the regional industrial or occupational structure.[10]

One disadvantage of cross-sectional studies, however, is that it is not possible to study the impact of factors that have only changed over time. For instance, the national unemployment rate is the same for all individuals in a given year. Moreover, the observed impacts of regional variables on the labour force behaviour of individual women (or men) may reflect both the direct effects of these variables and proxy effects of other, unobserved variables which differ systematically by region in such a way that they are correlated with the regional macro variables included in a particular study.

A second disadvantage of cross-sectional studies is that it is not possible to control for fixed or persistent unobservable individual-specific factors, such as ability or tastes for home-oriented versus market-oriented activities, which may affect the labour force behaviour of individuals year after year. This is believed to be the main reason why models of the labour force behaviour of women based only on current variables, such as are available in cross-sectional data bases, do not properly capture the observed continuity of the employment and earnings of individual women when they are used to simulate this behaviour over even short periods of time. In particular, it has been shown that when pure cross-sectional models are used to simulate the employment and earnings behaviour of married women over some period of years, too few women are simulated not to work at all or to work in all years, with related distortions in the associated distribution of individual

income cumulated over the simulation time period.[11] It is also argued in the literature that failure to control for fixed or persistent unobservable individual effects may result in bias problems,[12] because of correlations between unobservable factors and the explanatory variables included in models of work behaviour. Bias problems of this sort, and problems in properly predicting individual employment and earnings behaviour over periods of years, are particularly severe for demographic groups such as married women where many individuals either work very little or do not work at all in any given year.

All the methodologies that have been proposed for controlling for, or actually measuring, the impact of fixed or persistent unobservable individual effects require panel data[13] or at least cross-sectional micro data augmented by certain information about the work behaviour of the individual for the year prior to the year for which current employment and earnings data are available. In a *panel data* set we have micro data for the same sample of individuals over a period of years. Thus it is possible to follow, for instance, how an individual's earnings have changed from year to year, and to relate these year-to-year changes to changes over time in other observable characteristics of the individual. Most of the studies employing these methodologies have used U.S. panel data from sources such as the Michigan Panel Study of Income Dynamics.[14] Data of this sort are not publicly available in Canada. Yet it has long been clear that Canadian labour markets and the labour force behaviour of Canadian women do differ in important respects from the U.S. experience.[15]

We close this section by pointing out that it is still difficult to measure properly the impacts of macro variables in studies (for women or men) based on panel data, which may contain information on quite a large number of individuals but for only a small number of years.[16] The time period over which information is available in panel data bases is typically not long enough to allow for much variation over time in macro variables such as the unemployment rate. Additional problems of estimation and hypothesis testing are introduced by the fact that for national macro variables, every individual for whom data are available will have identical values for these variables in any given year. When efforts are made to overcome these problems by using regional instead of national macro variables, the estimated responses to these variables may reflect both the direct effects of these variables and proxy effects of other unobserved variables which differ systematically by region.[17] Thus, even when panel data are used estimation problems still exist.

Findings of Recent Studies

Despite the considerable technical differences emphasized in the academic literature between studies based on cross-sectional data and those

based on panel data, and despite the fact that most of the panel data studies only examine the behaviour of women who have been continuously married over some specified number of years, both kinds of studies yield similar qualitative conclusions with respect to the impacts of certain key variables on the work behaviour of women. The aspects of work behaviour most commonly dealt with are the probability that a woman will work in a year, and her hourly wage rate and annual hours of work if she does work. We will briefly summarize the findings of most cross-sectional and panel studies concerning the effects of several variables on these three aspects of work behaviour.

The most important determinants of the probability that a woman will work and of her annual hours of work if she does work are typically found to be child status variables.[18] Many aspects of the child status of a woman may potentially affect her labour force behaviour: how many children she has, how old she was when her first child was born, how old her youngest child is now, and so forth. A woman's work behaviour may also be affected by important interactions between her child status and aspects of her circumstances such as the income level of her family, her educational level and the educational level of her husband. For instance, it has been argued that there is evidence that women who are more educated place a higher value on caring for their children themselves.[19] In most studies of the labour force behaviour of women, child status is characterized in a parsimonious fashion. Typical characterizations are the use of a single dummy variable to indicate the presence or absence of a child younger than, say, six years of age; the use of a group of dummy variables to indicate the presence or absence of children in various combinations of age groups such as younger than six only, six to fourteen years of age only, or both younger than six and six to fourteen; and the use of a continuous variable for the number of children in the family younger than, say, eighteen years of age.[20] Attempts at more complex representations of the child status of women have met with limited success.[21]

In study after study, the usual finding has been that the presence of children, and particularly the presence of children younger than six years of age, substantially reduces both the probability that a woman will work and her expected hours of work if she does work.[22] The child status variables are not usually hypothesized to have any direct impacts on the wage rates of working women.[23] However, if child status variables do affect who is found to work, and if unobservable characteristics that act to determine which women work are correlated in a stable fashion with unobservable characteristics that affect wage rates, then there may be indirect effects of the child status variables on both the hours of work and the wage rates of women who work. In many more recent studies, such indirect effects are thought to be captured through the introduction of what has come to be called a selection bias term in the behavioural

relationships for the hours of work and wage rates of women who work.[24] No clear consensus has emerged in the literature as to whether the signs of the indirect effects are positive or negative.[25]

The variables typically found to be the second most important determinants, after child status variables, of the probability of work and hours of work of married women are husband's income variables, whether the husband's income is measured in nominal or real terms, or before or after correction for income taxes. Higher values of whatever variable is used for husband's income are virtually always found to be associated with lower probabilities of work and with fewer expected hours of work for women who do work.[26] These negative effects are usually explained in the context of economic theory as representing income effects.[27] The income of the husband is not usually hypothesized to have any direct effects on the wage rates of wives who work. However, for the same sorts of reasons discussed above with respect to child status variables, there may be indirect impacts of a husband's income variable on the hours of work and the wage rates of wives who work. There is no consensus in the literature, however, as to the signs of these indirect impacts.

Years of education is the variable that is nearly always found to have the greatest impact on the wage rates of women.[28] The finding is that women with higher levels of education have higher expected wage rates. The probability of working is also found to be positively related to a woman's educational level. Education is usually specified on theoretical grounds to have no direct impact on the hours of work of women who do work.[29] Nevertheless, for reasons similar to those discussed above for the child status and husband's income variables, education is often hypothesized to have indirect effects on both the hours of work and wage rates of women who work owing to selection bias, although there is no agreement as to the signs of these indirect effects. In the behavioural models usually adopted, a working woman's level of education also indirectly affects her hours of work through the impact of her wage rate on the determination of her hours of work. Since the direct impact of a working woman's level of education on her wage rate is always found to be positive, the indirect impact on her hours of work, via her wage rate, will be positive if her hours of work are positively related to her own wage rate and negative if the hours-wage relationship is negative.

So far, we have considered mainly individual circumstances, or micro variables, but macroeconomic conditions are also important in determining work behaviour. Individuals receive wage offers, decide whether or not to work, and how many hours to work if they do work, in the context of current labour market conditions in the nation, or perhaps in the region, in which they live. For instance, when macroeconomic conditions are poor, many individuals may fail to receive any wage offers high enough to make it worthwhile to work.[30] The same set of macroeconomic conditions, however, may have quite different impacts on

TABLE 4-1 Percentage Distribution of Female Labour Force by Occupation, Canada, 1951, 1961, 1971, 1981

Occupation	1951	1961	1971	1981
Managerial	3.3	3.3	2.0	5.2
Natural Sciences, Engineering	0.4	0.4	0.6	1.1
Social Sciences	0.5	0.7	1.0	2.0
Religion	1.0	0.6	0.1	0.2
Teaching	6.7	7.3	7.1	6.0
Medicine and Health	6.5	8.6	8.2	8.4
Artistic	0.9	1.1	0.7	1.4
Clerical	30.1	30.6	31.8	35.2
Sales	8.8	8.4	8.4	9.0
Service	19.5	19.5	15.1	15.0
Farming	2.8	4.3	3.6	2.2
Other Primary	0.0	0.0	0.1	0.2
Processing	4.9	2.7	2.0	2.1
Machining and Fabricating	10.2	7.2	5.5	5.1
Construction	0.3	0.2	0.2	0.3
Transport	0.1	0.1	0.3	0.6
Other	2.7	2.7	2.6	2.3
Unspecified	1.1	2.4	10.8	3.6
All Occupations	100.0	100.0	100.0	100.0

Source: A. Nakamura, M. Nakamura and D. Cullen in collaboration with D. Grant and H. Orcutt, *Employment and Earnings of Married Females* (Ottawa: Statistics Canada, 1979, Table 2.3); D. Cullen and A. Nakamura, "Canadian Historical Comparison: The Impact of Differing Occupational and Industrial Structures on Women's Labour Force Participation," paper presented at the Canadian Sociology and Anthropology Association Meeting, Fredericton, N.B., June 1977, revised and updated 1985.

the work behaviour of individuals in various demographic groups such as married women, younger unmarried women, prime-aged men, and so forth.

The macro variables most commonly hypothesized to affect the probability of work and wage rates of individual women are national and regional unemployment rate variables.[31] In empirical studies these unemployment rate variables have usually been found to be negatively related to the probability of work, but have often been found to have either a positive relationship or no relationship to the wage rates of those who work.[32] Thus the mechanism by which macro unemployment conditions affect the work behaviour of individual women may not be via the wage offers received by those women who continue to be employed, and some researchers have looked for direct impacts instead.[33] In most studies, however, the behavioural models adopted assume there are no direct effects, and allow only for indirect effects of macro unemployment on the hours of work. There is no consensus concerning the signs of indirect effects.

There have also been attempts to try to measure the impacts of

TABLE 4-2 Percentage Distribution of Total Labour Force by Occupation, Canada, 1951, 1961, 1971, 1981

Occupation	1951	1961	1971	1981
Managerial	8.5	8.8	4.3	8.4
Natural Sciences, Engineering	1.3	2.1	2.7	3.3
Social Sciences	0.4	0.6	0.9	1.6
Religion	0.6	0.5	0.3	0.3
Teaching	2.2	3.1	4.1	4.1
Medicine and Health	2.1	3.2	3.8	4.4
Artistic	0.7	1.0	0.9	1.4
Clerical	11.8	13.7	15.9	18.3
Sales	5.8	7.2	9.5	8.7
Service	9.5	11.4	11.2	11.5
Farming	15.7	10.1	6.0	4.2
Other Primary	4.0	2.8	1.8	1.6
Processing	7.3	5.4	3.9	3.9
Machining and Fabricating	12.5	11.0	10.2	10.3
Construction	7.6	7.0	6.6	6.4
Transport	5.2	4.3	3.9	3.8
Other	3.6	5.4	5.6	4.5
Unspecified	1.2	2.6	8.5	3.4
All Occupations	100.0	100.0	100.0	100.0

Source: A. Nakamura, M. Nakamura and D. Cullen in collaboration with D. Grant and H. Orcutt, *Employment and Earnings of Married Females* (Ottawa: Statistics Canada, 1979, Table 2.3); D. Cullen and A. Nakamura, "Canadian Historical Comparison: The Impact of Differing Occupational and Industrial Structures on Women's Labour Force Participation," paper presented at the Canadian Sociology and Anthropology Association Meeting, Fredericton, N.B., June 1977, revised and updated 1985.

changes in job opportunities for women on various aspects of their work behaviour. The basis of this line of investigation is the empirical observation that women are occupationally segregated in both Canada and the United States,[34] as illustrated in Tables 4-1 and 4-2. Many believe therefore that the labour market for women is somewhat distinct from the labour market for men.[35]

The indices that have been devised to measure the availability of job opportunities for women have consistently been found to be positively related to the probability of work for married women and to the wage rates of married women.[36] As in the case of macro unemployment variables, job opportunities indices are usually hypothesized to have only indirect effects on hours of work through the determination of who works and through the impact of a woman's wage rate on her hours of work.

We have repeatedly mentioned the possibility that certain variables may have indirect effects on the determination of a woman's hours of work through the impact of her own wage rate on her hours of work. This own wage effect is often expressed as an elasticity, that is, as the ratio of

the expected percentage change in hours of work in response to a one percent change in a person's own wage rate. Thus, a wage elasticity of one means that a one percent increase in the wage rate of an individual is expected to cause an increase of one percent in the individual's hours of work. Such percentage changes must be measured with respect to some base, or starting point, and it is common to report wage elasticities measured with respect to changes from mean wage rate and hours of work values for appropriate reference groups of individuals.

An observed change in hours of work in response to a change in the wage rate of an individual is thought to reflect both income and substitution effects. As the wage rate is increased, it is hypothesized that an individual will want to consume more of all desirable things, including leisure time. Another way of thinking about this is to notice that as the wage rate is increased, an individual can work fewer hours while still spending as much or more on goods and services as before. This is the income effect. The income effect of an increase in the wage rate on hours of work is always thought to be negative as long as leisure time is desirable. However, there is also a substitution effect which comes about because, as the wage rate increases, there is an increase in the opportunity cost of every hour not spent working. Thus the substitution effect of an increase in the wage rate on hours of work is thought to be positive. The change in hours of work resulting from a change in the wage rate, as well as the wage elasticity of hours of work, will thus be observed to be positive or negative, depending on whether the positive substitution effect is stronger or weaker, respectively, than the associated negative income effect.

The measurement of wage elasticities of hours of work for various demographic groups has been of interest in the context of a number of policy debates. When governments are considering changes in personal income tax rates, for instance, they are always concerned as to whether the proposed changes would result in some change in labour supply. Likewise, political interest in Canada and the United States in negative income tax programs, as a partial or total replacement for existing welfare programs, led to speculation as to what the impact of programs of this sort would be on the supply of labour. In cases like these there is concern, among other things, about whether the wage elasticities of hours of work for working individuals affected by the proposed programs might be substantially less than zero,[37] in which case these individuals might sharply reduce their work effort in response to the introduction of such a program.

Another policy context would be legislation or legal changes intended to force employers to pay women workers wage rates commensurate with those paid to similarly qualified men for work judged to be of equal value. On both sides of the debate, speculations seem to be based on the presumption that the wage elasticity of hours of work for wives who

work is positive. Some supporters of equal pay for work of equal value policies have suggested that such policies would lead working wives to increase their hours of work relative to the hours of work of their husbands, with the ensuing result being greater equality between husbands and wives in family decision making and improvements in the financial conditions of women and their children when marriages break down. On the other hand, some opponents of equal pay are concerned that the measures might cause a sharp rise in the labour supply of women, and hence a rise in the competition for available work, resulting in layoffs or reduced hours of work for male breadwinners. (There would be no adverse affect on the job opportunities for men, of course, if women took up jobs that men were unwilling to do or for which employers were only willing to hire women.)

Partly because of the policy importance attached to obtaining more accurate estimates of wage elasticities, and also because of fears that nonexperimental findings based on samples containing relatively few low income individuals might fail to reflect adequately the wage responses of hours of work for those in poverty, both the Canadian and the U.S. governments have conducted expensive experiments in which the wage rates of participants were altered according to designs that incorporated various versions of proposed negative income tax laws.[38] Although data from these experiments are still being analyzed they do indicate that wage elasticity estimates for men are close to zero or somewhat negative in value, as are the estimates for men from nonexperimental data.[39]

In several studies based on experimental data, the wage elasticities of hours of work for married women have also been found to be close to zero or somewhat negative in value. Our own studies based on nonexperimental data support this finding too,[40] although most other similar studies find the wage elasticity of hours of work for women to be positive. Two complementary sorts of explanations or rationalizations have been advanced for this difference in the purported behaviour of women and men. The first is based on the observation that working wives on the whole work fewer hours per year for pay or profit than men. Hence the change in earned income associated with a change in the wage rate will tend to be smaller for working wives than for men. Thus it is reasonable to expect that the income effects will also be smaller, leading to more positive wage elasticities of hours of work for working women than for men. The second explanation, which has gained some acceptance, is based on the observation that most working wives also continue to shoulder much of the burden of maintaining their households and caring for their children. Presuming that hired help and various sorts of convenience goods and appliances *could* be used, at some cost, to reduce these burdens, it has been suggested that many working wives could increase their hours of work without necessarily reducing their

leisure time. Hence it is argued that working wives may be more likely than men to increase their hours of work in response to an increase in their wage rates.[41]

We close this section by summarizing the main empirical findings of cross-sectional and panel data studies of the work behaviour of women that have been discussed. In the literature surveyed it has been found that women are less likely to work and will tend to work fewer hours the more young children they have, or the more their husbands earn if they are married. Moreover, it has also been found that women will generally be more likely to work and have higher expected wage rates the more educated they are. There is some evidence linking various aspects of the employment and earnings behaviour of women to macroeconomic conditions. Finally, a general consensus seems to have emerged that the wage elasticity of hours of work for working wives is probably positive and quite large in magnitude, although there is evidence to the contrary as well on this question.

Why Are More Wives Working?

How close are we to understanding why the labour supply of Canadian wives has increased dramatically over time? In this section we will assess the research already done and suggest other avenues of investigation. First, on the basis of the research findings reported in the previous section, three salient factors should have caused increases over time in the labour supply of Canadian wives. Birth rates have been declining, the level of education of Canadian women has been rising, and the real wage rates of women have been increasing. At the same time, the real, after-tax earnings of Canadian husbands have also risen over time; if this factor is considered in isolation, we would expect to have observed a decline over time in the labour supply of Canadian wives.

One of these factors, the increase in real wage rates, may be due in part to a growth in employment opportunities for women.[42] From columns 1–4 of Table 4-2 we see that between 1951 and 1981 women increased their representation in the work force in percentage terms in every occupational category except religion and teaching. Moreover, we see from Tables 4-3 and 4-4 that in the occupations of teaching, medicine and health, clerical, and service, where women have traditionally made up large shares of the work force, the growth rates in total employment over the period of 1951–81 have been considerably above the average for all occupations. Common sense suggests that this increase in employment opportunities may have stimulated the labour supply of Canadian women for many reasons besides the accompanying rises in real wage rates. For instance, the desire of employers to attract more women and the availability of more jobs in the clerical, sales, and service occupations may have led to the observed increases in the numbers of jobs with

flexible hours or which are part time. With more women working, day care and other types of child care have become more available. Moreover, public attitudes toward working women, and particularly toward working mothers, have also been changing. Economists have not yet succeeded in introducing such non-wage effects into their models of work behaviour, however. Since they do not usually attempt to measure the effects of factors that are not included in their theoretical behavioural models, the economics literature provides little guidance as to the importance of these non-wage effects on the observed increase over time in the labour supply of women.

Can any one, or some combination, of the factors which *have* been considered in the economics literature account for the magnitude of the observed increase in the labour supply of Canadian women?[43] We suspect not. Firmer evidence could be obtained by constructing a sample representation of the Canadian population in, say, 1950 and then aging this population using microanalytic simulation techniques. That is, estimated behavioural relationships would be used to allocate births, deaths, marriages, divorces and work behaviour to individuals in the simulation population as they are moved forward in time over the simulation period.[44] The employment and earnings behaviour of individuals could be generated on different simulation runs using various models of the labour force behaviour of individuals that have gained acceptance in the academic literature. And comparisons could be made between the simulated employment and earnings behaviour of married women for each of these behavioural models and information available about the actual behaviour of Canadian women, viewed in a cross-sectional manner, in the 1961, 1971 and 1981 Canadian censuses and from other information available from the monthly Statistics Canada Labour Force Survey.

Even though such a comprehensive simulation check on alternative theories of the labour force behaviour of married women has yet to be carried out in Canada or any other country, there are pieces of simulation and other evidence which suggest that variables such as those considered in the previous section cannot account for very much of the observed historical increase in the labour supply of women in Canada. These other pieces of evidence come mostly from studies utilizing U.S. panel data.

Dealing with Differences

In this section we review evidence that suggests, to us at least, that the individual factors such as child status, husband's income and educational level — which have been featured in studies on the labour force behaviour of women — cannot account for very much of the observed historical increase in the labour supply of Canadian women. To facilitate the presentation of the material, we begin by introducing the terms

TABLE 4-3 Women as Percentage of Total Labour Force by Occupation, Canada, 1951, 1961, 1971, 1981

Occupation	1951	1961	1971	1981
Managerial	8.7	10.4	15.7	25.0
Natural Sciences, Engineering	6.9	4.8	7.3	13.9
Social Sciences	27.8	29.4	37.4	50.8
Religion	39.7	28.9	15.7	26.5
Teaching	67.2	64.4	60.4	59.4
Medicine and Health	68.5	72.1	74.3	77.6
Artistic	30.7	31.2	27.2	39.5
Clerical	56.1	61.0	68.4	77.9
Sales	33.3	32.0	30.0	42.1
Service	45.1	46.7	46.2	52.7
Farming	3.9	11.7	20.9	22.7
Other Primary	0.1	0.3	1.3	4.5
Processing	14.8	13.7	17.8	22.1
Machining and Fabricating	18.0	17.9	18.7	20.0
Construction	1.0	0.8	0.9	2.0
Transport	0.5	0.6	2.4	6.5
Other	16.3	13.6	15.7	20.4
Unspecified	20.6	26.0	43.4	42.7
All Occupations	22.0	27.3	34.3	40.0

Source: A. Nakamura, M. Nakamura and D. Cullen in collaboration with D. Grant and H. Orcutt, *Employment and Earnings of Married Females* (Ottawa: Statistics Canada, 1979, Table 2.3); D. Cullen and A. Nakamura, "Canadian Historical Comparison: The Impact of Differing Occupational and Industrial Structures on Women's Labour Force Participation," paper presented at the Canadian Sociology and Anthropology Association Meeting, Fredericton, N.B., June 1977, revised and updated 1985.

heterogeneity and unobservable factors as these terms are used in econometric studies. We do this with the aid of a farfetched example.

