Background Paper on Full Employment

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BACKGROUND PAPER ON

FULL EMPLOYMENT

Prepared for the

COMMISSION OF INQUIRY ON

UNEMPLOYMENT INSURANCE

By

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1 INTRODUCTION

This paper considers the meaning of full employment and attempts to gauge the appropriate level of "sustainable" full employment. Its purpose is to assist the Commission of Inquiry on Unemployment Insurance in the preparation of its report.

The second section of the paper reviews the various theories of employment that have been applied to gain an understanding of the concept of full employment. The starting point is the classical theory of a perfectly functioning labour market where wages adjust to equilibrate supply and demand and all unemployment is voluntary. Next is introduced the Keynesian concept of voluntary unemployment where workers are willing to supply more labour at the current fixed money wage rate and where money wages are assumed to be fixed.

The concept of unemployment called the Non-accelerating Inflation Rate of Unemployment (NAIRU), which is derived from the extended Phillips curve model of wage determination is also examined in the second section. According to this model, there is a certain unemployment rate (or range of rates) that is consistent with a steady rate of inflation. Given the necessity to avoid an accelerating rate of inflation, this is the unemployment rate that is sustainable in the longer run. Any trade-off between inflation and unemployment is necessarily short-run in nature with the duration of the trade-off dependent on the speed with which expectations adapt. To the extent that expectations are rational and accurate, the trade-off can be expected to disappear. The rational expectations view of unemployment can be carried even further and some proponents would argue that all unemployment stems from errors in expectations about, most importantly, the real wage. The search theory view of unemployment developed by Phelps and others is summarized critically. This theory posits that unemployment is voluntary and results from job search. This section of the paper also discusses the traditional decomposition of unemployment into frictional, seasonal, structural, and cyclical components.

The second section of the paper ends by drawing together the main threads of the discussion of theories of employment to shed some light on the question of what might constitute a viable goal for full employment.

The data on labour force trends is examined in the third

section of the paper. Trends in unemployment by age and sex are considered. The nature of the questions on the labour force survey and their significance for the interpretation of unemployment are discussed.

The fourth section of the paper reviews the evolution of goals for full employment as the various theories of unemployment came to be applied to the actual unemployment situation. The increase in the unemployment rate goal from the Economic Council's medium term goal of 3 per cent proposed in 1964 to the Macdonald Commission's 6 1/2 to 8 per cent range for the NAIRU is chronicled. Estimates of the NAIRU derived from the companion paper reviewing the literature on inflation and unemployment are used to shed additional light on the meaning of full employment in the current context. The methodologies used to calculate the estimates of NAIRU are fully discussed. Conclusions concerning factors such as the demographic composition of the labour force and changes in Unemployment Insurance that are expected to have an impact are highlighted.

The fifth section of the paper considers the prospect for full employment. Current short- and medium- term and long-term forecasts for the rate of unemployment are reviewed. Special attention is paid to those presented in the May 1985 budget because of their official status.

The sixth section presents the conclusions on sustainable levels of unemployment.

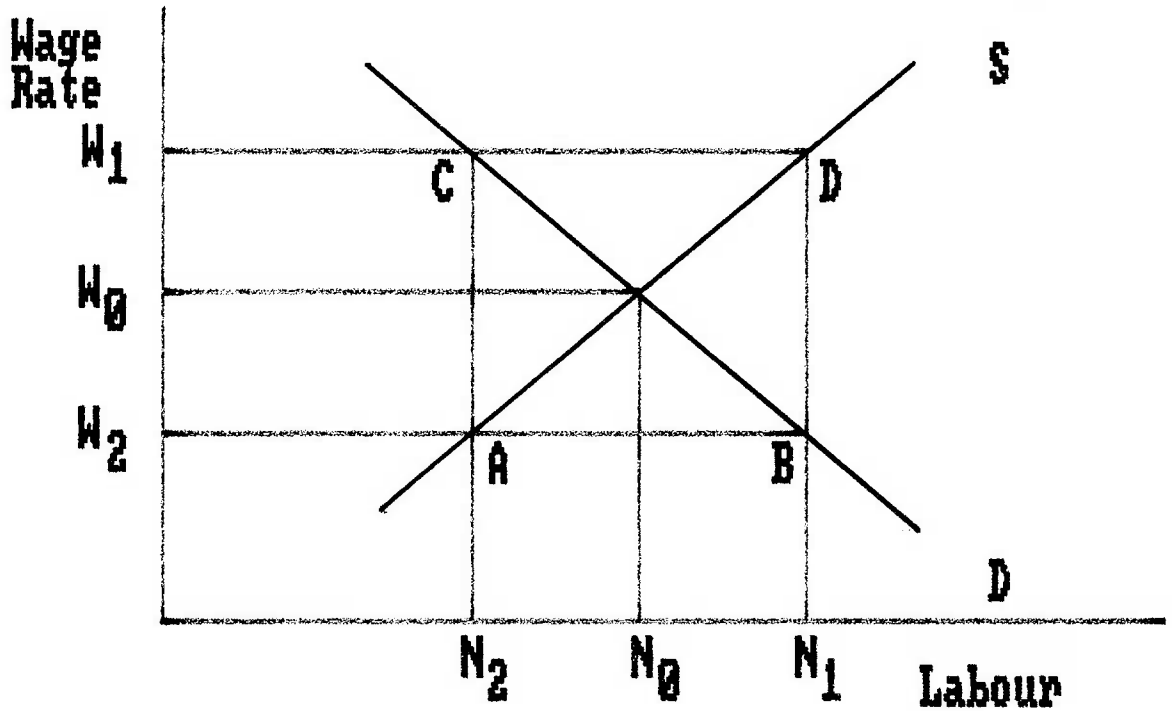
2 THE THEORY OF EMPLOYMENT

Before the publication of Keynes' General Theory the conventional wisdom among economists as expressed in Pigou's The Theory of Unemployment was that full employment was the natural outcome of market forces. Wage rates were believed to adjust so as to equilibrate supply and demand in the labour market. Unemployment was regarded to be a disequilibrium phenomena that would be eliminated when labour markets had time to adjust.

Chart 1 illustrates the determination of the wage rate in a simplified version of the classical model. Labour supply (S) is specified as an increasing function of the wage rate. Labour demand (D) is a declining function of the wage rate. In equilibrium, where labour supply equals labour demand, employment would equal N_0 at a wage W_0. At this wage rate the amount of labour workers wanted to supply would be equal to that demanded so that there would be no involuntary unemployment. Involuntary unemployment would only result if the wage rate were higher than equilibrium at say W_1. In this case there would be a gap of CD between labour demand of N_2 and labour supply of N_1. This gap would represent involuntary unemployment and could only be expected to persist until the equilibrium wage was established by wages being bid down. Similarly, if the wage was lower than equilibrium at say W_2 an excess demand for labour of AB would result. This too would not be sustainable.