Heterogeneity as a Major Factor

Suppose that at age sixteen all young women in some society must decide whether they wish to specialize over the course of their lifetimes in home-oriented activities, including raising children, or in market-oriented activities. Those choosing to specialize in home-oriented activities might concentrate over the next few years on acquiring skills and interests which would be compatible with, and which would be expected to contribute to, their future roles as homemakers. They might also invest considerable effort in finding husbands who could eventually be expected to support their families financially. In contrast, those choosing to specialize in market-oriented activities might concentrate first on training for and then establishing themselves in careers. Some of these women might also marry eventually, but they might be less concerned

TABLE 4-4 Percentage Growth of Total Labour Force by Occupation over Various Time Periods, Canada

Occupation	1951–61	1961–71	1971–81	1951–81
Managerial	26.8	−34.7	168.7	122.7
Natural Sciences, Engineering	102.0	73.7	67.7	488.3
Social Sciences	87.4	98.9	135.5	778.1
Religion	9.9	−30.0	37.4	5.8
Teaching	71.5	75.1	40.0	320.6
Medicine and Health	88.9	55.6	58.7	366.3
Artistic	75.4	27.8	107.8	365.7
Clerical	41.7	54.9	58.2	247.3
Sales	50.5	76.2	26.1	234.4
Service	45.7	31.6	41.0	170.4
Farming	−21.9	−21.1	−1.8	−39.5
Other Primary	−16.5	−14.7	27.2	−9.3
Processing	−10.0	−3.6	39.2	20.8
Machining and Fabricating	7.2	23.2	40.1	85.0
Construction	13.9	24.7	33.4	89.3
Transport	−0.5	22.8	34.6	64.5
Other	84.0	37.7	10.3	179.4
Unspecified	158.0	343.7	−44.2	538.5
All Occupations	22.2	33.3	38.0	124.7

Source: D. Cullen and A. Nakamura, "Canadian Historical Comparison: The Impact of Differing Occupational and Industrial Structures on Women's Labour Force Participation," paper presented at the Canadian Sociology and Anthropology Association Meeting, Fredericton, N.B., June 1977, revised and updated 1985.

than the home-oriented women with finding husbands who could support their families. Once married, they might also be less concerned with preserving their marriages at any cost.

Suppose now that, without knowing this background information, we analyzed data collected on a sample of these women in their late twenties and early thirties. These background factors would then be *unobservable factors* in the context of this analysis. Simple cross-tabulations would reveal that married women are less likely to be found working than unmarried women; and that wives found working, on the whole, have fewer children, are married to lower-income men, and have higher levels of education than wives who are found not to be working. More detailed probit and regression analyses, with or without correction for selection bias, might suggest that increases in the number of children or the income of the husband decrease the probability that a wife will work and her expected hours of work if she does work, while increases in the educational level of a wife increase her probability of work and her expected wage offer. This would be an example of empirical results due almost entirely to the underlying heterogeneity of the population.[45] That is, these results primarily reflect correlations among the marriage, child-

bearing and work behaviour of women brought about because all three of these aspects are strongly influenced by a woman's basic decision at age sixteen — about which the investigator is unaware — to specialize in home-oriented or market-oriented activities.

Despite such lifetime commitments, these women may still adjust their work behaviour to some extent in response to their current circumstances. For instance, career women may take off a year or more from work following the birth of a baby which may or may not have been planned, and a home-oriented woman may take a job following a drop in her husband's income owing to his unemployment or illness, or following the dissolution of her marriage through separation, divorce or the death of her husband. But unless the analyst controls for underlying heterogeneity, these behavioural responses of a woman to current circumstances will be confounded with her underlying behavioural responses, and with the cumulative results of these behavioural responses, that stem from her early decision to pursue home-oriented or market-oriented activities. Thus, the analyst might greatly overestimate the potential responsiveness of the labour force behaviour of these women to changes, brought about perhaps through new government programs, in their current circumstances.

Could much of what is believed to be known about the work behaviour of Canadian women be primarily a reflection of correlations arising from the underlying heterogeneity of these women in terms of unobserved and persistent characteristics which over time have affected many aspects of the behaviour of these women?[46] One way to answer this question is to control in some way for the cumulative effect of a women's heterogeneity on her work behaviour up through the previous time period, and to introduce into the analysis variables that reflect the most important ways in which a woman's current circumstances differ from those in the previous time period. For instance, a woman might have a new baby, her husband's income might have changed from what it was in the previous time period, or she might be recently divorced or widowed. We might include in the analysis information about her observed work behaviour in the previous year, for example, a dummy variable for whether or not the woman worked.[47] More adequate treatments of heterogeneity might involve the estimation of separate sets of behavioural relationships for women who did and for women who did not work in the previous year, with variables for the observed annual hours of work and hourly wage rate in the previous year included in the relationships for women who did work in the previous year.[48]

Results of Simulations

In this regard, we will summarize results from a study we have recently completed on the work behaviour of married women in comparison with

unmarried women and men.[49] We will discuss certain relevant findings from this larger study for a sample of women who were 21–46 years of age and married in 1971, and for whom data are available for 1971–77. The data for these women were taken from the Michigan Panel Study of Income Dynamics (PSID), a major source of panel data for the United States. In the first column of Tables 4-3 and 4-4 we show the actual distributions for these women for total years of work and cumulative individual earnings, respectively, over the period of 1971 through 1977. It can be seen from Table 4-5 that roughly half the women in this sample either never worked over this seven-year period or worked in all seven years. Using PSID data, separate behavioural relationships were estimated for women who did and did not work in the previous year, with lagged hours of work and wage variables (that is, annual hours of work and hourly wage variables for the previous year) included in the equations for women who worked in the previous year. These equations also included variables for the child status of a woman, husband's income for currently married women, marital status, education, and macroeconomic conditions. In the second column of Tables 4-5 and 4-6 we show the extent to which these estimated relationships are able to capture the shapes of the actual distributions for the number of years of work over the seven-year period of 1971 through 1977 and for individual earnings cumulated over this period.

The child status variables included in these estimated relationships are a dummy variable set equal to one if a woman has a new baby in the current period and equal to zero otherwise, a dummy variable set equal to one if a woman has a child younger than six which is not a new baby and equal to zero otherwise, and a continuous variable for the number of children younger than 18 years of age that a woman has. Without controlling for previous work behaviour, all of these child status variables have been shown to be significantly negatively related to the probability that a woman will work in any given year and to the expected hours of work for women who do work. In the model for which simulation results are presented in the second column of Tables 4-5 and 4-6, however, the only child status variable found to be consistently negatively related to the probability of work or hours of work for women who work is the dummy variable for whether a woman has a new baby, and the estimated coefficient for even this variable is found to be quite small in magnitude for married women 21–46 years of age.

An experiment was performed with the 424 women who were married and 21–46 years of age in 1971, and for whom actual and simulated base line distributions are shown in the first two columns of the tables. In this experiment all three of the child status variables for these women were set equal to zero for the whole of the seven-year simulation period. Simulation results for this experiment are shown in column 3 of both tables. Comparing the distributions for the experiment with all child

TABLE 4-5 Distributions for 424 Women by Number of Years Worked: Actual, Predicted and Predicted Given Changes in Circumstances, 1971–77

Number of Years Worked out of 7	Actual Distribution	Predicted Distribution	Predicted Distributions for Designated Experiments				
			No Children	No Husband's Income	Extra Year of Education	Wage Equations for Men	All Unmarried in 1972
0	.17	.13	.12	.07	.09	.13	.03
1–2	.15	.17	.19	.12	.16	.18	.12
3–4	.15	.17	.16	.21	.18	.18	.17
5–6	.23	.21	.21	.28	.25	.22	.36
7	.30	.30	.32	.32	.31	.28	.32
Pseudo chi-square statistic for comparisons of experimental with original predicted distribution			4	29	9	1	86

Source: A. Nakamura and M. Nakamura, *The Second Paycheck: A Socioeconomic Analysis of Earnings* (New York: Academic Press, 1985b).
Note: Larger values of the pseudo chi-square statistic indicate a grater difference between the experimental and original predicted distributions. See Nakamura and Nakamura (1985a, 1985b) for further explanation of this statistic.

TABLE 4-6 Distributions for 424 Women by Earned Income: Actual, Predicted and Predicted Given Changes in Circumstances, 1971–77

Earned Income Cumulated over 7-year Period	Actual Distribution	Predicted Distribution	Predicted Distributions for Designated Experiments				
			No Children	No Husband's Income	Extra Year of Education	Wage Equations for Men	All Unmarried in 1972
$0	.17	.15	.14	.07	.10	.14	.04
Less than $10,000	.40	.38	.35	.35	.32	.32	.27
$10,000–$19,999	.20	.20	.21	.25	.25	.20	.25
$20,000–$29,999	.12	.12	.14	.15	.17	.12	.22
$30,000–$39,999	.07	.08	.08	.10	.08	.09	.12
$40,000–$59,999	.05	.05	.05	.05	.06	.09	.06
$60,000–$79,999	.00	.02	.02	.02	.02	.03	.03
Over $79,999	.00	.01	.01	.00	.01	.01	.01
Pseudo chi-square statistic for comparisons of experimental with original predicted distribution			3	30	26	18	99

Source: A. Nakamura and M. Nakamura, *The Second Paycheck: A Socioeconomic Analysis of Earnings* (New York: Academic Press, 1985b).
Note: See note on Table 4-5 concerning the pseudo chi-square statistic.

status variables set equal to zero with the base line predicted distributions, we find very little change in the distribution of number of years worked over the seven-year simulation period and only a slight shift in the distribution for income cumulated over the seven-year period from the categories for no earnings or earnings less than $10,000 to the cumulative income categories of $10,000–$19,999 and $20,000–$29,999. These results do not tell us how these 424 women would respond if someone came along and took all their children away. No estimated model would be likely to be able to predict the response to such a drastic change. What these results do forcefully demonstrate, however, is that, after controlling for a woman's work behaviour in the previous year, her current employment and earnings behaviour is found to be quite insensitive to her current child status, including even the presence of a new baby.

In the next experiment the earnings of the husbands of all wives were set to zero for the entire simulation period. Results from this simulation experiment are shown in column 4 of the tables. Now in Table 4-5 we find decreases in the proportions of women simulated never to work or simulated to work 1–2 years, and we find increases compared with the base line simulation results in the proportions simulated to work 3–4, 5–6 or 7 years. Likewise, in Table 4-6 we find decreases in the proportions of women simulated to have no earnings or earnings of less than $10,000 over the simulation period, and increases in the proportions of women simulated to have $10,000–$19,999, $20,000–$29,999 or $30,000–$39,999 in earnings over this period. Thus, even after controlling for her work behaviour in the previous year, a married woman's current work behaviour is found to display some sensitivity to the earnings of her husband.

Next, the educational levels of all 424 women in the simulation population were increased by a year. Results from this simulation experiment are shown in column 5 of both tables. We see from these tables that the changes from the base line case in the distribution for years of work out of 7 and earned income cumulated over 7 years are identical in nature to, but less substantial than, the changes resulting from taking the earnings of the husbands of all wives to be zero over the entire simulation period. Thus, after controlling for their work behaviour in the previous year, the current employment and earnings behaviour of married women is found to differ only marginally, depending on the educational levels of individual women.

In column 6 of the tables we show distributional results for yet another simulation experiment in which the wage rates for women found to work over the course of the seven-year simulation period were generated using wage equations estimated for men. In other words, this experiment roughly simulates what would happen if, starting at some point in time, married women were paid according to the same "rules" determining the

wage rates of men. From Table 4-5 we see that this experimental change produces almost no change from the base line case in the distribution of women by years of work out of 7. Certainly these simulation results do not suggest that large numbers of women would begin to work on a more continuous basis, as a result of such a change, since the proportion of women simulated to work all 7 years actually drops by two percentage points compared with the base line case. From Table 4-6, however, we find that this experimental change does result in modest increases in the proportions of women simulated to earn $30,000–$39,999, $40,000–$59,999 and $60,000–$79,999 over the course of the simulation period.

All of the women in the simulation population were married in 1971, the first year of the simulation period. In column 7 of the tables, distributional results are shown for a simulation experiment in which all of the women in the simulation population were treated as unmarried in 1972, the second year of the simulation experiment. This experimental change might be thought of as mimicking an epidemic of divorce, with most of the "divorcees" remarrying again (and hence being treated again according to their actual marital statuses) in the following year. Now from Table 4-5 we find substantial decreases in the proportions of women simulated to work only 1–2 years, and substantial increases in the proportions of women simulated to work 5–6 or 7 years.[50] Likewise from Table 4-6 we find substantial decreases in the proportions of women simulated to have no earnings or earnings under $10,000 and increases in the proportions of women simulated to have earnings of $10,000–$19,999, $20,000–$29,999, $30,000–$39,999, $40,000–$59,999, $60,000–$79,999 and over $79,999. Thus, even after controlling for work status in the previous year, an episode of marital dissolution is found to have substantial impacts on the current earnings and employment behaviour of women.

Current work behaviour for each of the 424 women is seen to be primarily an extrapolation of their work behaviour in the previous year with some degree of responsiveness to observable changes in their current circumstances. Most of the observed continuity in the employment and earnings histories seems to be due to factors embedded in their previous work behaviour that cannot be directly observed. The results of the study have led us to wonder about what some of the unobserved tastes and circumstances might be, and what other behavioural manifestations they might have. One clue might be that, among the observable variables included in the study, changes in marital status (after controlling for changes in husband's income) are found to be associated with the most dramatic responses in expected current work behaviour. This suggests that tastes, circumstances and future expectations associated with being married or unmarried are important long-run determinants of work behaviour. Also, it is found that women who worked more

hours in the previous year or who earned more per hour are more likely to work in the current year than those who worked fewer hours or earned less per hour, and women who worked in the previous year are found to be far more likely to work in the current year than women who did not work at all. These results imply that even among working women there are substantial differences in behaviour between those who work essentially full time versus those who work only part of a year or relatively few hours in weeks of work, and between those who are well paid on an hourly basis versus those who are not. We suggest that these empirical findings might be consistent with the speculative scenario for working wives proposed in the following section.

Women's Motivation to Work

In the first part of this analysis, we will be concerned mainly with married women who work. We then go on to discuss early influences on motivation to work and the likely political consequences.

We see working wives as falling into three basic groups: those who see themselves as working for only a short time to meet the current economic needs of their families, those who see themselves as working on a long-term or career basis to meet the economic needs of their families, and those whose work activities are not primarily motivated by the economic needs of their families. Moreover, we suggest that the wives within each of these three broad groupings tend to share certain characteristics concerning the nature of their preparation for work and their interest in increasing their job skills, their interest in trade union activities, their preferences for the manner in which they are remunerated for their work, and the degree to which their work activities are predicated on the belief that their current marriages will endure. We will sketch out what we hypothesize to be the distinguishing average characteristics of the working wives in each of our three broad groupings.

Types of Working Wives

Short-term workers We begin with wives who see themselves as working for only a short time to meet the current economic needs of their families. For instance, the husband may still be in training for his career, or the family may need additional income on a short term basis to cover some major expense. Other reasons why a family may be short of funds on what the family views as a temporary basis might include a career change, or the unemployment or illness of the husband; or perhaps economic loss owing to some disaster. If these wives did not originally plan on working, we would not expect them to have invested heavily in occupational education or training[51] even though they may have spent substantial numbers of years in school developing personal interests,

acquiring other sorts of skills, and perhaps searching for a husband. Because of the economic needs that have brought these women into the labour market, they are not in a position to afford on-the-job or other employer-supplied training at the expense of current earnings. Nor is it in their interests to make substantial current investments in job skills, since they could not recoup these expenses in working for only a short period. At the same time, to the extent that employers are aware that the employment interests of these women are short term, it will not be in the best interests of employers to make substantial investments in training them either, because employers could not recoup their expenses over a short period of work.[52]

Women who see themselves as short-term workers might not be expected to show much interest in joining or participating in the organization or running of trade unions, and might be expected to be hostile to strike actions which could result in a short-term loss of earnings. Wage or other sorts of gains in the future may not interest such women. They also may not be interested in non-wage forms of remuneration which may have some tax advantages from the point of view of long-term workers, such as dental and health benefits, life insurance plans paid in part by the employer, pension benefits and so forth. Finally, the work behaviour of these wives would indicate that they expect their current marriage situations to endure.

Long-term workers We next consider wives who see themselves as working on a long-term or career basis to meet the economic needs of their families. These are women who would not work if they found themselves in more affluent circumstances, but as things are they see themselves as having a long-term commitment to the world of work. Wives of low-income husbands probably make up the largest component of this group. Even if the income levels of the husbands of these wives are higher for occasional stretches of as much as a year or so, these wives may continue working because they feel the long-run earnings prospects for their husbands are poor or because they anticipate the breakdown of their marriages.

Because of the nature of the factors that tend to result in certain men having chronically low earnings, and because of observed patterns of marital sorting (men tend to marry women with educational and socio-economic backgrounds similar to their own, and vice versa), we would expect many of the wives in this group to have been relatively underprivileged in their access to good-quality education and occupational training. Because they, like many men, begin work out of economic necessity, they may not feel they can sacrifice any portion of their low potential earnings in order to take special training in preparation for work. For a variety of reasons, employers are believed to be less willing to invest in employees with low initial levels of education and occupa-

tional skills. This may be particularly true in the case of married women, since employers may be unable or unwilling to differentiate between those who have long-term commitments to the labour force and those who are not likely to hold any job for very long. Thus, even though these women would appear to have reason to be interested in employer-funded training programs or on-the-job training, they may have few such opportunities. They may also find it difficult to gain access to publicly funded training programs.[53]

Because of their long-term commitment to the labour force, their economic needs, and some of the special problems they may face in the work place, these women might appear to be ideal candidates for union membership and activism. They might also be expected to be particularly interested in promoting legislative or legal measures which would improve conditions for women in the workplace. One probable barrier to the unionization of these women, however, is that relatively uneducated, unskilled women tend to be disproportionately employed in very small establishments, and unions have not been successful on the whole in organizing this sort of fragmented workforce. Because they are working out of economic necessity and because many fill job slots where they are readily replaceable, these women would also be expected to be at least as concerned as men in similar circumstances about union or political activities which might result in a loss of income or in job loss.[54]

Unlike wives with short-term work aspirations, these long-term working wives might be expected to have some interest in alternative forms of remuneration for work such as medical and dental plans and pension benefits. The concentration of these women in small establishments and their lack of job security, resulting for many in frequent job changes, may be significant factors, however, in curtailing their access to such benefit programs. These wives may also find themselves working alongside, and perhaps outnumbered by, other women with short-term employment objectives and who are uninterested in, or against, any program which might be seen as reducing their current level of remuneration through wages or salaries.

Wives in this group are working because they lack income security through marriage, as opposed to working to help their families through periods of short-term disequilibrium between family income requirements and the earnings of the husbands. In some cases, in fact, they may have little or no economic stake in holding their marriages together.

Workers not motivated by family needs The last group of working wives to be considered are those whose work activities are not strongly motivated by economic needs within their families.[55] Among these working wives we will define the subgroups of those who do not and those who do display career-oriented behaviour. In both cases, however,

these women are expected to be better educated, married to better educated and higher income men, and to have relatively fewer children.

Among these wives, the work activities of those who are not career-oriented might be considered as an extention of volunteer or hobby activities. We would expect to find them in all sorts of poorly paid but innately interesting positions in community and social service organizations, churches, political organizations, in special interest movements, in amateur sports organizations, and around universities. If they are not primarily concerned with the financial remuneration they receive, and if many of them work by choice in job circumstances which are usually flexible and otherwise desirable, we would expect them to have little interest in trade unions or in legislative or legal measures to improve the lot of working women. Nor are they likely to be interested in deferred forms of remuneration such as pension benefits.

It seems probable to us that many of these non-career-oriented wives can afford to behave as they do because of the high incomes of their husbands. Thus, marital stability is a precondition for their lifestyles. Moreover, since they are dependent on the earnings capabilities of their husbands, we might expect that in some cases these non-career-oriented working wives would oppose, if only as members of a silent but voting public, measures which might be seen as enhancing the employment and earnings prospects of working women at the expense of working men.

The rest of the wives in this group might be described as career-motivated. Many of them will have started pursuing careers before marriage, and they may have invested heavily in education and other sorts of training in preparation for these intended careers. Because of the observed dynamics of marital sorting, we would expect to find these women married to better educated, career-oriented men who could support their families if their wives were not working. Nevertheless, because these women are professionally ambitious, and because power and pay are so closely linked in large organizational structures, they would be expected to be interested in being paid what their work is worth and in enhancing their job classifications and salary levels through any opportunities for further training. We would also expect them to receive relatively favourable consideration from employers for employer-supplied training programs and on-the-job training opportunities because of their initial educational and skill levels and because of their generally identifiable career orientations. These women may also be some of the main beneficiaries of legislative, legal and public opinion efforts to expand the access of women to education, and to occupation-related training and career opportunities.