CHART 1

SUPPLY AND DEMAND FOR LABOUR
CLASSICAL



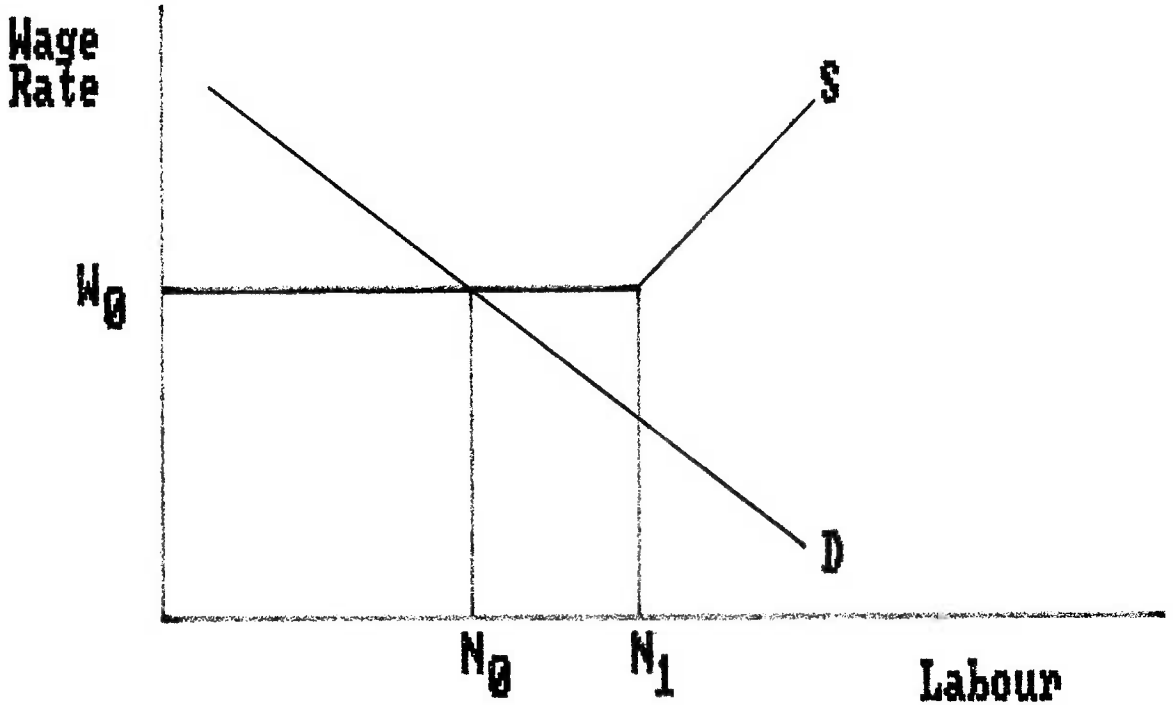
The classical view did not entirely preclude the existence of some voluntary unemployment resulting from departures from labour market equilibrium stemming from fluctuations in the demand for labour over the course of the business cycle. However, such disequilibrium were expected to average out and the unemployment rate emerging on average was regarded to be the natural rate of unemployment.

Keynes's contribution was to provide a theoretical rationale for a sustained departure of the unemployment rate from the natural rate and for the persistence of substantial involuntary unemployment. Keynes considered unemployment to be involuntary if a worker was willing to work at the existing wage, but no jobs were available. Voluntary unemployment occurred when a worker was unwilling to take an available job at the existing wage rate. Keynes's theory of unemployment was important because the classical theory was unable to account for the prolonged and widespread unemployment occurring during the Great Depression. Keynes's model was characterized by an "underemployment equilibrium." A key feature of the model that prevented labour markets from clearing was that wages were assumed to be inflexible downward.

A simplified graphical portrayal of the working of the labour market in the Keynesian model is given in Chart 2. Labour supply is perfectly elastic at the current wage W_0 and only turns up after labour supply exceeds N_1. Labour demand (D) is assumed to be downward sloping. Labour demand intersects labour supply on the horizontal segment of the labour supply curve where the wage rate is equal to W_0. Employment is equal to N_0. At this level of employment and wage rate, involuntary unemployment would exist since workers would be willing to supply labour of N_1. The magnitude of the involuntary unemployment would be given by the gap between N_1 and N_0.

CHART 2

SUPPLY AND DEMAND FOR LABOUR
KEYNESIAN



While the Keynesian approach established the possibility of sustained departures from full employment, it did not provide any operational definition of what might constitute full employment. An early definition of full employment that was tried and found wanting was that advanced in the famous Beveridge (1944) Report in the United Kingdom. According to this report,

> "Full employment ... means having always more vacant jobs than unemployed men, not slightly fewer jobs. It means that the jobs are at a fair wage, of such a kind and so located that the unemployed men can be reasonably expected to take them; it means that the normal lag between loosing one job and finding another will be very short."

A variation of the Beveridge concept of full employment that for a time had some support among economists was that full employment could be said to exist when the number of unemployed was equal to the number of job vacancies. There were both conceptual and statistical problems in interpreting unemployment and vacancy survey data as well as their interrelationships that mitigated against such a simple definition. Nevertheless, the Keynesian notion that low unemployment can be sustained by expansionary demand management policies provided an intellectual framework for policies for much of the post-war period.

In its extreme form the Keynesian theory of employment was taken to mean that the supply of labour was horizontal until the level of full employment was reached after which it became vertical. Consequently, once full employment was obtained any additional increases in demand would result in increases in wages and prices and no additional increases in output and employment.

In the late 1950s A.W. Phillips published a paper (Phillips 1958) demonstrating statistically that over the the previous century there existed a stable negative relationship between the rate of change of wages and the unemployment rate. A theoretical underpinning for this empirical regularity was provided by Richard Lipsey (1960). Wages were posited to adjust to the gap between the supply and demand in labour markets with the rate of change of wages being proportional to excess demand as proxied by the unemployment rate. Price inflation was also included as an additional explanatory factor in the relationship. The important implication of the Phillips curve was that there was a trade-off between inflation and unemployment. The government could achieve a lower level of unemployment by pursuing expansionary policies if it was willing to accept the cost in terms of higher inflation. If a floor

level of unemployment below which cost in terms of a higher rate of inflation escalates sharply exists, then full employment could be said to exist at some unemployment rate sufficiently above the critical rate that inflation remains moderate.