Because of their long-term job commitments, we would expect these women to be interested in alternative forms of remuneration. We would also expect them to be interested in issues relating to job security and the

treatment of women in the workplace. The extent to which these women belong to or are active in trade unions may be limited, however, by both the time constraints of their personal lives and the extent to which the occupations and organizations in which they work are unionized.

Although the incomes of these career-oriented women may be important components of family income, by definition this group of women is not working because of their families. It is more likely, in fact, that family-related responsibilities and the career decisions of their husbands will act as a constraint on the time and energy these women can devote to their careers.[56] Thus, the work activities of these wives are not predicated on the preservation of their marriages, and, in fact, their marriages may hamper them to some extent in the pursuit of their work activities.

Choice of Lifestyle

We have drawn profiles of working wives categorized as those who see themselves as working on a short-term basis to meet the economic needs of their families, those who see themselves as working on a long-term or career basis to meet the economic needs of their families, and those whose work activities are not primarily motivated by family money matters.

We suggest that in their late teens and early twenties most young women deliberately take courses of action or make a series of inadvertent choices which, together with circumstance, lead toward a lifestyle either as primarily a wife and homemaker or in which work outside the home plays an important role. Those who head toward lifestyles as full-time wives and homemakers will, primarily by preference, tend to have more children and invest less in occupation-oriented education and training than their work-oriented counterparts. Some of them may also end up working over part, or even most, of their adult lives because of the economic troubles of their families or because they fail to marry or lose their husbands to divorce or death. Some of those who begin working out of necessity may come to like their jobs and become career-oriented. Also, some home-oriented women may take jobs which might be viewed, in some senses, as extensions of hobby or volunteer activities. At the same time, many of those who head toward lifetimes on the job will marry and have families. Thus, we would expect that there would be shifts of working wives among our categories over time.

If this speculative picture has some truth in it, the findings reported in cross-sectional and panel data studies concerning the interrelationships of child status, husband's income and education variables, and the employment and earnings behaviour of these women are what we might expect to find. The scenario also suggests, however, that if we wish to understand what has caused the dramatic upswing in recent years in the labour supply of married women we must look for other factors which

could have caused a major shift in a) the proportions of would-be full-time homemakers who must go to work on a short-term or long-term basis to meet family needs, or b) the proportions of very young women choosing lifestyles as full-time, or would-be full-time, wives and homemakers versus those heading toward lifetimes on the job.

Long-Run Expectations

We have found the work behaviour of women to be primarily an extrapolation of their work behaviour in the previous year, and we have found only a very limited responsiveness in the current work behaviour of women to changes in their current expected wage rates. Nevertheless, these findings do not preclude the possibility of large long-run responses in female labour supply to changes in long-run, relatively fixed expectations which women hold concerning labour market conditions, including the availability of jobs for women, opportunities for working part time or flexible hours, wage rates and so forth. There are those who argue that observed increases in female job opportunities have served to offset what otherwise would have been decreases in the wage rates of women as more and more women have entered the labour market.[57] This argument can be interpreted as a statement that the historical growth in job opportunities for women has facilitated or permitted, as opposed to having caused, the observed increase in the employment and earnings of Canadian wives. But this increase may also be a response to changes in the long-run expectations of women concerning labour market conditions.

The material that has been presented highlights the need for research on the interrelationships between the work behaviour of women and their propensity to marry and stay married. It also suggests the need for more research devoted to the behaviour of young women. Relatively little attention has been devoted to the work behaviour of either young women or young men or to the formation of their attitudes concerning work.[58]

If it is true that the attitudes of individual women toward work tend to be formed early in life, and often influence choices about how long to stay in school and what subjects to study, recent trends in higher education may be a clear indication of further increases in the years ahead in the labour supply of Canadian women and in the proportions of women with long-term commitments to the labour force. We see from Tables 4-7 and 4-8 that the proportions of full-time students in Canadian universities who are women, and the proportions of recipients of degrees awarded by Canadian universities and colleges who are women, are continuing to rise. From Table 4-9 we see that the proportions of undergraduate students enrolled in occupation-oriented fields of study who are women are also rising. We suspect that the record numbers of women enrolled in business schools, medical and dentistry programs, law

TABLE 4-7 Women as a Percentage of Total Full-time University Enrolment, Canada

Year	Undergraduate	Graduate
1966	33.7	18.0
1967	34.2	19.3
1968	34.9	18.6
1969	36.0	20.5
1970	36.7	22.3
1971	37.7	22.6
1972	38.5	24.3
1973	39.6	26.0
1974	41.1	27.3
1975	42.4	29.0
1976	43.7	30.6
1977	44.4	31.9
1978	44.9	33.3
1979	45.4	35.4
1980	46.0	36.1
1981	46.6	37.3

Sources: Statistics Canada (1983, Series 341, 342, 344, and 345); J.H.B. Symons and J.E. Page, "The Status of Women in Canadian Academic Life," in *Some Questions of Balance* (Ottawa: Association of Universities and Colleges, 1984), Table 40.

TABLE 4-8 Women as a Percentage of Total Recipients of Degrees Awarded by Canadian Universities and Colleges

Year	Bachelor and First Professional	Master's	Doctorate
1966	34.1	20.0	8.1
1967	35.2	20.0	9.7
1968	36.9	22.0	7.8
1969	38.3	21.5	9.3
1970	38.0	22.0	9.3
1971	39.4	24.8	9.3
1972	39.7	26.8	11.2
1973	41.5	27.2	12.3
1974	44.4	28.2	16.1
1975	46.3	30.5	18.8
1976	47.7	31.3	18.0
1977	48.5	32.8	18.2
1978	49.2	36.0	20.5
1979	49.6	37.4	23.0
1980	50.3	39.2	24.2

Sources: Statistics Canada (1983, Series 505, 506, 508, 509, 511 and 512); J.H.B. Symons and J.E. Page, "The Status of Women in Canadian Academic Life," in *Some Questions of Balance* (Ottawa: Association of Universities and Colleges, 1984), Table 42.

TABLE 4-9 Women as a Percentage of Total Full-time University Undergraduate Enrolment for Selected Fields of Specialization, Canada

Year	Fine and Applied Arts	Engineering and Applied Science	Medicine	Law	Commerce and Business Administration
1966	62.8	1.3	13.0	6.3	7.8
1967	61.2	1.5	13.8	7.3	8.4
1968	57.4	1.6	15.1	8.8	8.2
1969	56.8	1.6	17.1	10.9	8.4
1970	56.8	1.8	18.1	12.7	10.2
1971	53.9	2.4	20.2	14.9	13.9
1972	57.8	2.6	22.3	18.0	16.1
1973	58.2	3.3	24.3	20.3	18.1
1974	59.1	4.5	26.2	23.7	19.9
1975	60.8	5.5	27.1	26.7	22.3
1981	62.3	10.6	38.5	39.9	37.2

Sources: Statistics Canada (1983, Series 443, 444, 446, 441, and 451); J.H.B. Symons and J.E. Page, "The Status of Women in Canadian Academic Life," in *Some Questions of Balance* (Ottawa: Association of Universities and Colleges, 1984), Table 47.

TABLE 4-10 Birth, Marriage, and Divorce Rates per 10,000 Population, Canada

Year	Birth Rate	Marriage Rate	Divorce Rate
1966	194	78	5
1967	182	81	5
1968	176	83	5
1969	176	87	12
1970	175	88	14
1971	168	89	14
1972	159	92	15
1973	155	90	17
1974	156	89	20
1975	158	87	22
1976	157	84	23
1977	155	80	24
1978	153	79	24
1979	155	79	25
1980	155	80	26
1981	153	78	28
1982	151	76	29

Sources: Statistics Canada (1983a, Series B1-4, B1-76, B1-80) for figures for 1966–74; *Vital Statistics*, Vol. 1 and Vol. 2, for figures for 1975–82.

schools, and in a whole range of technical training programs across Canada mean that record numbers of young women are preparing to work on a career basis in their adult lives. We see from Table 4-10 that divorce rates are also continuing to rise while birth rates continue to fall.

Political Implications

If increasing numbers of women develop long-term attachments to the labour market in years to come, on the basis of our speculative scenario we would expect to see continuing increases in the representation of women in trade unions. We would also expect continuing pressure for legislative and legal changes to improve the labour market conditions of women. This pressure may be intensified by the increasing numerical advantage of women over men, owing to the longevity of women, and by changes in the occupational structure of the economy resulting from technological change.

Working women earn substantially less than working men, even after controlling for their level of education and for the fact that women on average work fewer hours a year than their male counterparts. In numerous studies researchers have tried to measure and explain the extent of the female-male earnings differential in Canada and elsewhere, after controlling for other factors such as differences between female and male workers in the amount of previous job experience or in their occupational or industrial distributions.[59] Regardless of academic opinions concerning how these differentials should be measured, precisely how large they are, or why they exist, however, we believe there will be intense political pressure from women's interest groups in the years ahead to see them reduced.

Women suffer considerably higher unemployment rates than their male counterparts, although the average duration of spells of unemployment is usually found to be shorter for women than for men. Differences in unemployment rates for women and men who worked in the previous year become less evident too when we standardize for occupation or industry and for whether the person worked full time or part time in the previous year.[60] Nevertheless, we believe that as the proportion of working women who have long-term attachments to the labour force continues to rise, government leaders will come under increasing pressure to take the unemployment problems of women, and particularly of married women, more seriously.

In a publication of the Economic Council of Canada (1976, pp. 211–12) we find the statement that, ". . . the increasing participation of secondary workers in the recent past makes the unemployment of family heads a more meaningful measure than the conventional one in which primary breadwinners and supplementary earners seeking part-time work are weighted equally." Also, in another publication of the Economic Coun-

cil of Canada, Green and Cousineau (1976, p. 115) write that "the present composition of the unemployed fails to conform to the traditional picture of unemployment most of us 'grind our teeth on.' In 1973, only about a third were the sole earners in the family unit." Because of skyrocketing costs, government leaders may find it necessary to stem the increases in unemployment insurance payments in years to come. Perhaps the unemployment insurance program might be adjusted so that protection corresponds more nearly to payments into the program. Or it might be explicitly turned into a means-tested welfare program, intended to tide those enrolled in it over temporary periods of insolvency owing to job loss. In any case, we doubt that citing the large proportion of families with an additional earner will be a politically acceptable basis for arguing for changes in the way in which unemployment is measured in years to come, particularly since it can be demonstrated that, on average, the families of unemployed wives are more needy in an economic sense than either the families of wives not in the labour force or of currently working wives.[61] Nor do we think it is likely to be politically acceptable to restrict access to benefits for part-time workers in ways that are actually unfair.

The political, social and domestic tensions related to the continuing surge of women into the labour force may be exacerbated in the years to come by slow economic growth, and by actual declines in the numbers of certain types of jobs, traditionally held by women, owing to technological change.[62] It may be futile, or even counterproductive, for governments to try to turn these social tides. Although there is much talk of full employment and jobs for all, does anyone know how to make this a reality in the future any more than this has been a reality in the past? We think it is unlikely that social tensions can be eased by building false hopes.

Implications of the Research

In our judgment, a key finding of research on the work behaviour of mature women is that this behaviour is quite insensitive to most changes in a woman's current circumstances, such as the number of children she has or the earnings of her husband. Women who have been working full time or for high wages seem to continue working year after year; while women who have not been working, or whose past work efforts were marginal in terms of either annual hours of work or wages, are much less likely to be found working in the current year regardless of how many children they have or the income levels of their husbands. However, for younger women an episode of marital dissolution, owing either to divorce or the death of the husband, is found to be associated with a substantial and longlasting increase in a woman's expected labour supply.

A first implication of these findings is that the current labour force behaviour of women is a good predictor of what it will be in years to

come, whether or not we are able to predict their fertility or the labour force behaviour of their husbands. However, predictions will underestimate the future labour supply of women if they do not account for the effects of marital dissolution and, moreover, include future trends in age-specific divorce rates. The observed sensitivity of the work behaviour of women to changes in marital status highlights the need for more detailed research on those who are not currently married. To date, most studies of female work behaviour have dealt with all women, or have been limited to currently married women. Little is known about differences in behaviour among various groups of currently unmarried women.

A second implication is that it is crucial for Canada to collect data that provides information about the current labour force behaviour and marital status of individual women for at least two consecutive years. One low-cost way of accomplishing this objective would be to add a small number of appropriate recall questions to a cross-sectional survey such as the census.[63] If something of this sort is not done quickly, we believe that Canadian policy makers will find themselves depending almost entirely on the behavioural results of U.S. studies in forecasting the future labour force behaviour of Canadian women. Labour markets and the observed labour force behaviour of women in the United States differ from the Canadian experience in a number of ways, some of which may be important.[64]

A third, more tenuous, implication is that we must look to the formation of attitudes toward home-oriented versus job-oriented activities by women in their teen years if we wish to be able to understand the huge increase that has taken place in recent years in the labour supply of women, or if we wish to be able to predict other changes of this nature in years to come. Are the attitudes of teenaged women affected primarily by their educational experiences, by what they see on television, by the information available to them on job opportunities for adult women, or by personal work experiences through part-time or summer jobs? At this point, we do not know. More research is required to answer questions of this sort. For short-term predictive purposes, however, we can look to what we believe are observable manifestations of the attitudes which young women are forming toward work. We note, for instance, that record numbers of young women are completing high school, and going on to, and often completing, degree programs in Canadian universities and colleges. Moreover, increasing numbers of these women are electing to enter job-oriented training programs in fields such as business administration and law.

Because of this trend, we believe that the influx of women into the labour force will continue. We also believe that the proportion of women workers with long-term commitments to the labour force will continue to rise. As a result we expect that there will be a continuing influx of

women into trade unions, and continuing political pressure for legislative and legal changes to improve the conditions of working women.

We also believe that there will be a continuing evolution away from differential treatment of individuals based on gender. In the past, work outside the home was a responsibility, but also an implicit right, which was often allocated and indeed rationed largely on grounds of the sex of the individual. If this form of allocation continues to wane, as we believe it will, some other rationing mechanism will have to take over. We believe that such a mechanism will almost surely be the rationing of jobs on the basis of training and ability. Such a scheme should contribute to the potential efficiency and competitiveness of the Canadian economy, with possible benefits for all Canadians. We believe, however, that the amount of social tension surrounding this continuing evolution will depend as much on the esteem and treatment accorded by society to those who do not work, by choice or because they cannot compete for jobs, as on the creation of jobs to accommodate the lifestyle choices of work-oriented women and men.

Notes

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1. See Gunderson (1985) for a study of these questions.
2. These figures were computed using information from Table 1, Volume II, and Table 17, Volume V, of the 1951 Census of Canada. The figures for those who worked are actually for wage earners, where wage earners include some individuals who did not report earnings, and do not include the self-employed.
3. These figures were computed using information from Table 1, Volume I, of the 1981 Census of Canada. Here figures are given for those who worked, where work is stated to exclude housework or other work around the person's home and volunteer work.
4. See note 2 for sources.
5. See note 3 for source.
6. See, for instance, Officer and Andersen (1969) for a study based on aggregate time series data for Canada as a whole.
7. See, for instance, Spencer (1973).
8. For cross sectional studies based on 1971 Public Use Sample data for Canada see, for instance, Robinson and Tomes (1982), Nakamura and Nakamura (1983a, 1981), and Nakamura, Nakamura and Cullen (1979).
9. The information given for individuals in a Public Use Sample is not sufficient to allow the identification of any one individual by name.
10. Unemployment rate variables have been included in numerous studies of the labour force behaviour of married women. For instance, Heckman (1981a), in a study of the probability of employment for married women using data from the Michigan Panel

Study of Income Dynamics, includes among his explanatory variables both the unemployment rate in the county in which the woman resides and the national unemployment rate for prime-aged males. Also Nakamura et al. (1979, chap. 4) and Nakamura, Nakamura and Cullen (1979) include the provincial unemployment rate in a study based on micro data from the 1971 Census of Canada of the probability of work, wage rates and hours of work of married women. Nakamura and Nakamura (1981) include the state unemployment rate in the U.S. portion and the provincial unemployment rate in the Canadian portion of their analysis of the probability of work, wage rates and hours of work of U.S. and Canadian wives. The general consensus seems to be that higher rates of unemployment are associated with lower probabilities of employment for married women. We are not aware of any empirical work showing definitively that higher unemployment rates depress the wage rates of working women, however. It may be difficult to control for changes in the types of women working as the level of unemployment changes.

In line with early work by Bowen and Finegan (1969), the studies of Nakamura et al. (1979), Nakamura, Nakamura and Cullen (1979), and Nakamura and Nakamura (1981, 1983a) include indices of the local job opportunities for women, with the index included in Nakamura and Nakamura (1983a) measuring job opportunities in terms of expected hours of work per expected working woman instead of as the expected number of jobs per woman in the potential labour force as is the case in the other studies cited. However measured, job opportunities per potential working woman seem to be positively associated with the probability of employment for working women. These indices summarizing the job opportunities for women also seem to be positively related to the wage rates of women who work.

Heckman (1981a) also includes in his study the wage of unskilled labour in the county in which a woman resides. Nakamura and Nakamura (1985a) include the state unemployment rate, the state average hourly wage rate in manufacturing measured in 1967 dollars, and first differences for both these variables in various models for the probability of work of married women. The results obtained for these macro variables are suggestive, but do not provide us with clear evidence about *how* macroeconomic conditions influence or constrain the employment and earnings behaviour of individual wives.

11. The inability of pure cross-sectional models to explain the observed continuity over time in the employment behaviour of individual wives is demonstrated by simulation methods in Heckman (1978, 1981a). More comprehensive simulation evidence, including both in-sample and out-of-sample simulation results for employment status, hours of work and earnings are also presented in Nakamura and Nakamura (1983b, 1985a, 1985b). Supporting evidence for Canada, which is limited in scope owing to the limitations of the data which are publicly available, is presented in Boothby (1984).
12. Discussions of the bias problems that can result from the failure to control for unobservable individual effects which are fixed or persistent over time can be found, for instance, in Hausman and Taylor (1981), Heckman (1981a, 1981b), Heckman and Willis (1977) and Nickell (1981). Notice that in a forecasting context there are tradeoffs between bias problems, which reflect the ability of the explanatory variables in a model to account for unobservable individual effects in a proxy sense, and the problem of capturing the portion of the observed continuity in the employment and earnings behaviour of individual wives that is due to unobservable fixed or persistent individual factors.
13. Panel data consists of observations in at least two successive time periods for a sample of individuals.
14. For a description of the Michigan Panel Study of Income Dynamics see, for instance, Morgan et al. (1974). Panel data for the United States on the employment and earnings behaviour of women and their personal and family characteristics are also available from the National Longitudinal Survey of Work Experience which is described in Parnes, Shea, Spitz and Zeller (1970).
15. From Table 1 in Nakamura and Nakamura (1981, p. 452) we see that in 1969–70 employment rates were substantially lower for Canadian wives than for their U.S.

counterparts, and Canadian wives who worked did so for fewer hours and earned less on the whole than their U.S. counterparts. From Table V in this same paper (pp. 462–63) we see that the U.S. wives whose data were used in that study had more years of formal education, married younger, lived in families where the combined income of the husband and family asset income were higher, had different patterns of fertility, and lived in regions with lower unemployment rates and more job opportunities for women per potential member of the female labour force than their Canadian counterparts. In Nakamura and Nakamura (1981), attention is also paid to institutional differences in U.S. and Canadian tax laws that might have special effects on the labour force behaviour of wives. Thus we see that there is ample justification for encouraging studies of the labour force behaviour of Canadian wives using Canadian data, as opposed to simply assuming that the findings from studies of the labour force behaviour of U.S. wives will be fully transferable.

16. Heckman (1978, 1981a) uses three years of data from the Michigan Panel Study of Income Dynamics (PSID), Heckman and Macurdy (1980) use eight years of PSID data, Nakamura and Nakamura (1983b, 1985a) use ten years of PSID data, and Nakamura and Nakamura (1985b) use eight years of PSID data.
17. When regional macro variables are used in a micro study, they may serve as proxies for regional characteristics other than those of interest. For instance, regions with high unemployment rates may also have special occupational or industrial characteristics, poor school systems, poor infrastructures and so forth, and a regional unemployment variable may pick up some of these other associated conditions in a proxy sense in addition to reflecting the direct impacts of unemployment on the labour force behaviour of married women. In a panel or pooled data setting, this problem can be overcome to some degree by introducing regional macro variables in first difference form. See, for instance, Nakamura and Nakamura (1985a).
18. It can be difficult for readers to gauge the total impacts of the explanatory variables in many of the estimated models of the work behaviour of women presented in the literature. For instance, child status variables are often specified to have direct impacts on the hours of work, and indirect impacts via a selection bias term. Numerical examples of the estimated impacts resulting from specified changes in the values of certain explanatory variables are given in Nakamura, Nakamura and Cullen (1979, pp. 801–04) and summarized in Table 8 in this reference.
19. See Leibowitz (1972), Hill and Stafford (1974), and Gronau (1974).
20. For instance, Heckman and Macurdy (1980) and Heckman (1981a) include continuous variables for the number of children younger than six and for the total number of children at home.
21. Nakamura, Nakamura and Cullen (1979) and Nakamura and Nakamura (1981) include continuous variables for the number of children younger than 6, the number of children 6 to 14 years of age, the number of children 19 to 24 years of age who are living at home and attending school, the number of children ever born, the product of the numbers of children in the younger-than-6 and 6-to-14 age categories, and an interaction term created by dividing family income exclusive of the wife's earnings by family size.
22. For examples of studies in which the presence of young children is found to depress work effort significantly see the cross-sectional studies of Heckman (1974, 1976), Nakamura, Nakamura and Cullen (1979), and Nakamura and Nakamura (1981); and see the panel data studies of Heckman (1978 or 1981a) and Heckman and Macurdy (1980).
23. Child status variables may also serve as a proxy, of course, for labour force experience. See, for instance, Nakamura, Nakamura and Cullen (1979) and Nakamura and Nakamura (1981).
24. For a comprehensive treatment of the selection bias problem and of Heckman's approach to dealing with this problem see Heckman (1976), and see Smith (1980) for a readable introductory summary of the selection bias problem.

25. In Nakamura, Nakamura and Cullen (1979) the signs of the estimated coefficients of the selection bias term are seen from Table 4, page 794, of that paper to be sometimes positive and sometimes negative in the wage equations, while they are seen from Table 5, page 795, to be always positive in the equations for annual hours of work. This pattern is repeated for both the wage equations and the hours equations in Nakamura and Nakamura (1981, Table VII, pp. 472–73 and Table IX, pp. 478–79). However, in Nakamura and Nakamura (1983a, Table 2, pp. 242–43) we find negative as well as positive coefficient estimates for the selection bias term in the hours equation as well. The true sign of the coefficient of the selection bias term in a wage or an hours equation will depend on the sign of the covariance between the random variable in the probit model for the probability of work and the disturbance term for the wage or hours equation of interest. In most cases (and contrary to what is stated for the hours equations in the first two papers cited above in this note), there is no a priori basis for determining the sign of this covariance term in either a wage or an hours equation.
26. Examples of studies which find that, after controlling for other factors, wives with husbands who earn more can be expected to work less include the cross-sectional studies of Heckman (1974, 1976), Nakamura, Nakamura and Cullen (1979), and Nakamura and Nakamura (1981); and the panel data studies of Heckman (1978, 1981a).
27. The change in the amount purchased of a good when a person's real purchasing power is changed while holding the relative price of the good fixed is called the income effect. Goods for which this income effect is positive are referred to as normal goods. The change in the amount purchased of a good when the relative price of the good is changed while holding the person's real purchasing power fixed is called the substitution effect, which is always thought to be negative. In models of work behaviour it is typical to treat leisure as a normal good. Thus, as a person's real income rises, we expect the person to consume more leisure if the price of leisure, which is the marginal wage rate for those who work, is held fixed. See Gunderson (1980, pp. 18–20) for an introductory presentation of these concepts. For more sophisticated treatments of the relationship between labour supply and the allocation of time see Sharir (1975) and the seminal work of Becker (1965) and Mincer (1962, 1963).
28. Studies of the work behaviour of married women which include a continuous variable for years of education (measured as years of formal schooling) include the cross-sectional studies of Heckman (1974, 1976), Nakamura, Nakamura and Cullen (1979), Nakamura and Nakamura (1981); and the panel data studies of Heckman (1978, 1981a), Heckman and Macurdy (1980), and Nakamura and Nakamura (1985a, 1985b).
29. There are those who argue that education should be included directly as an explanatory variable in the hours of work equations for married women, in contrast to the usual practice of assuming a priori that education will only affect the hours of work of a married woman indirectly through the impact of education on the wife's wage rate. See, for instance, Michael (1973). The main reason for not doing this in studies like Nakamura, Nakamura and Cullen (1979) and Nakamura and Nakamura (1981, 1985a, 1985b) is that the predicted values of the wage rate which enter the hours equations are strongly affected by education, leading to severe problems of multicollinearity if education is also introduced into the hours equations as an independent explanatory variable. We were not even able to get around this problem by using a nonconventional instrument for the wage variable in the hours of work equation because of the impact of education on the selection bias term also included in the hours equation (Nakamura and Nakamura, 1983a). This problem may be circumvented, however, in studies which control for previous work behaviour and hence control to some degree for education-related tastes for work that are reflected in the person's previous work behaviour.
30. The following sort of conceptual framework is often adopted in studies by economists of the work behaviour of individuals. The asking wage is defined as the minimum wage at which a person would be willing to work an additional unit of time, where this unit of time is usually taken to be an hour. Thus the asking wage evaluated at zero hours of work is the minimum wage which would lead a person to decide to work. The asking wage is sometimes referred to as the shadow price of leisure. The offered wage is defined as the wage a potential employer would be willing to pay the individual for an hour of work. Using this terminology, then, by the way in which these terms have been

defined we see that a person will work if the person's offered wage exceeds the person's asking wage evaluated at zero hours of work. Thus, poor macroeconomic conditions depress the probability an individual will work by depressing the expected offered wage. These concepts, and some of the econometric implications of these empirical concepts, are explained in Heckman (1974). In this framework involuntary unemployment means that a person would like to work if he or she could obtain a wage offer in excess of his or her asking wage, but such a wage offer has not been forthcoming.

31. A rise in the level of macro unemployment could also affect the work behaviour of a married woman by increasing the degree of uncertainty associated with the future earnings stream of her husband, or associated with her own future earnings stream if she works or is planning to work. For instance, a wife might decide to keep her job in the face of an economic downturn, despite the fact that her family has no current need for her earnings, as a form of insurance against the possibility her husband may lose his job.
32. For instance, Nakamura, Nakamura and Cullen (1979, Table 4, p. 794), and Nakamura and Nakamura (1981, Table VII, pp. 472–73) find the estimated coefficients of a provincial unemployment rate variable, and of state and provincial unemployment rate variables, respectively, to be generally, though not always, positive in their wage equations.
33. See, for instance, Ham (1982).
34. The finding that women are occupationally and industrially segregated is not new. For Canadian studies see, for instance, Ostry (1967), Gunderson (1976), Nakamura et al. (1979), Nakamura, Nakamura and Cullen (1979), Nakamura and Nakamura (1981, 1983a) and Merrilees (1982). For U.S. studies see, for instance, Gross (1968), Oppenheimer (1970), Ferriss (1971), and Bergmann and Adelman (1973).
35. See Doeringer and Piore (1971), Donner and Lazar (1973), Cain (1975), and Smith (1976) for an introduction to the issues of dual labour market theory.
36. In Nakamura, Nakamura and Cullen (1979) an opportunity for jobs index is included which can be thought of as the ratio of the expected number of jobs for women to the potential female labour force in a given province and place of residence. This same sort of ratio is included for both Canada and the United States in Nakamura and Nakamura (1981). (We see from Table III for the United States and from Table IV for Canada on p. 460 in this reference that according to this measure of job opportunities there are much better job opportunities for women in the United States than in Canada.) In Nakamura and Nakamura (1983a) an index is included which can be thought of as the expected hours of work for women divided by the expected number of women workers in a given province, or state, and place of residence. The signs of the estimated coefficients for these indices are consistently found to be positive in both the probit indices for the probability of work and the wage equations presented in these three articles. This is also the case in Nakamura et al. (1979).
37. The unconditional labour supply function can always be written as the product of a function for the probability of work and a conditional labour supply function for the hours of work given that an individual does work. Thus the full impact of a change in an individual's offered wage, or offered wage distribution, on the labour supply of the individual will consist of the impact on the probability of work as well as the impact on the expected hours of work given that an individual works. The impact of an increase in the offered wage on the hours of work of an individual who works may be either positive or negative because the income and substitution effects associated with such a wage change have impacts of opposite sign. However, following the reasoning of Ben-Porath (1973, p. 702), for those who are not working there is no income effect from a wage rise, and hence there will be only a substitution effect leading to an increase in the probability of work.
38. For a preliminary analysis of the probability of labour force participation using data from the Manitoba Basic Annual Income Experiment (Mincome), see Swidinsky and Wilton (no date). For an overview of U.S. research based on data from negative income tax experiments see Cain and Watts (1973), Keeley (1981, pp. 105–73), and Killingsworth (1983, pp. 392–408). See also SRI International (1983) for an in-depth

report on the design of and results from the largest U.S. negative income tax experiment, the Seattle-Denver Income Maintenance Experiment (SIME/DIME).

39. Summarizing the results from a large number of more recent studies of the work behaviour of men based on nonexperimental data, Killingsworth (1983, Table 4.3, pp. 193–94) reports uncompensated wage elasticities of hours of work for men ranging from -.38 to .14. Killingsworth (1983, Table 6.2, pp. 398–99) also reports wage elasticities of hours of work for husbands from various studies based on negative income tax experimental data ranging in value from -.19 to .28. Thus for men the range of values obtained using nonexperimental and experimental data is roughly the same, and spans zero.

40. Estimates of the uncompensated wage elasticity of hours of work for wives from experimental data are found from Killingsworth (1983, Table 6.2, pp. 398–99) to range from -.36 to .94. Thus the estimates from experimental data span roughly the same range as the estimates for men from both nonexperimental and experimental data (see note 39). Using nonexperimental data, Nakamura, Nakamura and Cullen (1979, p. 800) obtain uncompensated wage elasticities of hours of work for married women who work of -.320 to .299; Nakamura and Nakamura (1981, p. 483) report values of -.495 to .654; and values of -.197 to -.030 are reported in Nakamura and Nakamura (1983a, p. 246). Although these results are dismissed as a "striking anomaly" by Killingsworth (1983, p. 192), we note that these results are similar to both the findings for wives from experimental data and to the results obtained by others for men using both nonexperimental data and experimental data. Robinson and Tomes (1985) have also obtained results for Canadian wives which support our findings.

41. Except for the studies of Nakamura, Nakamura and Cullen (1979), and Nakamura and Nakamura (1981), the uncompensated wage elasticities of hours of work for women from the various studies based on nonexperimental data for which results are summarized in Killingsworth (1983, Table 6.2, pp. 194–99) range in value from -.89 to 15.24. Deaton and Muellbauer (1980, p. 276) argue, for instance, that "For men, whose shadow wage is low and who work relatively long hours, the income effect is dominant so that the labor supply curve is backward sloping, at least in the observed range. For women, however, the high value of time spent in the home sets a relatively high shadow wage and both participation and hours at work are lower than for men. With shorter working hours, the income effect is necessarily relatively unimportant, so that rising real wages account for greater labor supply by married women through increased participation and longer hours." Notice, however, that the income effect will not necessarily be unimportant for women working to obtain some target amount of money, say, to pay off a mortgage, to finance a child in college, or to pay for a vacation.

    See Perlman (1969, pp. 4–24) for an introductory overview of some of the main ideas which have been advanced in the literature concerning the relationships among work time, leisure and non-market work time. Non-market work may include activities such as commuting and cleaning the house, for instance. Perlman summarizes Mincer's (1962) position that the fact that income from market work can be used to purchase substitutes for home work tends to make the labour supply curve for married women forward-sloping, since an increase in labour supply need not result in an equal reduction in leisure time in this case. Possibilities for men to substitute market time for non-market time are considered to be much less because they spend so little time, on average, in non-market work. We wonder, however, if these views are correct for either men or women. Certainly there is no hard evidence that they are correct.

42. For empirical documentation concerning the growth in total employment in Canadian industries and occupations where women have traditionally made up substantial portions of the work forces see, for instance, Nakamura et al. (1979) and Nakamura, Nakamura and Cullen (1979). More recent evidence for both Canada and the U.S. is presented in Cullen and Nakamura (1985).

43. A number of factors in addition to those discussed in this paper have been considered in studies of the labour force behaviour of women, of course. See, for instance, Lazar (1978) for evidence and further references concerning the impacts of the 1971 revisions to the Canadian Unemployment Insurance Act on the propensities of women to enter the labour force or to leave their jobs. Looking back at Figure 4-1, however, we find no

obvious evidence of any distortion, or increase, in the upward trend for the labour force *participation* rate for prime-aged women in the years immediately following 1971. Thus we doubt that this change in the Unemployment Insurance Act has played any important role in causing the observed increase in the labour supply of women.

44. The most complex of the U.S. microanalytic simulation models, DYNASIM, is described in Orcutt, Caldwell and Wertheimer (1976). See Social Security Administration (1980) for a description of a modification of the DYNASIM model, MICROSIM, and the use of this model in policy studies of the U.S. Social Security program. The development of microanalytic simulation models in Canada has lagged behind the development in the United States and numerous other countries. Some preliminary results for a very simple microanalytic simulation model for Alberta are presented, however, in Nakamura and Nakamura (1978).
45. The concept of heterogeneity is defined and contrasted with the concept of true state of dependence in Heckman (1981a).
46. We could try to estimate the total impacts on both work behaviour and fertility, for instance, of "exogenous" variables such as a woman's place of residence at age 16 or her education which are believed to determine or be associated with her unobservable tastes for home-oriented versus market-oriented activities. We could even treat other variables such as a woman's marital status and schooling as being jointly determined, in a lifetime context, with her fertility and work behaviour. See, for instance, Schultz (1978, 1980) and Rosenzweig and Wolpin (1980) for discussion and empirical evidence concerning these issues of endogeneity. See also Carliner, Robinson and Tomes (1980) and Robinson and Tomes (1982).
47. Heckman (1978) suggests: "It is plausible to conjecture that 'lagged participation' might serve as a good 'proxy' for the effect of heterogeneity." In the revision of this working paper which was ultimately published, Heckman (1981a, p. 118) refutes this conjecture stating that: "'Proxy methods' for solving the problems raised by heterogeneity such as ad hoc introduction of lagged work experience variables lead to dynamic models that yield exceedingly poor forecast equations for labor force turnover. Models that neglect recent market experience and heterogeneity actually perform better in forecasting turnover on fresh data, but these forecasts are still poor, and considerably overestimate the amount of turnover in the labor market." It would appear, however, that the poor out-of-sample simulation results for his model incorporating a dummy variable for lagged participation are, in fact, due to peculiarities of his model which have nothing to do with the introduction of the dummy variable for lagged participation. In particular, the out-of-sample simulation problems stem from the impact of a national unemployment rate variable, for which the coefficient is poorly determined because the variable took on only two different values over the three-year period covered by the panel data used in the estimation of the model, and from the impact of the in-sample experience variable, where this variable has a range of zero to three in-sample and a range of zero to six in the out-of-sample setting. Nakamura and Nakamura (1985a) present both in-sample and out-of-sample simulation results showing that the incorporation of a lagged dummy for work in the previous year, which is Heckman's lagged "participation," can greatly improve the ability of a model of the labour force behaviour of married women to capture the observed continuity over time in the employment and earnings behaviour of individual women.
48. For a more formal presentation of why the introduction of lagged hours of work and wage rate variables into a model of the labour force behaviour of married women is a reasonable approach for mitigating the problems raised by heterogeneity, see Nakamura and Nakamura (1985a).
49. For a discussion of why in-sample simulation results are a reasonable way of appraising models see Nakamura and Nakamura (1985a). The full details of the study on which the results presented in Tables 4-5 and 4-6 are based are given in Nakamura and Nakamura (1985b).
50. Cain (1966, pp. 82–83 and 99) finds evidence that past marital instability increases the probability that a currently married woman will work. This issue is dealt with extensively as well in Nakamura and Nakamura (1985b). The effects of previous marital status on work behaviour cannot be examined in most recent studies because either

these studies are based on cross-sectional data sources which contain no information about previous marital status, or the sample of women for whom panel data are used is restricted to those who have been continuously married over the time period spanned by the study.

51. One reason individuals make human capital investments through investments in education and on-the-job training is because they expect that these investments will allow them to earn more in years to come. Also, while business investments may often pay off within five to ten years, the payoff period for a college education may be much longer than this (see Becker, 1975). See also Wachtel (1975) for some estimates of the rate of return to schooling. Thus, women who do not expect to work much outside their homes as adults will expect a low money rate of return on career-oriented investments in education or training, and thus will not be expected to make substantial investments of this sort (Mincer and Polachek, 1974). They may, however, be interested in educational opportunities which they believe will make them better homemakers, better citizens, more interesting conversationalists, or which will enhance the value of their leisure time in years to come. Thus, they may attend college, but will be unlikely to select career- or job-oriented courses. In contrast, young women who expect to work most of their adult lives may exhibit behaviour with regard to investment in human capital through education and training that is similar to the behaviour of young men, with adjustments for perceived barriers to the entry or promotion of women in various lines of work and for anticipated responsibilities for a home or children.
52. Investments in educating or training employees are good investments for an employer to make only if the employees who receive such education or training continue to work for the employer long enough for these investments to pay off. The costs of making firm- or employer-specific investments in the human capital of workers are thought, in general, to be shared by workers and the firms or employers they work for. (See, for example, Parsons, 1972 and Chapman and Tan, 1980). Workers will be willing to bear some share of these costs, and hence will be interested in the associated education or training opportunities, to the extent that they believe they will continue to work for the particular firm or employer for some substantial length of time. Thus, for reasons outlined in note 51, many women may be uninterested in such opportunities. Another reason workers may also be willing to bear these costs is because workers who receive firm- or employer-specific training are less likely to be laid off since, if some of these workers were to take other jobs, the firm or employer could not recoup the investment in human capital in these lost workers. Firm- or employer-specific human capital would not be worth as much in a different firm or employment situation. For this reason, workers who receive such investments are often thought to be less likely to leave their present job to go to some other firm or employer. Such arguments may not apply directly to women who might leave because of their home situations or their preferences for home-oriented activities, however. Thus a firm or employer may be reluctant to make human capital investments in a woman who is not thought to have a long-term commitment to the firm or employer, and women with short-term work objectives may also be unwilling to share such costs.
53. For statistical theories of discrimination which might, at least partially, explain the reluctance of employers to make human capital investments in workers with less formal education, or in women workers in general, see, for instance, Phelps (1972) and Arrow (1973).
54. For references on the history and problem of organizing fragmented work forces see, for instance, Sen (1984), White (1980) and Lowe (1978).
55. For theoretical arguments incorporating nonmonetary motivations for work, and for supporting empirical evidence, see Juster and Stafford (1985).
56. For instance, Susan Fraker (1984, p. 44) writes in *Fortune* that: "Motherhood clearly slows the progress of women who decided to take long maternity leave or who choose to work part time. But even those committed to working full time on their return believe they are sometimes held back. . . ."
57. For arguments concerning the effects of the crowding of women into the traditional "women's" occupations see, for instance, Bergmann and Adelman (1973).

58. For Canadian references on the work behaviour of the young see, for instance, Sen (1982) and Swidinsky (1980).
59. See, for instance, Robb (1978), Holmes (1976), Gunderson (1976, 1979, 1985), Boulet and Rowley (1977), Masters (1977), Schrank (1977), Blackorby, Donaldson and Auersperg (1981), and Shapiro and Stelcner (1981) for Canadian studies. U.S. references on this topic, as well as on the impact of equal opportunity policy, include Oaxaca (1971, 1973a, 1973b), Polacheck (1975a, 1975b, 1981), Beller (1980, 1982), Simeral (1978), Osterman (1982), and Cabral, Ferber and Green (1981).
60. See Nakamura et al. (1979, pp. 59–77) for comparative information on this topic. See also Beach and Kaliski (1982).
61. See Nakamura et al. (1979, p. 85) and Nakamura and Nakamura (1985b, sec. 7.2).
62. See, for instance, Menzies (1981, 1982).
63. See Nakamura and Nakamura (1985a, 1985b) for evidence concerning the gains in forecasting ability which could result from the collection of various sorts of recall information.
64. See, for instance, the information in note 15.

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5

Discrimination, Equal Pay, and Equal Opportunities in the Labour Market

MORLEY GUNDERSON

The rapid adjustments of the Canadian labour force during the 1970s will likely continue and possibly even accelerate in the future. These adjustments have implications for, and are likely to be affected by, issues pertaining to discrimination in the labour market. Resolution of these issues requires an understanding of the role of discrimination in the labour market — why it occurs, its magnitude and form, and the adequacy of policy initiatives designed to deal with it.

The purpose of this paper is to provide a summary picture of the current situation in Canada. The paper begins with a discussion of a number of perspectives on discrimination, emphasizing their implications for alternative policy initiatives. The magnitude of the problem of discrimination is then discussed, with emphasis on alternative empirical procedures, the existing Canadian evidence on the earnings gap and its changes over time, the factors associated with the gap, and the implications for policy initiatives that deal with different aspects of pay and employment discrimination. Equal pay policies in their different forms are then documented and discussed, with particular emphasis on equal value policies, since that tends to be the subject of most current controversy and debate. Equal employment opportunities are subsequently documented and discussed, with particular emphasis on affirmative action, which is the source of much controversy in that area. Finally, empirical evidence on the impact of the various legislative initiatives is presented.