The notion of the existence of a stable trade-off between inflation and unemployment was challenged by Milton Friedman (1968) and Edmund Phelps (1967). They argued that there is a natural rate of unemployment that is determined by real economic phenomena and that is the level of the unemployment rate to which the actual rate tends to gravitate. If unemployment is pushed below this level by expansionary policies or other demand shocks, inflation will accelerate until the natural rate is restored. According to Friedman and Phelps, it is unreasonable to assume that workers and employers suffer from "money illusion." Any trade-off between inflation and unemployment will only be temporary as long as inflation is unanticipated. Once inflation becomes anticipated the trade-off will vanish and the natural rate of unemployment will be restored. The key distinguishing feature of the Friedman-Phelps expectations augmented Phillips curve is the inclusion of an explanatory variable for price expectations in the wage equation with a coefficient of one. This formulation has been borne out by subsequent empirical work which, while not necessarily agreeing about the precise level of the natural rate of unemployment, have succeeded in establishing that there is no long-run trade-off between inflation and unemployment.[1]

The determination of inflationary expectations has important implications for the duration of the period in which it is possible to trade off higher inflation for lower unemployment. The more quickly that anticipated inflation adjusts to the actual the shorter the period of reduced unemployment. There are two views of the way that inflationary expectations are formulated. The first is adaptive expectations where expectations adjust with a lag to past actual inflation. The second is rational expectations where expectations are forward looking and based on all available information on the likely future effects of current and anticipated policy and other factors. The key feature of rational expectations of inflation is that the expectations must be an unbiased predictor of future inflation. In the extreme, if expectations were completely accurate and if wages and prices were sufficiently flexible, then there would be no trade-off even temporary between inflation and unemployment. As soon as the government were to adopt expansionary policies to lower unemployment, it would be recognized and wages and prices would adjust preventing any reduction in unemployment. While attractive in theory, rational expectations have not been very widely or successfully applied empirically. This stems from the difficulties of making the concept of rational expectations operational and from the

simplicity and relatively satisfactory performance of adaptive expectations in empirical analysis.

The term natural rate of unemployment has been translated by Martin Neil Baily and James Tobin (1977) into the more neutral and descriptive Non-Accelerating Inflation Rate of Unemployment (NAIRU). This emphasizes that the rate is not natural in any fundamental sense, but is merely the rate that is consistent with a steady rate of inflation. Nevertheless, given the necessity to avoid an accelerating inflation both on efficiency and distributional grounds, the NAIRU can be regarded as the rate of unemployment that is sustainable in the longer run. On this basis it can be used to define full employment.

The foregoing has summarized the development of the macroeconomic theory of employment. There is also some developments in the microeconomic theory of unemployment which must be considered. Martin Feldstein (1973) argued that the Keynesian notion of a hard core of workers who are not able to find jobs was not an accurate description of the unemployment situation and that a more accurate description was an active labour market in which almost everyone who is out of work can find his usual type of job in a relatively short period of time. This Feldstein dubbed the "new unemployment." It had two key aspects. First it is "frictional" in the sense that it results from the time it takes to move from one job to another. Second it is "voluntary" resulting from workers' decisions to leave one job and not to immediately take another.

The new view of unemployment has two theoretical props: search theory; and implicit contract theory. Search theory is based on the premise that information on job vacancies and workers and wage rates is not freely available, but must be obtained through an investment of time in search activity or the acquisition of information. A worker knows his own wage and has some information on the availability of other jobs and the distribution of their wages. However, he does not know about the availability of specific jobs and their associated rates of pay until he embarks on a job search. Once a worker quits his own job to seek out another, he will continue to search until the cost of further search exceeds the expected return from locating a better job.

Unemployment associated with job search will only result if workers must leave their jobs to find another. The extent to which this will be the case depends on the relative efficiency of unemployed and employed job search as well as on the cost of search. On the one hand, an unemployed worker has more free time to devote to job search (as well as to other activities) and can do the job more systematically. On the other, there are opportunities available within a firm that may be closed to

outsiders and a certain stigma attached to being unemployed. Unemployment insurance reduces the cost of job search in terms of foregone income and provides an incentive to search longer than otherwise.

A great weakness of search theory from a macroeconomic point of view is its inability to explain cyclical unemployment which is largely involuntary. In contrast with what would be expected from search theory, quit rates actually fall as unemployment rises in a cyclical downturn. The increase in the unemployment rate stems from lay-offs and from an increased duration of unemployment.

Search theory can also not satisfactorily explain the phenomenon of lay-offs. Laid-off workers often await recall rather than engage in job search. The theory of implicit contracts has been developed to account for this behaviour. Given that firms and workers have both invested in search and in acquiring firm-specific skills, there is an incentive to develop an arrangement to keep workers and firms together so that both can realize returns on their investment. Implicit (or indeed explicit in the unionized sector) contracts encompassing agreements about temporary lay-offs and recalls are such an arrangement. Implicit contracts enable firms to utilize lay-offs to deal with fluctuations in demand or price when lay-offs are more advantageous to firms and workers than the other alternatives. Unemployment insurance is a factor that makes lay-offs less costly and thus more likely to be used.

It has been traditional among economists to classify unemployment into into non-cyclical and cyclical components. If the non-cyclical component is viewed as corresponding to the NAIRU, the cyclical component can be defined as the difference between the actual rate of unemployment and the NAIRU. It is that portion of unemployment that can be attributed to deficiencies in aggregate demand and can be most effectively addressed through expansionary demand management policy. The non-cyclical component results from more long-run and deep-seated factors. These are:

- frictional unemployment which results from normal labour market turnover as people change jobs;

- seasonal unemployment which is attributable to the seasonal nature of economic activity and is especially pronounced in such industries as agriculture, fishing, and construction that are dependent on the weather or seasonal cycles; and

- structural unemployment which results from institutional characteristics of labour markets or changes in technology or industrial structure that causes mismatches between the

requirements of jobs and the wages, skills, experience and location of unemployed workers.

These non-cyclical analytical categories are useful because of the insights they provide into the non-cyclical causes of unemployment. However, apart from seasonal unemployment, it has been difficult to translate the categories into operational concepts which would permit direct measurement.

There are various ways of measuring the total non-cyclical component of unemployment. The correspondence between non-cyclical unemployment and the NAIRU has already been mentioned. Estimates of the NAIRU have been obtained from inflation-augmented Phillips curve wage equations, often after adjusting the included unemployment variable for the impact of demographic and policy changes. Another way of estimating the non-cyclical component of unemployment has been to use the unemployment rate at peaks of the business cycle as an indicator of the best that can be achieved through an expansion of demand. A problem with this approach is that past peak unemployment rates have been associated with an acceleration of inflation and thus can be regarded as overestimates of what is achievable on a sustained basis.

The discussion of the evolution of employment theory dealt with the Keynesian concept of involuntary unemployment where unemployed workers are willing to take jobs at the going wage rate and no jobs are available. It also considered search theory where all unemployment is voluntary. This naturally gives rise to the question of whether it would be practicable to define a full employment goal as involving the elimination of all involuntary unemployment. There are two problems with such a definition. First, the distinction between involuntary and voluntary unemployment is not clear. To a certain extent, it depends on the time horizon considered. Workers in seasonal and cyclical industries often find themselves involuntarily unemployed in the short run, but, since they have chosen to work in these industries, in some longer run sense they can be considered voluntarily unemployed.

Second, it does not follow that welfare and efficiency would necessarily improved by the elimination of all involuntary unemployment. Before workers take jobs in industries characterized by varying employment, they must have weighed the extra income while employed against the lost income net of the value of the additional leisure when unemployed and decided that they were better off working in the unstable industry. Also there must be a presumption that the fluctuating patterns of unemployment have some rationale on efficiency grounds that enables the industries in question to pay the higher wages necessary to compensate the workers for the additional

unemployment. The existence of Unemployment insurance clouds this cost comparison somewhat. Nevertheless, it is not obvious that government policies to eliminate all involuntary unemployment would lead to improvements in efficiency and welfare. Specific policies designed to address particular incidences of involuntary unemployment must be carefully considered on their own merits. There is no case for trying to reduce all involuntary unemployment through expansionary demand management policy. This, of course, is not to say that appropriate demand management policies to dampen cyclical fluctuations can not improve the situation.

The use of expansionary demand management policies to approach "full employment" must be pursued cautiously. Theory and experience has taught that an overly expansionary policy can only temporarily reduce unemployment and at a cost of permanently higher inflation. This suggests that the most appropriate "full employment" goal for macroeconomic policy should be the Non-Accelerating Inflation Rate of Unemployment. This is the unemployment rate that is consistent with stable inflation and is therefore sustainable. It represents the most reasonable medium-term unemployment goal for macroeconomic policy.

3 UNEMPLOYMENT TRENDS

Canada's unemployment rate, which is displayed in table 1 and chart 3, has exhibited an upward trend over the years. This reflects both cyclical and structural factors. Most of the increase in the unemployment rate from 4.5 per cent in 1968 to 7.5 per cent in 1981 can probably be attributed to structural factors. These structural factors are primarily the 1971 changes in the Unemployment Insurance Program. (discussed in more detail in section 4.3) and the increasing proportion of the labour force accounted for by young people and women who typically experience higher rates of unemployment than men over 25 years old (see chart 4). The subsequent dramatic increase in the unemployment rate to 11.9 per cent in 1983 was caused by the worst recession of the post-war period. The 1985 unemployment rate of 10.5 per cent still incorporates a substantial cyclical component.

The "official" unemployment rate is regarded by many as understating the "true" rate of unemployment. The bone of contention is the definition of unemployment. According to Statistics Canada,

> "Unemployed persons are those, who during the reference week:
>
> - where without work, had actively looked for work in the past four weeks (ending with reference week), and were available for work;
>
> - had not actively looked for work in the past four weeks but had been on layoff and were available for work;
>
> - had not actively looked for work in the past four weeks but had a new job to start in four weeks or less from reference week and were available for work."

Statistics Canada has published alternative unemployment rates based on various modifications to the basic definition. Those of most interest seek to include "disguised unemployment." One such measure includes so-called "discouraged workers" or persons not in the labour force who sought work in the past six months,

but who were not currently looking for labour market related reasons. This unemployment rate was almost 2.5 per cent higher than the official rate in 1983. Another such measure takes into account the underutilization of part-time workers who failed to find full-time employment and is based on hours worked and hours offered. It was 3.6 per cent higher than the official rate in 1983.

Table 1

UNEMPLOYMENT IN CANADA

Year	Number of Unemployed (thousands)	Unemployment Rate (per cent)
1966	251	3.4
1967	296	3.8
1968	358	4.5
1969	362	4.4
1970	476	5.7
1971	535	6.2
1972	553	6.2
1973	515	5.5
1974	514	5.3
1975	690	6.9
1976	726	7.1
1977	849	8.1
1978	908	8.3
1979	836	7.4
1980	865	7.5
1981	898	7.5
1982	1314	11.0
1983	1448	11.9
1984	1399	11.3
1985	1328	10.5
1985(December)	1279	10.1

Source: Statistics Canada, Historical Labour Force Statistics February 1985, cat. 71-201 and The Labour Force, December 1985, cat. 71-001.

Chart 3

THE UNEMPLOYMENT RATE IN CANADA

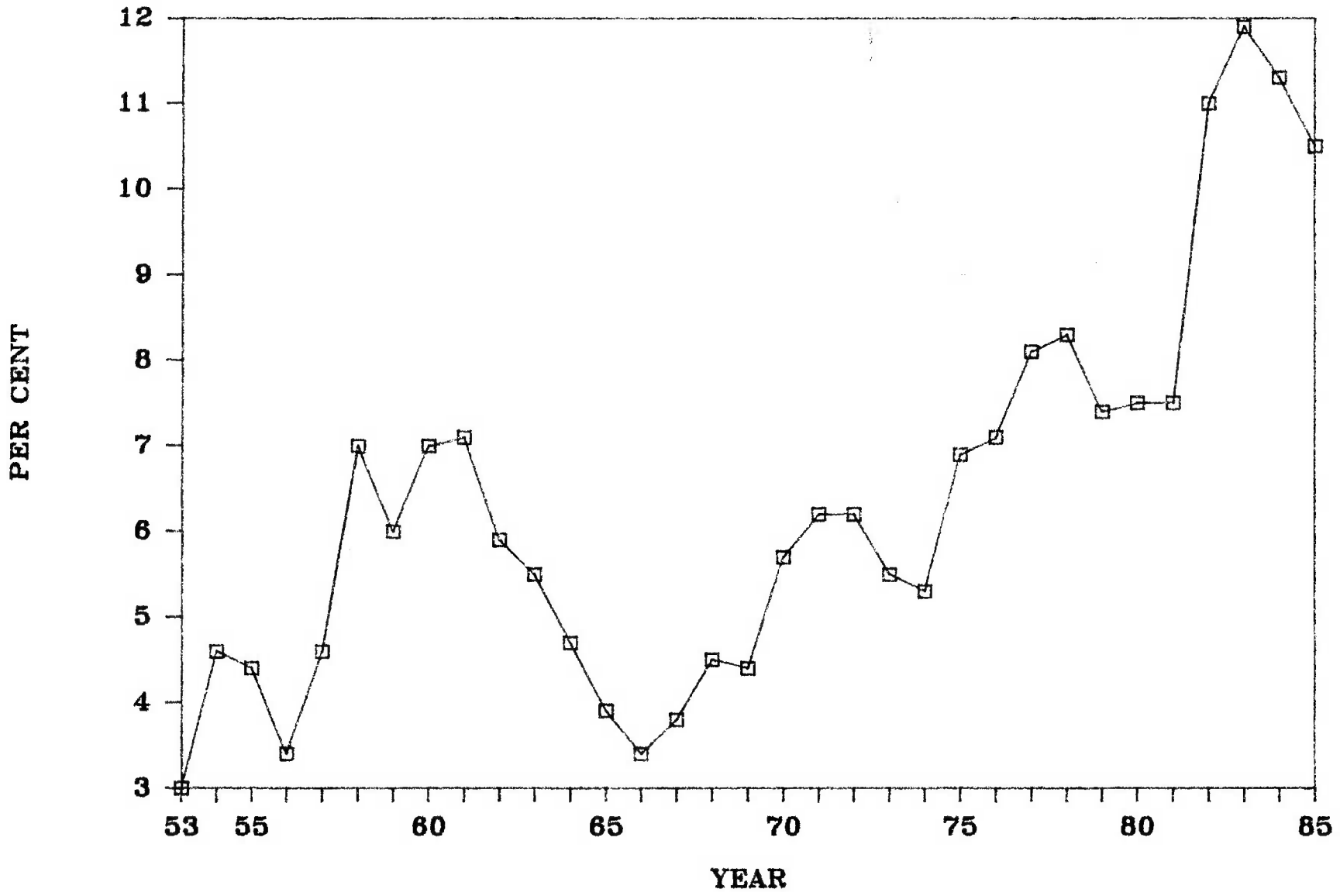
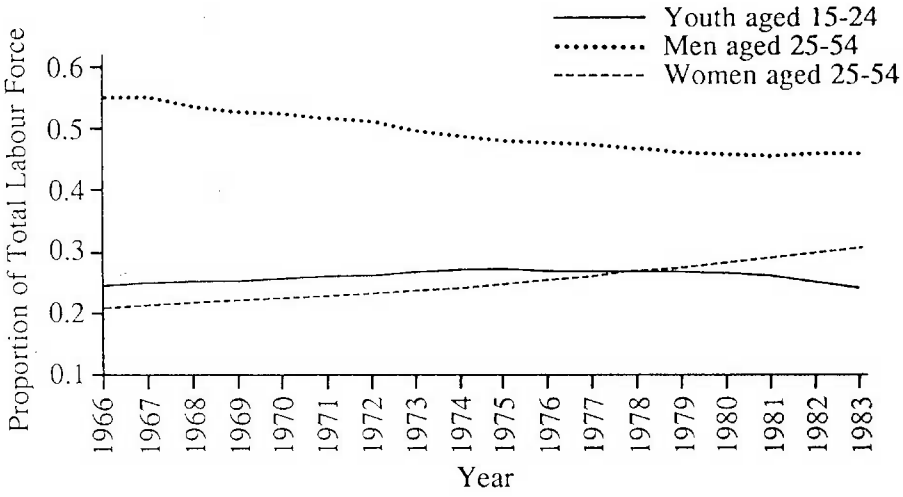