The paper deals mainly with discrimination on the basis of sex, although many of the issues, especially theoretical ones, pertain to other forms of discrimination. Moreover, discrimination in the labour market is the main focus, although aspects of behaviour pertaining to such

places as the household and educational institutions are discussed because they are inextricably related to the labour market behaviour of women. Lastly, while the emphasis of the paper is on discrimination as a contributing factor to the unequal lifetime incomes of men and women, other contributing factors are touched upon briefly since they, too, are inextricably related to discrimination as a source of unequal incomes.

Alternative Perspectives on Discrimination

The effectiveness of various policy initiatives to deal with discrimination that is reflected in unequal pay or employment opportunities depends, in part, on the underlying causal mechanism that gives rise to such discrimination. A number of underlying causal mechanisms have been identified in the theoretical literature on discrimination, and an understanding of them is important for policy purposes for a number of reasons: to forecast changes in the extent of unequal pay and employment opportunities especially when their basic structural determinants change over time; to shed light on the mechanisms through which discrimination may be manifest and how these mechanisms may be affected by policy initiatives; and to indicate the expected impact of policy initiatives and the factors that may offset or complement their effectiveness.

There are a number of ways to categorize the various theoretical approaches to the analysis of discrimination, but most can be categorized under the rubrics of neoclassical taste perspectives, non-competitive theories (segmented labour markets, radical perspectives, systemic discrimination, non-competitive sectors, monopsony), statistical discrimination, and non-labour constraints.

Neoclassical Perspective

While there are numerous variants of neoclassical models of discrimination, they are all based on optimizing behaviour by the parties involved.

Discriminatory Preferences

Arrow (1972), for example, assumes that firms maximize utility, which is a positive function not only of profits but also of the employment of the preferred group (e.g., males) and a negative function of the employment of the group discriminated against (e.g., females). In analogy to an international trade model, Becker (1957) assumes that firms act as if they are willing to pay a higher price to utilize preferred workers, just as countries seem to be willing to pay a higher tariff-protected price to consume domestic products.

The driving force behind models of these sorts is that there is a discriminatory preference that is manifest in a preference for hiring,

working with, or consuming from different types of labour. Whether the preference emanates from customers, co-workers, or from firms themselves, it will ultimately be manifest in a reduced demand for workers who are discriminated against, and this in turn will reduce their wages and employment opportunities. There will also be a tendency for firms to become segregated as minority workers gravitate toward firms that discriminate the least.

Even if competitive forces are at work they may take an extremely long time to dissipate discrimination. As Arrow (1973) points out, firms are unlikely to substitute the cheaper labour of those discriminated against for more expensive labour immediately, because firms want to amortize the quasi-fixed hiring and training costs of their work force by retaining them for as long as possible. It may even be difficult for firms to replace workers lost by attrition with the cheaper workers because the incumbent workers may practise discrimination, and hence such firms may experience problems of morale or disruption. In such circumstances it is possible to imagine a firm retaining its discriminatory practices for a long time even though, in the short run, it could replace much of its work force with lower-wage workers capable of the same productivity.

Specialization and Comparative Advantage

The neoclassical perspective also emphasizes the importance of specialization according to comparative advantage.[1] That is, a rational division of labour (from an efficiency point of view) may involve one sex specializing in household tasks and the other in labour market tasks, and since women bear the children (so the argument goes) they may have the comparative advantage in household tasks. This also means that since their careers are likely to be shorter and interrupted, they are unlikely to invest as much as males in human capital,[2] and they are likely to acquire education and skills that are usable in both household and labour market tasks.

While principles of specialization according to comparative advantage can certainly be rational from the viewpoint of economics, it is also the case that the initial basis for the comparative advantage — women bearing the children — can involve only a brief interruption from labour market work. The remaining aspects of the care and raising of children can certainly involve shared responsibility. In addition, the process becomes cumulative: since women specialize in household tasks they earn less in the labour market; since they earn less in the labour market, they specialize in household tasks. Lastly, even if it is efficient for women to specialize in household tasks, it certainly may not be equitable, and it is understandable that at least some may try to break what could be considered a vicious circle of specialization.

Neoclassical Policy Implications

A number of policy implications flow from this neoclassical perspective. First, it implies that firms, co-workers or customers ultimately pay for their discriminatory preferences by by-passing the opportunity to hire equally productive workers who are discriminated against at a lower wage. Second, this implies that firms that discriminate less should expand relative to those that discriminate more; competitive cost pressures should reduce the extent of discrimination. (Hence, the usual neoclassical emphasis is on a hands-off policy, except for one that would make markets work more effectively.) Third, while the neoclassical perspective tends to emphasize a hands-off policy, there is nothing inconsistent with public intervention to override tastes (or at least make them more expensive); this is done with respect to preferences for prostitution or for some occupational choices such as burglary. There may be no accounting for tastes, but that does not mean that they are socially acceptable or that they should be permitted through market activities, even by those who are willing to pay.

Non-Competitive Perspectives

In part as a response to the anomaly that discrimination does not seem to be consistent with competitive economic forces, a number of non-competitive theories of discrimination have been advanced.

Segmented, Crowding Perspective

According to the segmented labour market perspective, the labour market consists of a number of non-competing groups. While there are numerous ways of classifying the various labour markets, the essence is captured by the dual labour market perspective, whereby the labour market is basically categorized into primary and secondary sectors. The primary, or core, labour market consists of high-wage jobs with good working conditions, fringe benefits, job security and chances for promotion; the secondary labour market has the opposite characteristics. Once in the secondary labour market,[3] workers become trapped in it, not only because there is little mobility between the primary and secondary markets but also because they begin to acquire the characteristics of workers in that market — the poor wages and working conditions encourage turnover, absenteeism, and poor work habits, which in turn encourage low wages. Wages within each of the sectors are determined more by administrative procedures and traditional hierarchical relations of the internal labour market of each firm than by forces of competition.[4]

According to this perspective, women tend to be segregated into the secondary labour market with its attendant low wages, occupational segregation, and few chances for advancement. This in turn sets in motion the self-fulfilling vicious circle of entrapment as they acquire the

characteristics that will keep them in that sector. In addition, as Bergmann (1971) points out, the crowding implies a supply pressure that will decrease the marginal productivity of such workers. Thus, occupational segregation leads to lower wages even if workers are paid a competitive wage equal to the value of their marginal product; their marginal product is reduced by the supply pressures resulting from the overcrowding.

Radical Perspective

The radical perspective goes one step further and argues that the segmentation is deliberately fostered by employers as part of a conscious policy of divide and conquer (Reich, 1978; Roemer, 1979). In addition, employers will pit workers, including minorities, against each other and encourage policies to discipline the work force through maintenance of a reserve of unemployed labour. All of this will be done to reduce working-class power — power being more important than the forces of supply and demand in determining income.[5]

Systemic Discrimination

The concept of systemic discrimination has recently been advanced to deal with discrimination that appears to be unintended, resulting more as a by-product of the system than as conscious acts. Systemic discrimination, for example, may result from word-of-mouth recruiting that perpetuates the existing composition of the work force, or from job requirements pertaining to height, strength, or training requirements, all of which tend to exclude certain groups systematically (Canada, 1981, p. 92; Phillips, 1981). Often the requirements are not completely necessary for the job, but rather can be invoked because wages are institutionally fixed above the competitive norm, and such requirements serve as a way of rationing jobs. To the extent that the requirements tend to exclude certain groups they may then be discriminatory, even if that was not intended.

Non-Competitive Sectors and Constraints

While the forces of competition may serve to dissipate discrimination, this need not be the case in non-competitive sectors. Monopoly profits can be used for any purpose, including the indulgence of discriminatory tastes (albeit there is some pressure to use them in ways that would protect the excess profits or rents). The public sector can reflect the prevailing political preferences of majority voters and this may not be conducive to minority rights. Wages may be set above the competitive norm[6] by unions or legislative means, and employers may ration scarce jobs according to discriminatory preferences. Even policies that protect the jobs of incumbent workers (e.g., tariffs, corporate bail outs) or that make it more difficult to lay off such workers (e.g., notice requirements,

termination pay) can reduce the competitive pressures that could dissipate discrimination. In a rent-seeking and rent-protecting economy, competitive forces obviously may be thwarted, and income allocations may, in part, reflect voting mechanisms and power groups.

Monopsony

Non-competitive pressures may also work through employers' monopsonistic power to influence discrimination.[7] Monopsony occurs when the employer is so large relative to the size of the local labour market that wages have to be raised to attract additional workers; conversely, when employers lower their wage they lose some, but not all, of their work force. However, employers are reluctant to raise their wage so as to hire additional labour, because they will have to pay that higher wage to their existing work force of the same quality. In such circumstances, employers pay wages that are lower than they would pay if they behaved competitively.

Imperfectly discriminating monopsony (analogous to imperfectly discriminating monopoly in the product market) may also prevail if the monopsonist is able to segment its work force where there may be competition within but not between pools of otherwise similar workers. Under such circumstances the monopsonist would equate the marginal costs of hiring from the different pools of labour; however, this would imply a lower wage rate for the group with the more inelastic labour supply to the firm.

Women may be subject to monopsonistic discrimination to the extent that they are less mobile and are tied to places of employment near their households. The interesting aspect of this type of discrimination is that it is consistent with profit maximizing on the part of firms; firms cannot increase their profit by hiring more of the lower-wage labour. (They are already maximizing profit by equating the marginal cost of labour with its marginal revenue product under simple monopsony, and with the marginal costs of both male and female labour under imperfectly discriminatory monopsony.) In addition, under monopsony, wage-fixing legislation such as equal-pay laws could raise both the wages and employment of those who would otherwise be subject to monopsonistic discrimination. This paradoxical result occurs because, when faced with the legislatively fixed wage, employers are no longer reluctant to hire additional workers as under monopsony, when they also have to raise the wages of their existing (inframarginal) workers. The legislative wage fixing turns them into wage takers, not wage setters; hence, they lose their power to influence the wage rate.

Statistical Discrimination

Under statistical discrimination individual workers are judged on the basis of the characteristics of their group.[8] This may well be efficient from the employer's perspective, from which it would be up to individual workers who felt they had better-than-average characteristics relative to their group to signal that information, a process that may be costly and would hence have to be weighed against the benefits of providing the information to employers.

While such statistical discrimination and the related signalling may be efficient (and sustained in a competitive market), society may also deem it unfair that people not be judged on their individual merit or that they should have to engage in expensive signalling to differentiate themselves from their group. In that vein it is not inconsistent for society to adopt measures that require people to be judged on their own individual merit, even if so doing involves a loss of efficiency.

Non-Labour Market Constraints

Given the importance of at least some competitive forces in the labour market, it is unlikely that the labour market itself is the major source of discrimination. It is almost inconceivable, for example, that the overall earnings gap implied by the ratio of female to male earnings of .60 (discussed subsequently) could be attributed to discrimination in the labour market. This would imply that at least some employers were bypassing opportunities to increase their profits by replacing male workers with equally productive female workers at 60 percent of the cost. Nevertheless, some discrimination seems sustainable, given the non-competitive factors discussed previously, and certainly some (perhaps the majority) could originate outside the labour market, where competitive cost pressures do not prevail.

Educational institutions, for example, may stream females into subjects that are not labour market oriented, or into so-called "women's work" careers such as nursing or secretarial work. Sex stereotyping in classrooms and textbooks may foster traits that carry over into labour market behaviour: competitiveness and skills on the part of males, passiveness and domesticity on the part of females.

The household may be an even more important factor influencing women's behaviour in the labour market.[9] To the extent that a woman who works in the labour market still bears primary responsibility for household tasks,[10] especially the care of children, it should not be surprising that carrying on two full-time jobs can lead to higher absenteeism,[11] a reluctance to take on more responsibility, or reduced productivity in labour market work. In addition, household responsibilities

account for much of the lower and more intermittent labour market experience of women as opposed to men, and, as discussed subsequently, this can be an important determinant of the earnings differential. While such a division of labour may reflect some aspects of specialization resulting from comparative advantage, it is likely that in part it also reflects a carry-over of traditional roles. And while such traditional roles may be changing (and many marriages may be dissolving because they cannot change implicit contracts in response to the new circumstances), the change is very slow, and is being inhibited by institutional arrangements in the labour market that make part-time employment, job sharing or female work arrangements very difficult.[12] For example, payroll taxes that require a fixed payment per employee or that are not pro-rated on an hourly basis discourage employers from using part-time workers. Ceilings on the unit of tax deductibility for daycare, as well as overregulation of daycare facilities, and policies that discourage part-time work by husbands may discourage the emergence of private market daycare or shared responsibility in the household. Such arrangements, along with daycare and other facilitating policies, will certainly emerge increasingly in time; meanwhile, however, the household is likely to be an extremely important source of influences on the work behaviour of many women.

An additional non-labour market constraint that can influence discriminatory preference has been suggested by Arrow (1972). According to conventional economic theory, when faced with a costly mistake (such as by-passing the opportunity to hire workers who are discriminated against at a lower wage), rational parties will abandon their costly behaviour. Firms that do not will decline in the long run; there is no survival value in consistently making costly errors. In contrast, psychology asserts that rather than abandon the mistake, through the process of cognitive dissonance we may seek to rationalize the error by surrounding it with a set of elaborate rationalizations and justifications. Our behaviour can become more, not less, discriminatory as in theories of the super race or genetic or gender superiority. Such perspectives may in fact have survival value in the sense of psychologically enabling us to live with our mistakes (Akerlof and Dickens, 1982). The extent to which this type of thinking can persist in the long run is open to question; however, it can certainly postpone the long-run competitive adjustment process.

Description of the Problem

In order to analyze the potential for different policy options to deal with labour market discrimination it is necessary to have not only a theory of the causal factors influencing discrimination, but also a picture of the magnitude of the problem. In particular, it is necessary to know the magnitude of the

differences in pay and employment opportunities that can be attributed to discrimination in the labour market and hence that can be dealt with potentially by equal pay and equal employment opportunities.

Alternative Empirical Procedures

The key problem in empirical work on discrimination is to control for the influence of productivity-related characteristics that can give rise to legitimate non-discriminatory earnings differentials and employment opportunities. The problem is compounded by the fact that while data on many wage-determining factors such as education and training exist, they do not always exist for such factors as labour market experience (its magnitude, relevance and continuity) and the type, as opposed to the quantity, of education.

In general there have been four main ways to standardize or control for the influence of productivity-related factors: adjusted ratios for subgroups; narrowly defined occupations; regression analysis; and job-evaluation procedures. The adjusted ratio procedure simply involves a comparison of the earnings ratio for all workers with one that emerges when comparisons are made for subsets of workers that are more alike in terms of their wage-determining characteristics (e.g., full-time, full-year workers, workers of the same age or education group). The narrowly defined occupation procedure involves a comparison of male and female earnings in the same narrowly defined occupations, the rationale being that the job requirements will be similar in such occupations and hence it is not necessary to control for the influence of variables like education, training, experience, or even unobservables like motivation or quality of education. They are allowed to trade off against each other; what matters is the bottom line, that the person can do the job required of the occupation.

Basically, the regression procedure involves estimating a separate wage equation for males and females (based on microdata with the individual as the unit of observation) with productivity-related characteristics (e.g., human capital) as explanatory variables.[13] The overall earnings differential can then be decomposed into two component parts: a portion attributable to differences in the endowments (explanatory variables) of productivity-related characteristics, and a portion attributable to differences in the pay (regression coefficients) received for the same endowments of productivity-related characteristics. Differences in pay for the same endowments are attributed to discrimination, while differences in endowments are considered as legitimate reasons for pay differentials, at least insofar as the labour market is considered, albeit they may reflect discrimination in acquiring such endowments as education, training or experience.

The regressions can focus on narrowly defined wage discrimination by

including control variables for a person's occupation and industry, or they can estimate the extent of both wage discrimination and occupational and industrial segregation by not controlling for the latter variables but only controlling for the personal and human capital characteristics. Unfortunately, the occupation and industry classifications that are available in most microdata sets are so broad that even when these variables are controlled for, a pure measure of wage discrimination (independent of occupational segregation) does not result because there can be so much intraoccupational segregation within those broad groups.

The job evaluation procedure basically involves regressing an estimate of pay in the job against a measure of a job evaluation point score. The latter may be an amalgam of points received in the job evaluation for inputs pertaining to skill, effort, responsibility and working conditions. The factors can be weighted differently by allowing a different range of numbers for each factor. The regression line of best fit (termed the pay line) indicates the additional pay associated with an additional job evaluation point score; it is the shadow price of a point score.

A measure of pay discrimination can be obtained by comparing the pay in predominantly female jobs (which are likely "undervalued" and hence lie below the pay line) with the pay in predominantly male jobs (which are likely "overvalued" and hence lie above the pay line). This pay difference would reflect unequal pay for work of equal value where the latter is determined by a job evaluation procedure. It can reflect both the overvaluation of male jobs and the undervaluation of female jobs. This procedure has been used in a number of equal value assessments (discussed subsequently).

Summary of Canadian Evidence

Variations of most of these different empirical procedures have been followed in a number of Canadian empirical studies.[14] Table 5-1 gives the ratio of female to male earnings both before and after the adjustments were made (via the different procedures) for differences in productivity-related factors. While the range of estimates is fairly substantial (reflecting in part the different data sets and methodologies), a number of generalizations can be made.

In most studies that look at the full-time, full-year earnings of individuals, across different establishments, occupations, industries and regions, the ratio of female to male earnings is about .60 (e.g., Ostry, 1968; Robb, 1978; Gunderson, 1979, 1980b; Stelcner and Shapiro, 1980; Kapsalis, 1980). Adjusting for differences in such measured productivity-related factors as education, experience, and broad occupation groups tends to raise the adjusted ratio to approximately .80. By necessity, however, the adjustments in these studies are often crude since data

TABLE 5-1 Female-Male Earnings Ratio, Unadjusted and Adjusted for Various Productivity-Related Factors, Various Canadian Studies

Study	Year and Data	Gross Unadjusted Ratio	Net Adjusted Ratio
Ostry (1968)	1961 census	.59	.81
Robson & Lapointe (1971)	University faculty 1965–66	.80	.90
Gunderson (1975)	Narrowly defined occupations, same establishment, 1968–69	.82	.93
Schrank (1977)	University faculty 1973–74	.83	.95
Robb (1978)	1971 census, Ontario: males vs. single females over 30	.60 n.a.	.76 .94
Gunderson (1979)	1971 census	.60	.77
Stelcner (1979)	University faculty 1976–77	.91	.94
Walmsley et al. (1980)	Saskatchewan organization, 1980	.80	.87
Gunderson (1980)	1971 census, Ontario	.60	.76
Shapiro & Stelcner (1980)	1971 census: Canada, public Canada, private Quebec, public Quebec, private	 .65 .57 .66 .56	 .83 .72 .87 .74
Stelcner & Shapiro (1980)	1971 census, Quebec: single over 30	.60 .83	.82 .82
Kapsalis (1980)	1975 Survey of Consumer Finance	.61	.87

Source: M. Gunderson, *The Male-Female Earnings Gap: A Current Assessment* (Toronto: Ontario Ministry of Labour, Research Branch, 1980), p. 5.20.

limitations preclude controlling for differences in the detailed industrial or occupational distribution. In contrast, studies based on hourly wages in narrowly defined occupations in the same establishment or based on case studies (which therefore automatically control for establishment, region, industry and sometimes occupation) have unadjusted ratios of around .80 or higher and productivity adjusted ratios of .90 to .95 (e.g., Robson and Lapointe, 1971; Gunderson, 1975; Schrank, 1977; Stelcner,

1979; Walmsley et al., 1980). Thus, adjusting for differences in productivity-related factors tends to raise the ratio of female to male earnings, but a wage gap of 5 to 10 percent still seems to prevail within the same establishment. This can be thought of as narrowly defined wage discrimination involving comparisons within the same establishment and occupation. It does not include the portion of the earnings difference that can be attributed to occupational segregation, since such differences were controlled for in the analysis.

The component of the .40 overall earnings gap that can be attributed to occupational segregation is more difficult to establish, as is the extent to which it reflects discrimination in the labour market as opposed to discrimination outside the labour market or choices that may or may not reflect discrimination. There appears to be a consensus in the literature that occupational segregation is a more important channel of discrimination than is narrowly defined wage discrimination, suggesting that occupational segregation would account for more than the .05 to .10 of the .40 gap that can be attributed to narrowly defined wage discrimination. But how much larger is difficult to determine.

Empirical studies that decompose the overall earnings differential into its component parts do not help much because they are limited to utilizing only broad occupations and industry groupings, and hence they cannot capture the occupational segregation within such groupings. The studies based on job evaluation point scores can provide some information since they can assign point scores across different occupations. Differences in pay between predominantly male jobs and predominantly female jobs for the same productivity, as measured by a job evaluation score, can be taken as a measure of the extent of pay differences arising out of the occupational segregation of females into predominantly female, low-paid jobs. Within the predominantly male or female jobs women may also receive lower pay, but such a practice would be categorized as narrowly defined wage discriminations since it is within the same job.

Of course, with respect to occupational segregation, the job evaluation procedures do not enable the relative importance of labour market discrimination to be determined, as opposed to pre-labour market discrimination or occupational "choices" that may or may not reflect discrimination. Women may be assigned to low-paid, predominantly female, jobs by their employer; they may apply for them disproportionately because they were streamed into such jobs by their education and training; or they may apply for them disproportionately because they have little choice given their household responsibilities, or because such jobs are compatible with a preferred lifestyle. In all likelihood there is a combination of all of these factors, and the readily available supply of women to do these jobs means that employers are not under competitive

pressure to raise wages in the predominantly female jobs. In the job evaluation procedures such supply factors are not considered in the determination of the point scores; they are determined administratively while the wages may well be market determined, influenced by supply and demand.