Chart 3

Labour Force Composition by Demographic Groups, 1966-1983



Source: Statistics Canada, *Historical Labour Force Statistics-Actual Data, Seasonal Factors, Seasonally Adjusted Data, 1983* (Ottawa: Minister of Supply and Services Canada, 1984).

Table 2 provides information on the unemployment rate by age and sex. In all years between 1975 and 1985 except 1983 the rate of unemployment of men was below that of women. The rate of unemployment was highest for young people under 25 years, particularly young men. This group has less skills and experience than older workers.

Table 3 shows the unemployment rate by industry. Seasonal industries such as forestry, construction, and fishing and trapping traditionally have higher rates of unemployment than average. Currently, unemployment rates in these industries are even higher than usual because demand for primary products and investment in residential and non-residential construction has not yet recovered from the recession. Lower unemployment rates occur in the service sector industries and agriculture.

Unemployment rate by province are shown in table 4. The unemployment rate has traditionally been lowest in the Prairie provinces and Ontario and highest in the Atlantic region, particularly Newfoundland. The recession in 1981 and 1982 raised the unemployment rate disproportionately in the central manufacturing provinces of Ontario and Quebec and in British Columbia, which is dependent on the forestry sector. The deterioration in the unemployment performance of Newfoundland and Alberta after 1983 reflects to a large extent the slump on the petroleum industry. Over the 1975 to 1985 period as a whole, there has been an increase in the dispersion of provincial unemployment rates around their average (the standard deviation of provincial unemployment rates rose from 1.4 percentage points to 3.9 percentage points).

The increase in the unemployment rate results both from increases in the number of individuals experiencing some unemployment and from a rise in the average duration of unemployment. Table 5 shows that the average duration of unemployment increased from around 15 weeks in 1981 to almost 22 weeks as a result of the 1981-82 recession and that it has only decreased slightly subsequently. This increase in the duration of unemployment was associated with an increase in long-term unemployment. Those experiencing spells of unemployment in excess of 14 weeks went up from 33.9 per cent in 1981 to 45.4 per cent in 1985. An interesting finding of Hasan and de Broucker (1985, p. 91) is that long spells of unemployment contribute a very large part of unemployment. They note (Hasan and de Broucker, 1985, p. 99) that spells exceeding six months in duration jumped from 5.2 per cent of the total in 1981 to 8.8 per cent in 1982 and that their contribution to total unemployment increased from 21.5 to 31.8 per cent. This is advanced as evidence that unemployment results from a deficiency of aggregate demand for labour and not from turnover.

High unemployment is viewed with concern because of the hardship it entails for the unemployed and their families. The number of families with more than one member employed has increased in step with the participation of women in the labour force. In 1985 more than 70 per cent of families with one or more unemployed members had at least one member who was working and in more than half of these families the unemployed person was not the primary income earner. The expansion of the coverage and benefits of the Unemployment Insurance program helps to reduce the income loss following unemployment and thus lessens the hardship associated with unemployment.

Table 2

UNEMPLOYMENT BY AGE AND SEX IN CANADA

(per cent)

	Both Sexes			
	15-24	25-44	45+	Total
1975	12.0	5.4	4.4	6.9
1976	12.7	5.7	4.2	7.1
1977	14.4	6.3	4.9	8.1
1978	14.5	6.7	5.1	8.3
1979	12.9	6.0	4.5	7.4
1980	13.2	5.9	4.5	7.5
1981	13.2	6.2	4.4	7.5
1982	18.8	9.4	6.7	11.0
1983	19.9	10.4	7.4	11.9
1984	17.9	10.2	7.5	11.3
1985	16.5	9.0	7.2	10.5

Source: Statistics Canada, Historical Labour Force Statistics February 1985, cat. 71-201 and The Labour Force, December 1985, cat. 71-001.

Table 2(continued)

UNEMPLOYMENT BY AGE AND SEX IN CANADA

(per cent)

	Men			
	15-24	25-44	45+	Total
1975	12.5	4.0	3.9	6.2
1976	13.2	4.6	3.7	6.3
1977	14.9	5.2	4.4	7.3
1978	15.0	5.5	4.7	7.5
1979	13.2	4.9	4.0	6.6
1980	13.7	5.2	4.0	6.9
1981	14.1	5.3	4.1	7.0
1982	21.1	9.1	6.6	11.1
1983	22.4	10.3	7.4	12.1
1984	19.4	9.9	7.3	11.2
1985	18.2	8.9	7.1	10.3
	Women			
	15-24	25-44	45+	Total
1975	11.4	7.1	5.4	8.1
1976	12.1	7.6	5.0	8.4
1977	13.8	8.2	5.9	9.4
1978	13.8	8.7	5.9	9.6
1979	12.7	7.8	5.4	8.8
1980	12.6	7.0	5.5	8.4
1981	12.3	7.5	4.9	8.3
1982	16.1	9.8	6.9	10.9
1983	17.0	10.5	7.6	11.6
1984	16.2	10.6	7.8	11.4
1985	14.6	10.3	7.5	10.7

Source: Statistics Canada, Historical Labour Force Statistics February 1985, cat. 71-201 and The Labour Force, December 1985, cat. 71-001.