The job evaluation studies (discussed subsequently) tend to find that females are paid approximately 80 percent of what males are paid for the same productivity as measured by a job evaluation point score, implying a gap of .20 reflecting the occupational segregation of females into the lower-paid jobs. This is consistent with the earlier statement that occupational segregation is likely to be more important than wage discrimination as a source of discriminatory earnings differentials.

This portion of .20 of the gap attributable to discriminatory occupational segregation (i.e., about half of the overall gap of .40) is likely to be an upper bound for three reasons. First, as discussed previously, not all of the differences in the occupational distribution are likely to reflect discrimination. Second, a large gap of .20 is difficult to explain as sustainable under the forces of competition, since employers would be under profit-maximizing cost pressures to hire mainly into the low-paid occupations (assuming that the functions are at least somewhat interchangeable across the segregated occupations) and this demand pressure should serve to dissipate the discriminatory gap. Third, a pay gap of .20 for equal productivity as measured by equal job evaluation point scores reflects not only the undervaluation of predominantly female jobs (i.e., systematically falling below the pay line) but also the overvaluation of male jobs (falling above the pay line). To the extent that the redress of discrimination focusses on raising the pay of the undervalued and not lowering the pay of the overvalued (and this seems to be the practice where equal value policies have been instituted, as discussed subsequently), then about half (i.e., .10) of the gap of .20 could be attributed to wage differentials arising out of occupational segregation.[15]

In summary, the amount of the overall male-female earnings gap of .40 that can be attributed to discriminatory occupational segregation is likely to be larger than the .05 to .10 attributable to wage discrimination within the same occupation, but smaller than the .20 attributed to wage differences between predominantly male and predominantly female jobs of the same job evaluation point score. A magnitude of .10 was suggested as plausibly attributable to discriminatory occupational segregation, in part because this was consistent with the magnitude of wage adjustments that actually occurred when equal value was implemented through job evaluation procedures that made comparisons across occupations. This suggests that of the overall earnings gap of .40, approximately .05 to .10 can be attributed to wage discrimination within the same establishment and occupation, .10 to earnings differences arising out of occupation

segregation across occupations, and the remaining .20 to .25 to differences in other productivity-related characteristics, an indeterminant amount of which may reflect discrimination outside the labour market.

To some, this assessment (and it is only an assessment, subject to considerable variability) of slightly less than half of the overall earnings gap of .40 reflecting discrimination in the labour market will be an insultingly low estimate of a phenomenon that they see as manifestly larger in magnitude. To others, especially neoclassical economists, it will be a gross overestimate, failing to account properly for unmeasurable characteristics, choices that reflect the comparative advantage of the different groups, and entirely inconsistent with competitive economic forces in the long run.

Neither of these perspectives can or should be dismissed (as is so often done by each side in the debate). A large discriminatory gap is unlikely to prevail, given the forces of competition; however, a gap of something like .15 to .20 reflecting both wage discrimination and occupational segregation does seem to be believable in a labour market riddled by market imperfections and non-economic constraints. And such a magnitude is not inconsequential when we consider that it is only one of many possible problems faced by women in engaging in labour market activities.

Factors Associated with the Earnings Gap

Just as decomposing the overall earnings gap into components attributable to wage discrimination and occupational segregation is extremely difficult, so is determining the importance of other factors influencing the gap.[16] The problem is compounded by the fact that in the conventional regression technique for decomposing the overall gap, the portion attributable to wage discrimination cannot be further decomposed because the effect of each variable depends upon the magnitude of the constant term, which in turn depends upon the arbitrary coding of the units for the different explanatory variables (Jones, 1983). Thus, it is not possible to say, for example, that .05 of the overall wage gap could be attributed to the fact that males get a higher return on their education or training than do females. In spite of these problems, some generalizations can be drawn from the data, although for almost any of them there are exceptions in the empirical literature.

The earnings gap tends to be smaller in the public than in the private sector, and when payment is made through incentive pay schemes. While females are disproportionately less unionized than males, the male-female earnings gap tends to be smaller in unionized than non-unionized establishments, at least based on limited Canadian evidence.[17]

Differences in labour market experience — in its dimensions of quantity, quality and continuity — are important in explaining part of the overall

earnings differential. Being married has dramatically opposite effects, increasing the earnings of males and decreasing those of females.[18] The importance of continuous labour market experience as well as marriage highlights the importance of differential household responsibilities in determining labour market behaviour and remuneration.

The economic return on education tends to be positive and higher for females than males at more advanced levels of education, but not at early levels, suggesting that females can improve their position both absolutely and relative to males by acquiring more advanced education.[19]

Implications for Policy Initiatives

The previous discussion of the magnitude of the overall earnings gap attributable to various forms of discrimination can shed light on the potential effects that various policy initiatives may have on the overall earnings gap. The mechanisms through which policies would affect earnings, together with their likely impact, will be discussed in subsequent sections; in this section only their potential in terms of the earnings gap is discussed.

Conventional equal pay legislation dealing with substantially similar work, basically involving the same occupation, has some potential role. However, that role is limited by the fact that its maximum potential impact is likely to be on the .05 to .10 of the gap that can be attributed to narrowly defined wage discrimination within the same occupation and establishment.

Equal employment opportunity policies dealing with recruiting and promotion have a larger potential role since they can affect occupational segregation, which is generally believed to be quantitatively more important, possibly accounting for .10 or more of the overall earnings gap. Equal pay for work of equal value, even though it deals with pay and not employment opportunities, also has a larger potential role since it, too, can deal directly with earnings differentials arising out of occupational segregation.[20] In fact, equal value policies have been advocated specifically to enable comparisons across occupations and thereby to overcome the limitations of conventional equal pay policies, which are designed for comparisons between substantially similar jobs. The scope for equal value legislation is likely to be around .10 of the gap (a figure that is consistent with cases of the actual implementation of equal value, to be subsequently discussed)[21]; however, it could also range as high as .20 if it ultimately involved pay increases up to those of overvalued male jobs.

Given that the greater part of the gap can be attributed to factors other than discrimination as it occurs in the labour market, policies must deal with factors outside the labour market. Education policies, as well as those affecting the household division of labour (e.g., daycare and family

law) are obvious examples, especially given the importance of education, experience and marriage, as documented previously. While they have greater potential for affecting the earnings gap, they are also ones for which there is greater political sensitivity, in part because of their potential real resource cost (e.g., daycare) and potential encroachment on family decisions (e.g., family law).

Changes Over Time

One of the most controversial aspects in documenting the extent of the discrimination problem pertains to changes in the earnings gap that have occurred over time. This is important not only to see if the problem is growing over time but also to determine if competitive and other forces are dissipating the extent of discrimination.[22] In spite of the obvious importance of this issue, surprisingly little empirical work has been done on the topic, in part because of the lack of consistent time series data on the unadjusted and productivity-adjusted earnings gap.

Based on time series regressions on narrowly defined occupational wage rate data for Ontario, Gunderson (1976, forthcoming) found that the gap tended to widen over the 1950s and 1960s; however, it narrowed somewhat over the 1970s (even after controlling for the impact of equal pay policies). Based on 1981 census data, Boulet and Lavallée (1984) also document that the wage and earnings gap has been narrowing throughout Canada over the 1970s, in part because of the predominance of younger workers where the gap is smallest. The narrowing of the gap in recent years also has been documented in a number of international studies.[23]

A rigorous analysis of the extent to which the discriminatory wage gap is changing is complicated by the variety of other factors that are changing over time. We may have expected the gap to widen over time as the exogenous supply influx of women, associated with their dramatic increase in labour force participation, could depress their wages, especially as the new entrants are likely to be less skilled than average and as they are compelled to enter firms where discrimination is greater, the incumbent females having already entered firms that discriminate least. This may be augmented by the increased competition from the influx of baby-boom youth and by the possibility that people may "purchase" more discrimination as their wealth increases over time.

In contrast, the gap may narrow for a number of reasons: competitive forces may dissipate discrimination and monopsonistic influences; the increased female labour force participation may lead to the accumulation of work experience as well as the dissipation of sex stereotyping and misinformation; the increased proportion of youth in the labour force may reduce the average gap, since the gap is smaller for youth; the increased demand for white-collar workers and their increased unioniza-

tion may have helped women disproportionately; and policy initiatives may make discrimination more costly. The fact that many of these factors were operative in the 1970s, and many of the factors giving rise to a widening of the gap were more prominent in the 1960s, may account for the possibility that the gap widened in the 1960s but narrowed in the 1970s. However, in the absence of more empirical analysis of the trends, and of the relative importance of the myriad offsetting factors that are at work at this stage, it is only possible to speculate on what is happening to the gap and why. It is possible, for example, that policy initiatives and competitive pressures are at work narrowing the gap; however, they have barely been able to offset the widening pressure associated with the dramatic influx of women into the labour force.

Expected Future Patterns

The future is even more cloudy. Technological change may create a bimodal skill distribution with heavy demands for high-tech skills and for routine and service skills, in contrast to the more unimodal skill distribution associated with the old smokestack industries. This may help women, to the extent that they are not as affected by deindustrialization and the decline of the smokestack industries. However, they may also be adversely affected by office automation and be "ghettoized" into the routine and service jobs associated with the technological change.

Deregulation, if it occurs in any substantial scale, is likely to benefit minorities by opening up new jobs (albeit at lower pay) associated with the new entrants. Trade liberalization is likely to affect women adversely given their predominance in textiles and light manufacturing; however, if accompanied by positive adjustment assistance it will provide the opportunity to leave declining sectors for expanding ones. Public sector retrenchment is likely to fall disproportionately on women, both because of their predominance in public sector jobs and because the extent of discrimination tends to be less in the public than in the private sector (discussed previously). In contrast, an expanding overall economy is likely to help break down discriminatory behaviour and provide disproportionate job opportunities for women and other minorities.

In summary, future labour market developments are likely to have substantial although contrasting implications for the future of women in the labour market. The changing circumstances of the labour market may open up new opportunities; however, there is a strong possibility of resistance from incumbent workers, whose own jobs and pay may be threatened.

This suggests the relative importance of developing policies aimed at employment opportunities to ensure that women have at least equal access to new jobs. Such policies are likely to be more important than

those that promote equal pay, at least to the extent that blatant wage discrimination is less likely in new jobs where traditional hierarchies are not as established, and to the extent that equal pay policies may make it more difficult for minorities to accept lower wages in return for the training and experience opportunities that are the concomitants of the new jobs. Of course, the same factors that caused discrimination in the past may be as operative in the new and changing circumstances. However, firms may be able to substitute female labour for the more expensive male labour without having to worry about amortizing the quasi-fixed hiring and training costs of the existing male work force, or worrying as much about morale problems amongst its male work force, since traditional hierarchies are not yet established. This proposition — that discrimination is less in new firms or new working situations — can be tested empirically. The results would be informative in ascertaining the extent to which we may expect discrimination to dissipate over time or with the creation of new jobs.

Boulet and Lavallée (1984, p. 3) also emphasize that future progress in reducing the earnings gap and occupational segregation should occur as those younger women, who in the 1970s broke conventional education and employment patterns, progress through the labour force. In their words: "Over the next few years, it will be mainly the young women who, between 1971 and 1981, succeeded in changing female labour patterns who will be able to move up the promotional ladders in their places of work." Whether this optimistic scenario will occur or be frustrated by conventional discriminatory barriers, remains an open question. At least it can be said that some groundwork for change has been laid.

Equal Pay Policies

Of the two main policy initiatives to deal with discrimination in the labour market — equal pay and equal employment opportunity legislation — equal pay has been given the most emphasis in Canada. This initiative has evolved through a variety of forms, each with a different potential impact.

Forms of Policy Initiative

Equal Work

Equal pay policies have undergone an interesting evolution in Canada. The earliest legislative initiatives (e.g., by Ontario in 1951) required equal pay for equal work, a requirement that significantly hampered the application of the equal pay principle, since minor job differences were used to preclude comparisons on an equal work basis. Comparisons were also restricted to the same company.

Substantially Similar Work

The legislation was then broadened to allow comparisons when there were minor differences, as long as the work was "substantially similar." Substantially similar was often defined in terms of the inputs of skill, effort, responsibility, and working conditions, usually assessed independently of each other. That is, the work had to be substantially similar in each and every component of skill, effort, responsibility, and working conditions. It was not possible to compensate for a slight shortcoming in one by applying a greater amount of some other component.

Composite Approach

The "composite" approach requires only that the work be substantially similar in the composite of skill, effort, responsibility, and working conditions. This allows a shortcoming in one component to be compensated for by a greater amount of another; as long as they are similar in the composite they do not have to be similar in each component. This procedure makes the assessment of comparability more difficult because it is necessary to have an implicit "shadow price" of the trade-off amongst the components (e.g., to know if a bit more responsibility exactly offsets having a bit less skill). This same problem is faced by interest arbitrators when they have to make wage awards based on comparability with groups that deviate slightly in terms of some components of their work. However, the problem is compounded in equal pay comparisons, since there is often a rejection of the market-determined shadow price as reflecting discrimination.[24]

The composite approach is consistent with basic principles of economics, since it allows the components of a job to trade off against each other. In this perspective, the concept of equal work would pertain to equality in the total job, not in each and every component of it. This is consistent, for example, with the way economic principles determine the valuation of a job. For example, two jobs that pay the same are not required, through market forces, to require identical amounts of skill, effort, responsibility, and working conditions, only that the market evaluations, of each of these components add up to the same total.

While the composite approach is consistent with basic principles of economics, it does add the additional administrative requirement that somehow the values of these components have to be traded off against each other. The market, of course, would be the natural mechanism for assessing these trade-offs, since that is what markets do all the time as the supply and demand of each characteristic determines its market value and these in turn are totalled to get the market value of the commodity (in this case, the job) in question. Unfortunately, the market mechanism cannot be used to the extent that the market reflects discrimination; if the market outcome were socially acceptable then there would be no need for an equal pay assessment in the first place.

This leaves the composite approach with the added administrative burden of having to determine, through some non-market mechanism, the way in which the components of a job can trade off against each other. In practice, this may not be a great burden since the comparisons are likely to involve such decisions as whether a small amount of additional responsibility means that the job cannot be compared to an otherwise similar job involving less responsibility but more skill requirements. This is certainly more manageable than a decision that requires that a job with, for example, no responsibility but considerable skill requirements be compared to one with the opposite characteristics.

The composite approach begins to approach the equal value or comparable-worth way of assessing equal work, except that the composite approach conventionally requires that comparisons be limited to jobs involving substantially the same kind of work. If dissimilar jobs could be compared, the composite approach would be an equal value approach.

Equal Value

The concept of equal pay for work of equal value basically allows dissimilar jobs to be compared and considered equal as long as the value of the job, as determined by a job evaluation scheme, for example, is the same (or sufficiently close to be considered the same). The procedure allows comparisons across dissimilar occupations, and is often supported on the grounds that this broadened scope enables it to deal with wage differences arising from occupational segregation as well as unequal pay within the same occupation. In this way its scope is much broader than conventional equal pay legislation. While comparisons across quite dissimilar jobs are possible in theory, in practice the comparisons usually have not involved very dissimilar jobs, in part because the results of evaluation procedures become more tenuous the more dissimilar the jobs.

Equal value comparisons tend to be regarded as the most extreme form of intervention on the equal-pay side, in part because they give the broadest interpretation to the types of work that can be compared since they are not confined to comparisons involving equal work, or substantially similar work, or work in the same type of job, as long as the composite of inputs is the same.

Proportionate Value

However, if there is a logic to using the administrative concept of value as determined by a job evaluation scheme, it would seem illogical (except on grounds of expediency) to allow comparisons only when the jobs are of equal value. This would preclude any adjustment, for example, if a job evaluation scheme found that a female-dominated job had a job evaluation score of 90 percent compared to a male-dominated job, and yet the pay ratio was only 80 percent. It would appear that, if the job evaluation

procedure were deemed appropriate for determining the relative valuations of jobs, female pay should be 90 percent of male pay under such circumstances.

Proportionate pay for work of proportionate value seems to be a logical extension of equal pay for work of equal value, assuming that the principle of equal value is appropriate. Even if equal value is not a correct principle, (e.g., it entails excessive allocative or administrative costs), political pressures are likely to push in the direction of proportionate pay if equal value becomes the established norm.

Legislation in Various Jurisdictions

Table 5-2 summarizes the legislation adopted federally and in each province. All Canadian jurisdictions have some form of equal pay legislation, usually established during the 1950s following the International Labour Organization's Equal Remuneration Convention No. 100, adopted in 1951. Most jurisdictions require substantially similar work for comparisons, and most allow the composite approach, enabling trade-offs to be made among the components of skill, effort, responsibility and working conditions. Five jurisdictions allow for some groups to be exempt; seven allow comparisons to be made across different locations but always require that the comparisons be made within the same company. Most jurisdictions require individuals to make a complaint before equal pay violations are investigated, with only three having the legislative agency initiate some investigations; of these only Ontario and, to a lesser extent, Saskatchewan seem to follow such a practice. The number of investigations is extremely small in many jurisdictions, with Ontario and, to a lesser extent, Saskatchewan being by far the most active. The equal value initiatives, applying only in the federal jurisdiction and Quebec, appear to be applied in a cautious fashion.

Additional Issues Pertaining to Equal Value Policies

Since equal value legislation is likely to be the wave of the future with respect to initiatives on the equal pay front, it is worth expanding upon some of the main issues that are pertinent to that policy. The emphasis here is on trying to clarify some of the issues to reduce the scope of the debate, and to suggest what the basic principles of economics have to say about some of these issues.

Job Evaluation Procedures

Equal value assessments are invariably based on job evaluation procedures,[25] basically involving an assessment of the job in terms of its components: skill, effort, responsibility, and working conditions. (The application of this procedure in actual equal value cases was discussed

TABLE 5-2 Canadian Equal Pay Legislation by Jurisdiction, 1981

Jurisdiction	Date of First Law	Concept of Equal	Composite Allowed	Exempt Groups[a]	Same Company in Different Locations[b]	Agency Initiates Investigation[c]	Number of Investigations
Newfoundland	1971	Similar	Yes	Yes	Yes	Yes	N.A.
Prince Edward Island	1959	Substantially the same	Yes	Yes	N.A.	No	2 in 1980
Nova Scotia	1957	Substantially the same	Yes	Yes	Yes	No	1 per year
New Brunswick	1961	N.A.	Yes	No	Yes	No	5 to 7 in 1980–81
Quebec	1964	Equal value	Yes	No	Yes	Rare	32 settled since 1976
Ontario	1951	Substantially the same	No[d]	No	Yes	Yes	374 between 1980–82[e]
Manitoba	1956	Substantially the same	No	No	No	Rare	1 in 1978–81
Saskatchewan	1952	Similar	No	Yes	No	Yes	17 in 1980–81 12 in 1981–82
Alberta	1957	Substantially similar	Yes	Yes	No	No	5 in 1980–81

British Columbia	1953	Substantially similar	No	No	Yes	Rare	N.A.
Federal	1956	Equal value	Yes	No	Yes[f]	No	7 settled since 1977[g]

Source: Extracted from Ontario Manpower Commission (1983), Appendix XI.

a. "Yes" implies that some groups, usually domestics, sometimes foreign labourers, and occasionally persons in nonprofit organizations are exempt.
b. "Yes" implies that comparisons can be made in the same company across different locations.
c. "Yes" implies that the enforcement agency, usually an employment standards division or a human rights commission, can initiate an investigation. "No" implies that an individual must make a complaint before an investigation can occur, and "Rare" implies that although the legislation allows the agency to initiate an investigation without a formal complaint, this rarely if ever occurs.
d. Proposed Bill 141 before the legislature as of December 1984 contains a "composite allowed" clause.
e. Between April 1980 and February 1982, 374 investigations (115 routine audits, 259 from complaints), with 86 violations for 1,054 employees, average settlement $519.
f. Comparisons can be made in the same company in different locations but within an established geographic location.
g. Including two major group settlements involving 3,480 workers. Approximately 20 complaints were under investigation around 1983.

previously in the context of the regression procedure for estimating the "pay line" showing the relationship between pay and point scores.)

Economists, and those opposed to the equal value principle, have mustered a number of arguments against job evaluation procedures. While many of these arguments have an element of truth, they also sometimes overstate the case against job evaluation procedures. It is true that job evaluation procedures may try to compare dissimilar factors; however, this is done all the time (e.g., through the market) and comparisons become more difficult, although not necessarily impossible, when disparate jobs are compared. It is true that job evaluation procedures are better able to give relative rankings than cardinal evaluations of worth; however, in equal value comparisons the cardinal value of female jobs is established relative to another norm, i.e., the value of male jobs of the same point score. It is true that job evaluation procedures that simply add up scores across components of skill, effort, responsibility, and working conditions implicitly weight a point as the same for each component; however, different weights are attached to components by specifying different ranges.[26] It is also true that if the wages of undervalued female jobs are raised to the equal pay line, then a new estimated equal pay line would still leave the female jobs somewhat undervalued; however, this occurs only to the extent that wages in the overvalued male jobs are not reduced to the equal pay line. In addition, such an iterative procedure may be an effective way of phasing in the adjustment process.[27] Finally, it is true that it is difficult to attach an objective notion of value to a job (independent of the market valuation); however, the equal value principle refers to the value of the inputs of skill, effort, responsibility, and working conditions, and not to the value of the outputs, which can still be determined by market forces.