Table 3

UNEMPLOYMENT RATES BY INDUSTRY IN CANADA

ALL CLASSES OF WORKERS

(per cent)

	1975	1981	1982	1983	1984	1985
Agriculture	2.8	4.5	6.4	7.2	6.9	7.1
Fish. & Trap.	-	11.1	10.4	13.7	14.5	17.1
Forestry	19.4	19.9	28.7	25.3	24.9	26.9
Mines, Quar. & Oil	5.6	6.1	12.9	13.7	10.9	8.9
Manufacturing	7.4	7.9	13.4	13.0	11.0	10.1
Construction	11.8	12.7	20.5	23.9	22.7	20.0
Trans., Comm. & Utilities	4.9	5.1	7.5	8.3	7.9	7.2
Trade	5.6	6.5	9.6	10.5	9.9	8.9
Finance, Ins. & Real Estate	2.9	3.9	5.3	6.0	6.2	6.2
Community, Bus. & Pers. Services	5.4	6.8	9.2	10.2	9.6	9.6
Public Admin.	4.2	5.4	7.0	7.8	8.3	8.3
All Industries	6.9	7.5	11.0	11.9	10.5	10.5

Source: Statistics Canada, Historical Labour Force Statistics February 1985, cat. 71-201 and The Labour Force, December 1985, cat. 71-001.

Table 4

UNEMPLOYMENT RATE BY PROVINCE

(per cent)

	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.
1975	14.0	8.0	7.7	9.8	8.1	6.3	4.5	2.9	4.1	8.5
1976	13.3	9.6	9.5	11.0	8.7	6.2	4.7	3.9	4.0	8.6
1977	15.5	9.8	10.6	13.2	10.3	7.0	5.9	4.5	4.5	8.5
1978	16.2	9.8	10.5	12.5	10.9	7.2	6.5	4.9	4.7	8.3
1979	15.1	11.2	10.1	11.1	9.6	6.5	5.3	4.2	3.9	7.6
1980	13.3	10.6	9.7	11.0	9.8	6.8	5.5	4.4	3.7	6.8
1981	13.9	11.2	10.2	11.5	10.3	6.6	5.9	4.7	3.8	6.7
1982	16.8	12.9	13.2	14.0	13.8	9.8	8.5	6.2	7.7	12.1
1983	18.8	12.2	13.2	14.8	13.9	10.4	9.4	7.4	10.8	13.8
1984	20.5	12.8	13.1	14.9	12.8	9.1	8.3	8.0	11.2	14.7
1985	21.3	13.2	13.8	15.2	11.8	8.0	8.1	8.1	10.1	14.2

Source: Statistics Canada, Historical Labour Force Statistics February 1985, cat. 71-201 and The Labour Force, December 1985, cat. 71-001.

Table 5

AVERAGE DURATION OF UNEMPLOYMENT IN CANADA

BY AGE AND SEX

(weeks)

	Both Sexes			
	15-24	25-44	45+	Total
1976	12.2	14.7	17.3	13.9
1981	13.0	15.9	19.3	15.1
1982	15.4	18.0	20.4	17.3
1983	18.4	23.1	26.7	21.8
1984	16.8	23.0	27.9	21.6
1985	15.8	23.1	29.6	21.6

Source: Statistics Canada, Historical Labour Force Statistics February 1985, cat. 71-201 and The Labour Force, December 1985, cat. 71-001.

4 GOALS FOR FULL EMPLOYMENT

4.1 Official Statements of Goals for Full Employment

The White Paper on Employment and Income published in 1945 (Department of Reconstruction and Supply (1945)) expressed the Canadian government's commitment to the goal of high employment. Specifically, the government stated that:

> "The central task of reconstruction...must be to accomplish a smooth orderly transition from the economic conditions of war to those of peace and to maintain a high and stable level of employment and income." (p.1)

While the White Paper did not enunciate a particular numerical goal, it did mention the concept of "full employment."

> "In setting as its aim a high and stable level of employment and income, the Government is not selecting a lower target than 'full employment.' Rather the Government is mindful that employment and incomes will be subject to fluctuations in the sphere of international trade, which cannot be wholly and instantaneously offset, and that seasonal fluctuations, resulting from climate and buying habits, are not to be overcome without much patient and resourceful work."(pp.1-2)

Consistent with the optimistic Keynesianism then current, the White Paper focussed on the goal of high employment and made no mention of the goal of price stability.

The first specific quantitative goal for full employment was that proposed by the Economic Council of Canada in its first annual review (1964, p.189). It was for a medium term goal of 3 per cent for the unemployment rate and less than 2 per cent for the average annual rate of price increase. This represented a significant improvement over actual performance during the 1945-63 period and was said to require favourable conditions and wage and price restraint.

The Carter Royal Commission on Taxation (1966) suggested that the rate of unemployment could be reduced to 4 per cent without creating any sustained inflationary pressure, but that rates below 3 per cent were not sustainable. It thus proposed a short-term goal of 3.5 per cent. The Carter Commission was critical of what it regarded to be an over-concern with inflation in the policy stance of the late 1950s and early 1960s.

The deterioration of inflation performance in the 1960s gave rise to increasing concern and in 1968 lead to the establishment of a Price and Incomes Commission. A Special Senate Committee on Growth, Employment and Price Stability was also set up to look into the situation. In 1971, this Committee reported that it was feasible through fiscal, monetary and exchange rate policies to achieve the medium-term goals of maintaining the unemployment rate in the 4 to 4.5 per cent range and of limiting annual increases in the consumer price index to 2 to 3 per cent.

In a 1970 study the Economic Council (1970) defined the rate of unemployment associated with potential as between 3 and 4 per cent.

The Price and Incomes Commission in its summary report released in 1972 blamed the increase in inflation in the mid-1960s largely on excess demand and attributed the persistence of inflation in spite of the increase in unemployment in 1970 to the lag in the adjustment of inflationary expectations. The Commission estimated that the unemployment rate reached a "danger point" likely to trigger inflationary pressures when it fell below 4.5 to 5 per cent.

In the late 1970s two studies of the economy's potential output were published by the Conference Board, an agency with a semi-official status, which embodied estimates of full employment unemployment rate. The first of these by R. Crozier (1977) calculated potential output using a rate of unemployment of 5 per cent for the 1973 to 1976 period. The second by E.A. Carmichael (1979) used an unemployment rate of 6.4 per cent in 1978. Carmichael's study suggested that over the 1973 to 1976 period covered by Crozier that the full employment unemployment rate varied between 5.3 and 5.7 per cent. This was significantly above the 5 per cent estimated by Crozier.