Economic versus Administrative Concepts of Value

The point about inputs versus outputs highlights what should be, as opposed to what often is, the focus of the economic debate over equal value. The equal-value principle focusses on the valuation of inputs of skill, effort, responsibility, and working conditions. The efficient allocation of labour resources, however, requires wages to be equal to the value of an additional unit of output (i.e., the value of the marginal product of labour). The two may be very similar if essentially all of the inputs in the production process are included, since the demand for inputs is derived from the demand for outputs. However, market value is determined at the margin (i.e., pertaining to incremental units of the input), whereas an administrative concept of value as determined by a job evaluation procedure pertains to the average valuation of a job. The administrative concept is akin to the notion of "value in use" (i.e., a notion of objective value reflecting the average utility from a service), whereas the economic

concept of value refers to "value in exchange" (i.e., what we have to give up to obtain incremental units of the service).

In essence, job evaluation schemes attempt to measure the average value of the inputs that go into a job, whereas economic efficiency requires wages to be equal to the marginal value of the output of an individual. For a given level of production technology and other inputs (e.g., capital and entrepreneurship), inputs of skill, effort, responsibility, and working conditions should be a reasonable proxy for expected output. However, the distinction between marginal and average is crucial, and this lies at the heart of the economist's concern over equal value assessments.

Job assessments are done by evaluators who need not take supply and demand conditions into account directly in assigning point scores to each job. An assessment will be based on their perception of the objective worth of the various tasks required to perform a job, and it is likely to be more indicative of the performance of the average worker rather than that of the marginal worker, whose preferences are dominant when forces are set up purely by supply and demand. That is, supply conditions (reflecting the willingness of workers to work in certain jobs) do not enter directly into the job evaluator's assessment of the point score to assign to each job. They may enter in an indirect fashion in that, for example, certain tasks may be assigned a high point score because few people want them. Nevertheless, the point score evaluations of each job are in general based on an administrative (i.e., job evaluator's) concept of the average value of a job.

While supply and demand conditions do not enter into establishing the point score for each job, they do influence the establishment of pay for the jobs. For example, females may on average be willing to supply their services to certain jobs because of a preference for the working conditions associated with them, or because of constraints elsewhere, such as family commitments. If the working conditions for such jobs are given low point scores by the job evaluators, then, on average, female wages may be low simply because females are concentrated in jobs with low point scores. Equal value assessments would do nothing to change the wages as long as male wages of the same point score were the same. Similarly, if there were little demand on the part of employers for some of the skills in predominantly female jobs, then their wages might be low and equal value would do nothing to change their wages, again as long as male wages of the same point score were the same. That is, supply and demand conditions would be allowed to determine wages, and equal value assessments would not have an effect as long as male and female wages were the same in jobs with equal point scores.

In the context of the pay line discussed previously, as long as all jobs were paid according to the pay line (i.e., male jobs were not typically

above the line and female jobs not typically below the line), then supply and demand conditions could legitimately determine the distribution of males and females along the pay line. To the extent that females were clustered at the low point–low pay end of the line (because of their own preferences or other constraints such as family commitments), equal value legislation would not alter their pay.

However, if for the same job evaluation point score, wages were lower in the predominantly female jobs than in the predominantly male jobs, equal value legislation would mandate an adjustment, even if the predominantly female jobs were occupied by persons who willingly supplied their services at the lower wage. It is such disregard of supply factors that might reflect legitimate preferences that give rise to much of the concern voiced by economists with regard to the use of administrative, rather than market, procedures for determining pay. The administrative procedures, being based on a job evaluator's assessment of the average worth of job, may ignore the preferences of the marginal worker, and it is following these preferences that ensures the efficient allocation of labour. In addition, an administrative cost will be associated with the job evaluation procedure itself.

This discussion also highlights the fact that the debate over the viability of equal value legislation has to come to grips with the issue of having wages determined by the economic forces of supply and demand (which can certainly reflect discriminatory forces) or by administrative procedures pertaining to job evaluation. The issue is not unique to equal pay issues; it also applies to the relative importance of market forces in the criteria used by interest arbitrators in making wage awards.

The choices need not be mutually exclusive. That is, the use of equal value job evaluation procedures in select cases may supplement the market forces by providing information to the parties and perhaps by dissipating unintended discrimination. After all, job evaluation procedures are used extensively in private industry (hence they must have some economic survival value in terms of the information they provide, and the preservation of such valued functions as internal equity). Conversely, the broad application of equal value based on administrative job evaluation schemes without any attention to market forces is likely to create significant allocation problems as well as engender subtle market adjustments that may offset the intended effects, at least partially.

Theoretically Expected Impact

In response to the imposition of anti-discrimination policy (as with any legislative initiative), firms are likely to trade off the cost of complying with the legislation against the expected cost of not complying. The cost of non-compliance in turn depends upon the probability of being evaluated, multiplied by the probability of being caught if evaluated, multi-

plied by the expected fine (including any image cost) if caught. These different components of the expected penalty function remind us that the legal authorities can affect the behaviour of the firm by changing the components as well as the overall magnitude of the penalty function, and that the cost of alternative procedures as well as their effectiveness should be considered in designing an optimal enforcement procedure.

According to basic economic theory, any policy (including an equal pay policy) that fixes wages above the competitive norm will engender an adverse employment effect as firms move away from the now more expensive input and as they reduce their output in response to the cost increase.[28] The magnitude of this adverse employment effect depends on the elasticity of the derived demand for labour.

In the case of female labour subject to equal pay, the demand elasticity is likely to be fairly substantial (and hence the adverse employment effect will be large, at least in the long run) because there is likely to be a fairly abundant and elastic supply of available substitute inputs, and the ratio of female labour cost relative to total cost can be high in a number of female-dominated labour markets. This may be offset, however, by the fact that many of these jobs are in the public and quasi-public sector, and hence the cost increase can be passed on to consumers (taxpayers) without a large reduction in the inelastic demand for the output (and hence the derived demand for labour). In addition, the substitution of cheaper inputs can be made more difficult, at least in the short run, by equal employment opportunity policies.

Raising the wages of females who receive an equal pay adjustment can also have a number of indirect effects. The opportunities to obtain training and experience (in return for the lower wages) may be reduced, and this may inhibit wage growth in the long run. The requirements of a job may increase and the working conditions may deteriorate because a higher compensating wage is now paid. (Recipients of equal pay, however, may welcome the increased requirements and the additional responsibilities, especially if they expand future opportunities.)

Other wages in the wage hierarchy may also adjust. Obviously, the old male-female wage differential cannot be restored since this would simply set off further equal pay adjustments. While there may be some institutional pressure to restore other traditional wage hierarchies, these hierarchies will likely change somewhat, reflecting the indirect effects of supply and demand on the related markets. There may be a supply influx of those who cannot get jobs in the now higher-wage, equal pay jobs, and this may depress wages in the other sectors. In contrast, the associated increase in the demand for substitute labour may increase wages in the other jobs. Hence, equal pay in some sectors is likely to affect the overall wage hierarchy in an indeterminant fashion.

Equal pay laws usually have a qualifier that the wages of other workers are not to be adjusted downwards as a result of the legislation. This

constraint is likely to be particularly relevant to equal value cases where, as discussed previously, the job evaluation procedures typically found predominantly female jobs to be undervalued by 10 percent and predominantly male jobs overvalued by 10 percent (with an overall gap, therefore, of about 20 percent for jobs of the same point score). Correcting for the undervaluation of the predominantly female jobs by raising their pay to the equal value pay line (which is the typical adjustment that occurred in the U.S. case) would seem to suggest that the pay in overvalued male jobs would be adjusted downwards. While the legislation may forbid such an absolute downward adjustment in the short run, it is likely to occur, at least in part, in the long run through lower rates of increase in the predominantly male jobs.

Other subtle adjustments are also likely to occur in response to equal pay legislation. Firms may engage in subcontracting, especially for those functions where they are most susceptible to charges of unequal pay and where the firms or individuals receiving the contracts are not as amenable to legislative initiatives. Certain product lines may become segregated and tasks differentiated somewhat so as not to give the appearance of being substantially similar, and to avoid equal pay comparisons. In addition, in their hiring decisions, firms may try to avoid hiring individuals who they feel may later pressure them for equal pay for large groups of workers. Firms may also avoid internal evaluations of their own wage structures (especially job evaluations and equal value comparisons) for fear that these could be used against them if they did not rectify any wage imbalances in full. The foregoing are only meant to be illustrative of some of the subtle adjustments that can occur in response to legislative initiatives such as equal pay.

Equal Employment Opportunity Legislation

While equal pay policies work on the pay side, equal employment opportunity policies are designed to prevent discrimination pertaining to the various dimensions of employment opportunities relating to such factors as recruiting, hiring, training, promotions, transfers, and termination.

Existence in Various Jurisdictions

All Canadian jurisdictions[29] have such equal employment opportunity policies, usually embodied in a human rights code, and part of a broader policy restricting discrimination on the basis of such factors as race, age, religion, and national origin. In most jurisdictions the prohibition based on sex was added during the 1960s and 1970s following the International Labour Organization Discrimination (Employment and Occupation) Convention No. 111 in 1958.

The process usually requires that an individual party complain to a human rights commission. If the complaint is acted upon, the result is often a lengthy procedure involving investigation, conciliation, and ultimately a trial-type hearing, with possible appeals to the courts. This lengthy procedure and the requirement for an individual complaint to set it in motion can obviously be an inhibiting factor. The fact that the complaint procedure can generate external benefits to other parties whose discrimination may also be rectified as a result (and the market does not require the recipients of the benefits to compensate those who bear the cost through the complaint procedure) suggests that a less than socially optimal number of such complaints may prevail. This situation argues for policies that would enable the authorities to initiate investigations and apply an award across all relevant employees.

Affirmative Action

Just as equal value legislation is the most extreme form of intervention on the equal pay side, affirmative action is the most extreme form of intervention on the employment opportunity side.[30] As the name implies, affirmative action implies more than the removal of barriers and obstacles; it involves more positive steps, focussing on results, not just opportunities. It usually involves targets and possibly even quotas, and can involve reverse discrimination in the sense of favouring minorities (especially if other things are equal). In practice, affirmative action involves a number of implementation procedures: the establishment of a data base on such factors as the sex, occupational distribution, and pay in the work force, both within the firm and in the relevant surrounding labour market; the specification of internal targets relative to the external comparisons; and the establishment of a schedule and a plan for achieving the targets.

Affirmative action seems to rest on a number of possible rationales. First, it may compensate for the cumulative effects of the past history of discrimination; in such circumstances, equal opportunity may imply a preferential handicapping to compensate for unequal starting positions. Second, it may be necessary to break a vicious circle of entrapment which, when broken, will enable women to acquire the experience, training, confidence, and responsibilities that will ultimately make affirmative action unnecessary. Third, affirmative action may be needed to combat systemic discrimination which, as discussed previously, was often the unintended by-product of other activities. Fourth, affirmative action may be particularly appealing to break down segmentation barriers since it creates an incentive for firms to reach down into the job ghettos. Lastly, affirmative action may simply echo a policy that reflects the political pressure of a group that is trying to get its share of the spoils of the system; in a rent-seeking society such action may be regarded as

necessary to offset the favouritism that is conventionally granted to others.

As pointed out in Jain (1983, Sec. 50, ss. 045), all provinces in Canada except for Quebec and Newfoundland (and Alberta unless there is cabinet approval) allow the existence of voluntary affirmative action programs, and do not consider them to be in contravention of the relevant anti-discrimination legislation. In addition, both the federal jurisdiction and Saskatchewan can require affirmative action as a remedy upon finding of discrimination, and Saskatchewan can order such programs on its own initiative. With respect to native Canadians, compulsory affirmative action through contract compliance has also been required in a number of joint public-private megaprojects. Voluntary affirmative action programs, often worked out with the assistance of the government, also exist in a number of large private-sector organizations, as well as in various elements of the public sector.

Expected Impact of Equal Pay Laws

Equal employment opportunity policies can be expected to increase the demand for females (and hence their employment opportunities and, indirectly, their wages). This is in marked contrast to equal pay policies which, by fixing wages above the competitive norm, can decrease the employment opportunities of minorities. In that sense, equal pay policies would be less necessary with effective equal employment opportunity policies. This implication of basic economic principles is at odds with the notion that equal pay is a necessary complement to equal employment opportunity legislation, a notion based on the view that the latter alone would simply lead to females being hired at unequal wages. This notion ignores the demand pressures emanating from equal employment opportunity policies, which can serve to increase both wages and employment opportunities.

The impact of equal employment opportunity legislation may be offset, in part at least, by the fact that the cost increases may lead to reduced output and some firms going out of business. This, in turn, may reduce the employment opportunities and hence the wages of the groups that the legislation was intended to assist. With equal employment opportunity policies, however, unlike equal pay policies, it is difficult to avoid the legislation by not hiring the minorities in question, since this would be interpreted as the very type of discrimination that the legislation is designed to combat.

The various adjustments in the labour market discussed here are based on the presumption of profit-maximizing firms responding rationally to the economic cost associated with the legislative initiative. It is possible that such adjustments may not be necessary if the legislation corrects misinformation problems or sets in motion other forces

(e.g., improved morale, cost saving elsewhere) that may offset some of the adjustments. However, it is probably more realistic to assume that such opportunities were exploited fully prior to the legislation, and that the normal economic adjustments will ensue, albeit in subtle forms, and not for some time.

Evidence on the Impact of Legislation

Econometric studies of the impact of anti-discrimination legislation are replete with the usual array of problems that plague most empirical studies. There is always the need to control for the effect of crucial intervening variables. For example, Butler and Heckman (1977) find that much of the effect of equal employment opportunity (EEO) legislation tends to disappear when one controls for the reduced minority labour force participation that occurs at the same time. This reduced participation raises wages both because workers are in more scarce supply and because those who remain are the more select group of skilled workers. Other confounding influences include the large supply influx of women and youth and the fact that equal pay initiatives may be creating an adverse employment effect that offsets any employment expanding effect of equal employment opportunity initiatives. Also, the introduction of legislative initiatives may be picking up the effect of unobservable variables that are causing the true change. Lastly, successful legislative initiatives may lead to influxes of groups who feel their problems can now be redressed, giving the appearance of more discrimination, whereas in actual fact it is simply no longer hidden.

While these problems plague any empirical assessment of the impact of equal pay and equal employment opportunity initiatives, they do not seem any more severe than those that plague empirical analysis of other policies. Thus it seems reasonable to conclude that we should put no less — and no more — faith in these results than in most other empirical assessments.

Evidence on the Impact of Equal Pay in Canada

Based on pooled-time series and cross-section data for Ontario, Gunderson (1975) found that the transferral of equal pay legislation in 1969 from the Human Rights Code to the Employment Standards Act, which was done to enhance effectiveness, had no statistically significant impact on narrowing the male-female wage gap. Any change may not have been picked up, however, since the data were limited to simply one year before and after the legislation. Based on a time series analysis of another data set (albeit limited to Ontario occupations), Gunderson (1976) did not find any significant change in the time pattern of male-female wages in response to the legislative change, as reflected by a simple dummy

variable-shift parameter. This conclusion is reinforced by the use of a spline function to test for the impact of the legislation over a longer time period (1946–79) and with a slightly different set of occupations (Gunderson, forthcoming).

While the extent to which these conclusions can be generalized remains open to question, it seems safe to say that the empirical analysis has not shown conventional equal pay legislation to have had a significant impact in narrowing the male-female earnings gap. This, of course, does not imply that the legislation has not had an impact on some groups, but rather that its impact does not seem to have had any appreciable effect on narrowing the overall male-female earnings gap.

Evidence on Equal Value Initiatives

The effect on specific groups can be illustrated by a number of equal value cases that have occurred.[31] A job evaluation study for the State of Washington (Willis, 1974, 1976), for example, found that the pay in predominantly female occupations was approximately 80 percent of the pay in predominantly male occupations with the same job evaluation point score. Subsequent analysis suggested that the cost of raising the pay of the predominantly female undervalued jobs to the pay line would be $37.9 million, and a subsequent court decision indicated that approximately 15,500 employees were involved (United States, Bureau of National Affairs, 1983) for an average adjustment of approximately $2,445.

A job evaluation of municipal workers in San José, California, also found that female jobs were paid 2 to 10 percent below the comparable worth line and predominantly male jobs were paid 8 to 15 percent above comparable worth, implying an overall gap of 10 to 25 percent between jobs of the same point score. The actual settlement to bring the pay of 750 women in undervalued female-dominated jobs to the pay line was $1.4 million, implying an average adjustment of $1,867 (Bunzel, 1982, pp. 77–79). A job evaluation of Minnesota state employees[32] also led to a budgetary appropriation of approximately $21.7 million to raise the pay of its 8,225 employees in undervalued female jobs, implying an average adjustment of $2,638.

In the federal jurisdictions in Canada, most equal value cases involved only a small number of persons or dealt with discriminatory classification systems, or they could have been handled under conventional equal pay legislation. However, in 1980, 475 librarians received a settlement that involved an annual ongoing adjustment of approximately $1 million, or $2,105 per person, when their jobs were compared to predominantly male historical researchers. In 1982, 3,300 general service workers received a settlement that involved an annual ongoing adjustment of approximately $8 million, or an average of $2,424 per person. This

represented a 20 percent increase in the wages of the female-dominated subgroups, an increase that was larger than in most U.S. equal value adjustments, because the Canadian adjustments involved raising the female pay line to the male pay line rather than to the average line (of both sexes).[33]

These figures are only meant to illustrate the magnitude of the adjustments involved in the actual implementation of equal pay for work of equal value for workers whose jobs have been assessed by a job evaluation scheme. The adjustments typically involve raising the pay of undervalued female jobs by about 10 percent or $2,000–$3,000. What this has done to the overall earnings gap in each of the relevant jurisdictions remains an empirical unknown.

In summary, while conventional equal pay assessments have involved adjustments in individual cases, aggregate analysis does not indicate any narrowing of the overall male-female earnings gap in response to equal pay legislation. This is based on a limited number of studies and on Ontario data only. Equal value assessments through job evaluation procedures have involved adjustments typically in the neighbourhood of $2,000–$3,000 per person for sizeable groups; however, aggregate studies have not analyzed the impact of equal value assessments on the overall earnings gap. Overall, then, we really do not have sufficient empirical evidence to determine whether or not equal pay legislation has had any impact on the overall earnings gap, except perhaps that the few studies that have been done do not reveal any such impact.[34]

Evidence in the United States

The actual impact of various forms of equal employment opportunity legislation have been extensively analyzed in the United States with respect to both Title VII (the Equal Employment Opportunity (EEO) title) of the Civil Rights Act of 1964 and Executive Order 11246 and its amendments, which require affirmative action on the part of the employers involved in federal contracts. The EEO legislation forbids both wage and employment discrimination, while the federal contract compliance requires affirmative action with respect to employment and upgrading opportunities in those firms that have federal contracts.

Any summary of such an array of econometric studies involving different data, methodologies, and presentation of results is of necessity going to miss some of the detail and qualifications. However, some generalizations do emerge from the studies.

As Table 5-3 indicates, the impact of equal employment opportunity legislation on the earnings of minorities (usually relative to their major group counterparts) has been mixed; certainly no clear consensus emerges. With respect to women — the focus of our analysis — the results are also mixed, with significant gains found in Beller (1976) and insignifi-

TABLE 5-3 Econometric Studies of the Impact of Equal Employment Opportunity Legislation in the United States

Study	Period[a]	Dependent Variable	Group[b]	Impact[c]
Ashenfelter (1970)	1950–66	earnings	black/white males black/white females	insignificant insignficiant
Freeman (1973)	1947–71	earnings	black/white males black/white females	significant gains significant gains
Vrooman (1974)	1948–71	earnings	black/white males black/white females	significant gains significant gains
Beller (1976)	1967–74	earnings	black/white males all females	usually insignificant significant gains
Butler & Heckman (1977)	1948–74	earnings	black/white males black/white females	insignificant insignificant
Beller (1978)	1966–70	earnings employment	black/white males black/white males	insignificant losses significant gains
Beller (1979)	1968, 1972, 1975	earnings	females/males	insignificant gains
Beller (1980)	1968–74	earnings	females/males	small gains
Beller (1982)	1967, 1971, 1974	probability of being in male occupation	females/males	6.6% gain
Leonard (1984a)	1966, 1978	employment	blacks; white females	significant gains insignificant

Notes: Most studies are based on ordinary-least-squares estimation procedures; however, some use two-stage-least-squares to try to account for the possibility that there may be changes in the relative supplies of blacks and whites that may occur in response to transfer programs (Butler and Heckman, 1977) or that the enforcement measures may be a function of discrimination (Beller, 1978).