While the Economic Council never established a goal for the unemployment rate in the early 1980s, there are comments and observations in its annual reviews which are suggestive. For instance, in Lean Times, the 1982 annual review, it is noted that the then current unemployment rate of 12 per cent is "well above the 6.5 to 7 per cent rate of unemployment thought to be

consistent with a stable rate of wage inflation." (Economic Council, 1982, p.89) In On the Mend, the Twentieth Annual Review, a cyclically-adjusted unemployment rate of 7 per cent is used in calculating a cyclically-adjusted budget balance. (Economic Council, 1982, p.55)

As the 1970s progressed, there was an increasing degree of realism about what might constitute a viable objective for reducing unemployment. To a large degree, this realism, combined with a reluctance to go on the record with an unemployment goal that might be construed as indicating a willingness to tolerate high unemployment, inhibited the establishment of official goals for the unemployment rate. The only exception to this was Parliamentary Task Force on Employment Opportunities for the 80s, which in 1981 recommended a full employment goal of a 4 per cent unemployment rate. This was considered to be unrealistic by most knowledgeable observers. However, it is worth noting that even as late as 1983 two academic economists, Diane Bellemare and Lise Poulin-Simon were, in a monograph on full employment, using a full employment unemployment rate of 3.5 per cent to calculate the cost of unemployment to the Canadian economy.

In spite of unemployment never averaging below 5.3 per cent on an annual basis, the 1970s were marked by double-digit inflation. The Macdonald Royal Commission on the Economic Union and Development Prospects for Canada (1985, Vol. 2, p.284), commenting on this trends, estimated that the Non-Accelerating Inflation Rate of Unemployment (NAIRU) rose from the 4 to 5 per cent range in the 1950s and early 1960s, to 6 to 7 per cent in the early 1970s, and to 6.5 to 8 per cent today. The Commission proposed that getting the unemployment rate down to this 6.5 to 8 per cent range should be the medium-term goal of stabilization policy.(p.376) It stressed that expansionary monetary and fiscal policies cannot sustain levels of unemployment below this range over the longer term. Such a permanent reduction in unemployment would require the implementation of structural changes. To accomplish this end the Commission recommended that such policies as freer-trade, labour-market adjustments, and new mechanisms for labour-management relations be adopted.

4.2 Estimates of the Natural Rate Of Unemployment

Since the most reasonable medium-term goal for full employment is currently agreed to be the NAIRU, it is important to have the most reliable estimates of it currently available. These are summarized in table 6 as compiled by Fortin and Newton (1982) and updated to incorporate some new estimates. The increase in

structural unemployment due to such factors as shifts in the demographic composition of the labour force and the changes to Unemployment Insurance are evident. Also except for two recent exceptions, estimates canvassed all fall in the 6 to 7 per cent range. This is lower than the 6.5 to 8 per cent range suggested by the Macdonald Commission. It offers some promise that the rate of unemployment can be reduced to a fairly reasonable level without leading to a resurgence of inflationary pressures. However, before drawing any firm conclusions, it is useful to take a closer look at some of the studies.

Table 6

ESTIMATES OF THE INCREASE IN THE STRUCTURAL UNEMPLOYMENT FROM THE 1950S TO THE 1970S AND OF THE RECENT LEVEL OF NAIRU

Study	Increase in Structural Unemployment	Period of Increase	Level of NAIRU	Date of NAIRU
Freedman (1976)			7.2	1975:4
O'Reilly (1976)	2.1	1960-75		
Kierzkowski (1977)	2.1	1962-75	6.5	1975
Reid and Meltz (1979)	3.3	1953-75		
Aubrey, Cloutier and DiMillo (1979)	3.2	1953-77	7.0	1977
Fortin and Phaneuf (1979)	2.1	1957-78	6.6	1978
Grubel and Maki (1979)	2.6	1955-75		
Dungan and Wilson (1979)	2.5	1953-77		
Riddell (1979)	2.5	1955-78	7.0	1978
Siedule and Newton (1979)	1.7	1961-78	5.5	1978
Gosselin (1980)	3.3	1962-79	6.5	1979
Aubrey (1982)			6 to 6.5	1980
Guindon and Grignon (1981b)	2.7	1962-79	6.6	1979
Riddell and Smith (1982)	1.5	1966-79	6.2	1979
Samson (1985)	6.4	1957-83	11.0	1983
McCallum (1985)			6.6	1984
Marion (1985)	5.5	1963-82	12.0	1982

Source: Update of estimates in Table 9 of preliminary version of Fortin and Newton (1982).

4.2.1 Bank of Canada

Several of the estimates of the NAIRU have been made by economists in the Research Department of the Bank of Canada. This includes: Freedman (1976); O'Reilly (1976); Kierzkowski (1977) Aubrey, Cloutier and DiMillo (1979); and Aubrey (1982). Much of this work is surveyed in Merrett (1979).

The approach followed by Freedman (1976) and O'Reilly (1976) was to construct corrected vacancy and unemployment rates by eliminating the effects of changed structural factors from the actual measured rates. This was done by estimating an equation for the unemployment rate as a function of the inverse of the vacancy rate, the change in the inverse of the vacancy rate, the proportion of the labour force employed in the agriculture sector, Unemployment Insurance benefits as a proportion of the average weekly wage, the proportion of the labour force comprised of youths, the proportion of the labour force comprised of adult females, and a weighted measure of the dispersion of the demographic unemployment rates around their average. An adjusted unemployment rate was then calculated using the average of 1965 and 1966 as a base period.

Freedman (1976) used the adjusted unemployment rates and vacancy rates as explanatory variables in estimating various extended Phillips curve wage equations. He then solved the various equations for the NAIRU by setting expected and actual inflation equal and less than the rate of increase of wages by the assumed rate of productivity growth. (Freedman also used Phillips curves expressed solely in terms of prices as an alternative to avoid the necessity of making productivity assumptions, but he regarded these to be less satisfactory.) While only his preferred estimate of the NAIRU of 7.2 per cent in the fourth quarter of 1975 is presented in the table, other estimates, some of which were as high as 10 per cent and were regarded by Freedman as implausible, were presented in his paper.

Kierzkowski (1977) estimated the natural rate starting from the assumption that the actual unemployment rate should equal the natural rate except for random deviations. He estimated an equation that specified the unemployment rate as a function of the proportion of women and of youth in the labour force, some variables representing Unemployment Insurance benefits and coverage, and a cyclical variable. The only variable which turned out to be significant in his final equation was the proportion of women in the labour force. Thus, his estimate of

6.5 per cent for the natural rate depended entirely on the proportion of women in the labour force. With this proportion continuously rising, Kiezkowski's equation has the implausible implication that the natural rate will also continue to rise.