The U.S. legislation was contained in Title VII of the Civil Rights Act of 1964.

a. Data periods, e.g., 1950–66 imply time series analysis of that period.

b. Groups analyzed relative to another group are denoted, for example, by black/white.

c. When groups are analyzed relative to another group, the term "gains" implies that the legislation improved the position of the minority group relative to the majority.

cant or small gains found in Beller (1979 and 1980) and Leonard (1984c). Leonard (1984a, p. 151) also states:

> Title VII litigation leads to sometimes negative but generally insignificant changes for white females, but to a moderate and significant improvement in the employment of blacks. . . . The demand shifts for females may simply be swamped by the ongoing massive increase in labour supply. In addition, many of the early Title VII cases focussed on racial rather than gender discrimination. The apparent ineffectiveness of anti-discrimination policy in providing female employment remains an interesting question for research.

As Table 5-4 indicates, with respect to affirmative action under the federal contract compliance program, the results are more in agreement. The legislation has had a significant impact in improving the position of black males, although the results for black females are mixed. White females, however, appear to have suffered losses as a result of the affirmative action initiatives, at least in the early years, presumably because the programs concentrated on black males.

Leonard's (1984c) study also indicates that affirmative action has been helpful in improving not only the employment opportunities of minorities, but also their occupational upgrading. This latter conclusion on upgrading is in contrast to the earlier studies, which indicated that while affirmative action usually improved the employment opportunities of minorities, such gains were concentrated in low-skilled positions (Ashenfelter and Heckman, 1976; Goldstein and Smith, 1976; Heckman and Wolpin, 1976). Leonard attributes the difference to more aggressive enforcement procedures in recent years and to the increasing supply of highly educated blacks by the late 1970s.

Although not shown in the summary tables, the empirical studies often provide other information relevant to the effectiveness of the legislation. The legislation tends to be more effective in an expanding, growing economy than in a recession (Beller, 1982; Leonard, 1984d). The legislation is also more effective when it is aggressively enforced (Beller, 1982; Leonard, 1984c, d). With respect to enforcement procedures themselves, increasing the probability of paying a penalty if found in violation had a stronger effect on reducing discrimination than did increasing the probability of being charged (Beller, 1979, 1982). Negotiated goals in an affirmative action procedure also seem to have an independent impact on subsequent results; higher goals, although not usually attained, do lead to greater employment opportunities, suggesting that this costly negotiation process yields some results (Leonard, 1985). Beller (1978) also found that the employment provisions of EEO increased both wages and employment opportunities while the wage provisions reduced employment opportunities. The legislative initiatives also appear to have had a differential impact within minority groups, usually benefiting black

TABLE 5-4 Econometric Studies of the Impact of Affirmative Action Contract Compliance Legislation in the United States

Study	Period	Dependent Variable	Group	Impact
Ashenfelter & Heckman (1976)	1966, 1970	employment	black/white	significant gains
Goldstein & Smith (1976)	1970, 1972	wage and employment shares	black males	significant gains
			black females	insignificant gains
			white males	significant gains
			white females	significant losses
Heckman & Wolpin (1976)	1970–73	employment	black males	significant gains
			black females	significant losses
			white males	significant losses
			white females	significant losses
Leonard (1984d)	1974, 1980	employment	black males	significant gains
			black females	significant gains
			white females	mixed[a]
Leonard (1984b)	1978	wages	non-white males	significant gains

Notes: Most studies are based on ordinary-least-squares estimation procedures; however, Heckman and Wolpin (1976) use two-stage-least-squares to account for the possibility that the legislation may be endogenous.

The U.S. legislation is contained in Federal Executive Order 11246 and its amendments.

a. Gains were associated with establishments covered under federal contract compliance, but losses if they underwent a compliance review.

males, possibly at the expense of females (Goldstein and Smith, 1976; Heckman and Wolpin, 1976; Leonard, 1984a, c, d). Leonard (1984b), however, indicates that affirmative action has benefited both the lower- and higher-educated black males, so it has not led to an economic bifurcation of that minority community, at least on those grounds.

Discussion

The previous discussion suggests that there is both a scope and a role for equal pay and equal employment opportunity policy initiatives. Both theoretical reasoning and empirical evidence suggests the possibility of at least some discrimination in the labour market, although the magnitude of the extent of discrimination emanating solely from the labour market is subject to considerable controversy.

In both theory and practice, policy initiatives were shown to entail certain unintended effects as subtle market adjustments occurred, especially in the long run. In many instances, however, the initiatives did have their intended effects and these positive benefits have to be weighed against the costs of the policies, including possible adverse effects on other employees.

Equal employment opportunity policies were seen to have a number of possible advantages over conventional equal pay policies. The scope of the former is likely to be larger than the scope of conventional equal pay since occupational segregation is more important than narrowly defined wage discrimination. Equal employment opportunities can also increase both the wages and the employment opportunities of minorities, while equal pay is likely to decrease their employment and training opportunities. Equal employment opportunity legislation cannot be avoided by simply not hiring minorities, while this is more feasible under equal pay. In its stronger form of affirmative action, equal employment opportunity legislation can also break down barriers and job ghettos and it may set in motion its own forces (e.g., accumulation of experience, correction of misinformation, rationalization emanating from cognitive dissonance working in favour of the new employment decision) that can have cumulative effects favouring minorities, once their position is better established. In addition, equal employment opportunities can facilitate the acceptance of women in the new jobs that are likely to emerge in association with the changing structure of the economy.[35]

To a certain extent this predisposition toward equal employment opportunity policies over equal pay policies reflects economists' preferences for initiatives that expand choices and opportunities, that minimize distortions of market prices, and that facilitate market adjustments and the matching of the right people to the right job. However, it is also based on the realities of how markets adjust, often in subtle fashions, to policy initiatives.

While the analysis in this paper leans toward equal employment opportunity policies over equal pay policies, it does not suggest the abandonment of equal pay policies. In fact, it suggests that those jurisdictions that do not allow a composite comparison in equal pay should adopt a composite approach to allow differences in skill, effort, responsibility, and working conditions to trade off against each other so that only similarity in the composite of these factors (not in each and every one of them) be required for jobs to be considered similar. In addition to being more consistent with economic principles, the composite approach is a step in the direction of equal value legislation and would help test the waters in this relatively uncharted terrain.

Equal value legislation itself is a quantum, not a qualitative, change in policy orientation, not so much for the reasons commonly thought by economists, but because it involves administratively determined concepts of value (that can be quite independent of market forces) as well as administrative costs associated with job evaluation. In part for this reason its current application has been restricted largely to the public sector, where the impact of market forces has already been blunted. Extending the concept in a large way to the private sector would be a dramatic move.

Before such a move is taken, it would seem to make sense to have more information on a number of factors, such as its impact in those few places where it has been applied and the impact of moving to the composite, which is a step in the direction toward equal pay. In addition, it is important to have a more reasoned debate over the pros and cons of administrative versus market procedures for wage determination. Currently, the debate seems to be at the level of polemics, with rejection of equal value by economists (because it seems to reject the market) and acceptance by supporters (because it advances the cause of women). The discussion would be related to the current debate over how arbitrators should try to set wages in the public sector. Lastly, equal value has to be assessed according to a broad set of program-evaluation criteria: the control of administrative costs; the attainment of target efficiency (helping the target group without having the benefits spill over into the hands of the non-target group); the attainment of allocative efficiency; the provision of non-demeaning benefits; and the attainment of flexibility over time.

While equal value legislation, effectively applied to the private sector, would be a quantum change in policy, affirmative action (even though it is the more extreme form of intervention on the equal employment opportunity side) is amenable to a staged approach where its effects could be monitored. In addition, it has the advantages of working through the employment opportunity side of the picture (as previously discussed) and we have considerable experience from the American scene from which to utilize its best features and abandon its worst.

As a minimum, more experimentation with variants of affirmative action in different sectors of the economy would seem appropriate. Affirmative action is not a new phenomenon on the Canadian scene, already existing in the hiring of Canadians in universities and bilingual personnel in the federal civil service. It could be extended somewhat, for example, to the federal civil service or even to Crown corporations, the latter providing a good experimental bridge between the public and private sectors.[36]

With respect to labour market policy options, more attention should also be paid to the effectiveness of the different components of the penalties firms face if they ignore the legislation (i.e., the probability of being evaluated, or caught if evaluated, or fined if caught). This analysis would assist in developing an optimal enforcement policy for those programs that are pursued.

Obviously a more complete assessment of the pros and cons of these and other policy initiatives in the discrimination arena would entail other considerations such as administrative costs (particularly important for affirmative action and equal value options), the flexibility of the policies over time, and the extent to which the benefits to recipients may be demeaning. In addition, discrimination in the labour market must be viewed in the larger context of decisions outside of the labour market (e.g., in households and educational institutions) which affect, and are affected by, labour market behaviour. This is especially important so as to avoid exclusive or even primary reliance on the labour market to deal with what may be the symptoms as much as, or more than, the causes of a deeper malaise. This suggests that an arsenal-of-weapons approach is likely to be more effective and less disruptive than reliance on any single policy initiative or on policy initiatives exclusively in the labour market.

Notes

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1. This is emphasized in Johnson and Stafford (1974); McDowell (1982); Mincer and Ofek (1982); Mincer and Polacheck (1974); Sandell and Shapiro (1980); and Polacheck (1975a, 1975b, 1978, 1979).
2. The longer expected tenure of males with a given firm also implies that males may accumulate more firm-specific skills and that firms may pay males a wage premium to reduce turnover and hence the loss of such firm-specific skills. In other words, some of the male-female wage differential may reflect rents that males can obtain for their firm-

specific skills even though their productivity in the next-best alternative activity may be equal to that of females (Handa, 1984).

3. The reasons for the initial segregation are not always clear. It may reflect, for example, a perception of women's work or of their career potential, or their expected labour market performance.
4. For a discussion of the relevance of the dual and internal labour market perspectives to the issue of discrimination, especially with respect to the personnel policies used by employers, see Jain (1982) and Jain and Sloane (1981). Robb (1984b) discusses the importance of internal labour markets in equal value assessments, pointing out that job evaluation procedures may be used to assess value when there is no well-developed external market (e.g., for firm-specific training).
5. A neoclassical economic critique of the argument is that it requires cartel-like behaviour on the part of employers, and that this is not reasonable in an economy of so many employers.
6. This may reflect, for example, wage-fixing legislation, union wage fixing, or a conscious policy on the part of the firm to reduce turnover (so as to reduce the loss of firm-specific human capital) or to have a mailing list of applicants from which to choose.
7. Monopsony models of discrimination are discussed in Gordon and Morton (1974); Gunderson (1980a); and Madden (1972).
8. Statistical and signalling models of discrimination are given in Aigner and Cain (1972); Lundberg and Startz (1983); Phelps (1972); and Stiglitz (1973), with an excellent summary in Cain (1983).
9. The various mechanisms through which marriage has a differential impact on male and female labour market behaviour is discussed, for example, in Block (1982, p. 108) and Breton (1984).
10. Meis and Scheu (1973), for example, cite Canadian evidence indicating that when women engage in labour market work they retain most of their household responsibilities, while husbands increase their household activity by about one hour per week when their wives are in the labour force. Fuchs (1984) indicates that the sharp increase in market hours of work of women in the United States has not been offset by a comparable decrease in non-market work and this is one of the reasons for the decline of women's access to goods and services and leisure, relative to men, between 1959 and 1979. The importance of household responsibilities in affecting the labour market behaviour of women also is emphasized in Cain (1983).
11. Boulet and Lavallée (1984, p. 67), for example, provide evidence from the May 1981 Canadian Labour Force Survey, indicating that while total absenteeism was slightly higher for females than males without children or with school-age children only, it was approximately seven times higher for females than males with pre-school children.
12. These and other factors are discussed in Gunderson (1985).
13. The technique, and a version involving an interaction component, is discussed in Boulet and Rowley (1977). Recently, a number of studies have also proposed reverse regression as a technique for measuring the extent of discrimination, e.g., Kapsalis (1982) and Roberts (1980) and the references cited therein. Basically, the argument is that discrimination exists when persons of the same earnings have different endowments of productivity-related factors. Goldberger (1984) provides a formal critique of these models and Cain (1984) a non-technical discussion.
14. A more detailed assessment of each of these studies, from which this section draws, is given in Gunderson (1980b). This source also contains an analysis of a number of other Canadian studies whose methodologies did not enable the calculation of comparable unadjusted and adjusted earnings ratios. Gunderson (1980a, Appendix A; and Gunderson and Reid, 1981) also discusses the pros and cons of various Canadian data sets that could be and have been used to analyze male-female earnings differentials. Because of data limitations, the various studies focus on measures of income or earnings and do not deal with fringe benefits. The theoretical importance of fringe benefits in the area of discrimination is discussed in Gunderson and Reid (1981), as are the data limitations.
15. It can be argued that redress of discrimination involves closing the full gap of .20 since

that is in fact the male-female wage gap for the same job evaluation score. That is a valid interpretation that would involve using the upper bound of .20 as the measure of the wage gap attributable to occupational segregation. However, that gap would reflect both nepotism (i.e., the overvaluation of male jobs by about .10) and discrimination (i.e., the underevaluation of female jobs by about .10). To the extent that the legislation deals with the elimination of discrimination through providing equal pay for work of equal value (defined as being on the equal pay line), then the gap of .10 could be taken as a valid measure of discriminatory occupational segregation. It would involve paying females their competitive wage as reflected by the equal pay line, but not the overvalued male wage. In addition, presumably, the overvalued male wage was sustained, in part, because of the underpayment of females. If females are now paid the competitive wage (i.e., the pay line), then there would be cost pressures to reduce the overvalued male wage (dynamically through lower wage increases) to the competitive norm. Thus, elimination of the .10 portion attributable to discrimination in the long run would put pressure to reduce the .10 portion of nepotism, albeit other adjustments (such as the reduced hiring of females) may offset some of the pressure. In essence, the .10 figure can be taken as a rough measure of the gap attributable to discriminatory occupational segregation, although the figure would be larger (up to .20) if comparisons with the favoured occupational position of males were made.

16. These generalizations, their exceptions, and the empirical studies from which they are made are discussed in more detail in Gunderson (1980b).
17. A more thorough assessment of the potential and actual impact of unions in this area is contained in Gunderson (1985) and Jain and Sloane (1981, chap. 6). The latter study outlines a number of restrictive practices of unions that have worked against minorities; however, after reviewing the empirical evidence, they conclude that Canadian and British unions seem to have narrowed the male-female earnings gap, but this was not true for American unions, in part because they have recently concentrated on improving the position of blacks relative to whites. However, they indicate that in the United States, the effects are relatively small, they differ considerably by union and region, and the results are not robust across studies. Clearly, this is an area in need of additional research, especially in Canada, where, because of data limitations, there has been so little empirical research on the impact of unions in general. While not controlling for possible impact of other factors, gross data on the average hourly earnings of females relative to males in Canada in 1981 indicates a ratio of .86 in the unions sector and .75 in the non-union sector (Statistics Canada, 1984, p. 10).
18. A number of empirical studies have tried to control for the effect of marital status by running separate male-female wage regressions on subsamples of workers for whom the effect of marital status is minimized (e.g., single females 30 years of age and over versus all males in Robb, 1978, and single males and females 30 years of age and over in Stelcner and Shapiro, 1980). Block (1982, p. 111) also makes some gross-earnings comparisons indicating that the average earnings of never-married males and females is virtually identical, suggesting that it is marital status and not labour market discrimination that gives rise to sex differences in earnings. However, Block did not control for age and experience and an examination of the original data source indicates that the average age of women was higher than that of men, suggesting that women of the same age and experience are paid less than men (Alexander, 1984, p. 27). Also, while such comparisons are informative in indicating the differential effect of marital status, they suffer from a potentially severe sample selection bias, in that never-married males and females differ in some important unobservable characteristic that affects their marital status. For example, never married females may be a select group of career-oriented females, whereas such a characteristic may be a negative signal with respect to males. Econometrically, such a bias could be corrected for by estimating a probit function for the probability of being in the particular marital status and using this information to derive a correction term (inverse Millis ratio) that is used as a separate variable in the wage equations.
19. It could be, however, that the higher returns to females at higher levels of education simply reflects a selectivity bias in that those who do acquire the higher education are different from males in some unobservable characteristic that is positively correlated

with their earnings as well as education. They may, for example, have more perseverance as evidenced by their overcoming obstacles to their acquiring higher education.

20. As pointed out in Robb (1984b, p. 21), equal value legislation may not deal with wage differentials arising out of occupational segregation whereby women are simply segregated at the low productivity jobs or if there are no predominantly male jobs for comparisons.
21. The Aiken Plan job evaluation procedures used in the federal public sector also tended to find that about .10 of the .40 gap could be represented by sex discrimination in pay for work of equal value (Campbell, 1984, p. 6).
22. To argue that competitive forces should lead to the elimination of discrimination over time is to beg the question of why discrimination could have arisen in the first place, given that the forces of competition have presumably existed for some time. To a certain extent, the labour market may be more competitive now than, say, in the 1950s because of improved communications and mobility. In addition, the growing numbers of women in the labour force may make it more profitable for firms to utilize women in place of comparable but more expensive males. Nevertheless, it is important to recognize that a change in discrimination emanating from competition requires a change in the level of competition, and it is not obvious that this has occurred.
23. These studies are discussed in Gunderson (1980b). Evidence from the United States does not point to an improvement in the earnings of women. Fuchs (1984) indicates that the average hourly earnings of women relative to men fell slightly between 1959 and 1969 and Cain (1984, pp. 23 and 130) cites similar evidence for full-time annual earnings from 1939 to 1982 and for wages from 1975 to 1980.
24. In theory, the shadow price for each characteristic could be estimated by the hedonic technique used in econometrics. Basically, the technique involves regressing the price of a commodity on measures of its characteristics. The resulting regression coefficients are interpreted as the shadow price of the characteristic because they indicate the change in the price associated with a united change in the characteristic. Thus, if we regressed the wage in a job against various measures of the characteristics required to do the job (e.g., skills, effort, responsibility, and working conditions) the resulting regression coefficient would give the market evaluation or shadow price of changes in each of the characteristics.
25. The use of job evaluation procedures to determine equal value is discussed in a number of sources including Jain and Sloane (1981); Livernash (1980); Treiman (1979); and Gunderson (1984).
26. Also, Ehrenberg and Smith (1984) find that the estimates of comparable worth gaps are relatively insensitive to the functional form of the earnings equation and to whether total job points are broken down into individual factor point scores. Their analysis is based on their own estimates of earnings equations relating pay to point scores based on the original data of a number of comparable worth studies in Connecticut, Minnesota, and Washington.
27. Of course, if the adjustment involves eliminating discrimination defined as the gap between the male and female pay lines (rather than simply raising female wages to the average pay line), this issue would not occur. Also, phasing-in obviously could be accomplished by other methods such as dividing the correction from the female to male line into segments applied on an annual or other suitable basis.
28. If male and female workers are in fact perfect substitutes in those particular jobs where equal pay is applied, then the application of full equal pay theoretically would result in the demand for females disappearing completely. Realistically, the degree of substitutability would be inhibited somewhat by such factors as equal employment opportunity policies, by the employers desire to retain their work force to spread quasi-fixed hiring and recruiting costs, and by the fact that they may not be perfect substitutes in production. Nevertheless, the fact that equal pay legislation, where it is applied, is designed to deal with cases where males and females presumably do the same work suggests that the degree of substitutability can be substantial, especially in the long run. As pointed out by Robb (1984a), an adverse employment effect is likely to

occur whether the wage differentials are correctly or incorrectly diagnosed as being discriminatory. The latter could occur, for example, if the wage differential reflected short-run rents, compensating differentials, or pre-labour market discrimination. A more complicated set of adjustments for public sector labour is outlined in Ehrenberg and Smith (1984).

29. Details of the Canadian legislation, including its history, current practice, and judicial and administrative interpretation, are provided in Cook and Eberts (1976); Jain (1982 and 1983); and Tarnopolsky (1982).
30. These policies are analyzed in more detail in Gunderson (1985), especially in the context of their application to Crown corporations.
31. These cases are discussed in more detail in Gunderson (1984). Unfortunately, the cases do not provide systematic information on such factors as situations brought before authorities when no wage adjustments were made or when cases did not warrant remedial action.
32. This information is contained in a memorandum from the Minnesota Council on the Economic Status of Women, Update-Pay Equity for State Employees, 1983, which is an update of their earlier report *Pay Equity and Public Employment*, (Minnesota, 1982). The number of women involved was obtained by personal communication with the council.
33. Correspondence from John Campbell, manager, Equal Pay Policy, Labour Canada, August 1984.
34. A recent empirical study (Ehrenberg and Smith 1984) has simulated the expected employment effect of a 20.0 percent comparable worth wage adjustment for all state and local government female employees in the United States. They find an expected 2.0–3.0 percent decline in female employment, a result they consider surprisingly small according to their own prior expectations. As they point out, further empirical work basedon better data sources may refute their estimates; nevertheless, in the absence of such information, it seems reasonable to take their finding at face value.
35. As Robb (1984b, p. 22) points out, however, while equal employment opportunity policies are likely to be helpful for new entrants, they may do little to improve the position of the existing female work force who are unable or unwilling to change occupations.
36. The characteristics of Crown corporations and their relevance as a laboratory for implementing and evaluating labour market policies is discussed in Gunderson (1985).

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