Aubrey, Cloutier and DiMillo (1979) estimated the natural rate by following an approach involving regressing prices on the gap between actual and trended growth and on price expectations as represented by a twelve quarter distributed lag on past price changes. The coefficient on price was constrained to one to yield a vertical long-run Phillips curve. The equation was then solved for the gap that equilibrated actual and expected inflation. The gap was then converted into a natural rate of unemployment using an estimated Okun's law equation relating the the unemployment rate to the gap and other variables that might have caused the relationship between the unemployment rate and the gap to shift. These other variables included: the ratio of average unemployment insurance benefits to the average weekly wage; participation rates and shares of women and youth in the labour force; a time trend; and dummy variables for periods following revisions to the Unemployment Insurance Act. Of these variables only the Unemployment Insurance dummy variable was significant. Their estimate of the natural rate was 7 per cent in 1977.

Aubrey (1982) provided revised estimates of the natural rate as a by-product of estimating a small wage price system comprising equations for wage changes, price change, unit labour costs, the exchange rate, and export prices. The key wage equation was an extended Phillips curve with wages a function of productivity change, the gap between the actual and adjusted unemployment rates, and a dummy variable for the AIB. The adjusted unemployment rate used was calculated following the methodology developed earlier by Aubrey to incorporate the impact of changes in Unemployment Insurance benefits and regulations. The natural rate emerging from the Aubrey wage-price model was in the 6 to 6.5 per cent range in 1980.

4.2.2 Reid and Meltz (1979)

Reid and Meltz made use of the inverse relationship between the unemployment rate and the vacancy rate to distinguish between changes in deficient demand unemployment (represented by movements along the curve) and changes in non-deficient demand unemployment (represented by shifts in the curve). The sources of shifts in the curve that were considered were major changes in the Unemployment Insurance Act. The effect of changes in the UI Act were measured using two alternative methods. The first

was to use the ratio of average weekly wages to average weekly earnings as an explanatory variable. The second was to include dummy variables for the 1955 and 1971 revisions to the UI Act. Since the relationship between the unemployment and vacancy rates was assumed to exist in each micro labour market, the macro relationship that was estimated could shift because of increased dispersion of excess demand among labour markets and because of changes in the demographic composition of the labour force.

The analysis carried out by Reid and Meltz suggested that the main cause of the upward shift of approximately three percentage points in the unemployment-vacancy relationship in Canada from the mid-1960s to the mid-1970s could be attributed to three factors. First, the continuing shift from agricultural to non-agricultural employment contributed about 0.2 percentage points. Second, the 1971 change in the UI Act contributed about 1.9 percentage points, of which 0.7 percentage points resulted from the higher benefit-wage ratio and 1.2 percentage points from revisions in the regulations of the Act. Third, demographic changes contributed about 1.2 percentage points. No estimate of the level of the natural rate was provided by Reid and Meltz.

4.2.3 Grubel and Maki (1979)

Grubel and Maki estimated the impact of structural changes on the unemployment rate using data drawn from the old labour force survey covering the period 1950 to 1975. The approach used was to regress the labour force to population ratio (the participation rate) and the employment to population ratio separately on a set of explanatory variables and then to use these equations to calculate the impact of the explanatory variables on the unemployment rate. The explanatory variables used reflect the Unemployment Insurance program, the degree of unionization, minimum wages, and the ratio of GNP to its trend. A time trend was also included. The results indicated that the UI changes raised the unemployment rate by 0.3 percentage points between the 1962-65 and 1972-75 periods. The degree of unionization increased the unemployment rate by 2.2 percentage points over the same period. They concluded that, if one accepts that the natural rate in 1952-55 was approximately 3 per cent, that the natural rate in 1972-75 was about 5.5 per cent.

4.2.4 Riddell (1979)

Riddell used two different approaches to estimate the natural rate. The first involved estimating equations in which the unemployment rate was specified to be determined by some combination of cyclical and structural factors. The cyclical variables were the deviation of actual from anticipated inflation and the deviation of the real GNP from tend. The Riddell and Smith (1978) measure of inflation expectations was used. The second approach involved estimating an extended Phillips curve wage equation where the rate of change in wages is a function of the unemployment rate and expected wage inflation as well as of variables for structural changes in labour markets. The structural variables tried by Riddell were:

- the 'real' minimum wage rate (the ratio of the minimum wage to average weekly wages);
- a measure of the generosity of the Unemployment Insurance program ;and
- measures of the composition of the labour force.

The UI variables used were:

- the real value of UI benefits;
- the coverage of the UI Act;
- the minimum number of weeks necessary to qualify for benefits;
- the maximum number of weeks for which benefits can be drawn;
- the number of additional weeks of benefits which be drawn for each additional week of employment; and
- the degree to which eligibility rules are strictly or leniently interpreted.

The real value of UI benefits was measured in two alternative ways:

- average benefits paid during the period (total benefits divided by the number of claimants); and

- maximum benefits paid.

The unemployment rate variables used were specified to allow for changes in the demographic composition of the labour force. These variables were:

- the unemployment rate for prime age males;
- an unemployment rate standardized for the 1965 composition of the labour force; and
- the overall unemployment rate supplemented by additional variables for the proportion of the labour force under 25 years of age and the fraction of women workers in the labour force.

Two other variables used by Riddell in his analysis were a dummy variable for the AIB period and the variability of inflation.

Riddell's Phillips curve results were extremely week and consequently were not used. For the unemployment equation approach, the preferred equations (one using the difference between actual and anticipated inflation and the other using the GNP gap) indicated that changes in the minimum wage tended to lower the unemployment rate (a perverse result) and in Unemployment Insurance tended to raise the unemployment rate. In other equations, the variables for the share of women and young people also had the expected signs.

4.2.5 Seidule and Newton (1979)

Seidule and Newton pursued a different approach in estimating a non-cyclical rate of unemployment, a concept which is closely akin to the natural rate of unemployment. Their methodology involved the calculation of the economy's real output gap, and the required man-hours per unit of real output. The former was then divided by the latter to generate an estimate of the cyclical unemployment. Non-cyclical unemployment was then calculated residually by subtracting cyclical unemployment total unemployment. A problem with this approach, which casts doubt on its reliability, is that it involves a degree of circularity since the output gap used was calculated assuming a certain degree of cyclical unemployment.

While Seidule and Newton stress that their estimate of the non-cyclical unemployment rate is not the same thing as the NAIRU because their estimate of cyclical unemployment may

include some elements of structural and frictional unemployment, they note the remarkable similarity between their own estimate of non-cyclical unemployment rate of 5.5 per cent in 1978 and the estimate of the NAIRU of 6 per cent provided by the Economic Council of Canada in its Sixteenth Annual Review.

4.2.6 Fortin and Phaneuf (1979)

Fortin and Phaneuf (1979) followed a three step process to estimate the natural rate. The first step was to calculate a unemployment rate corrected for policy and demographic shifts. The second step is to regress the rate of price change on productivity growth, the expected rate of price change, the adjusted unemployment rate, the ratio of the minimum wage to average hourly earnings in manufacturing, variables pertaining to the generosity and coverage of Unemployment Insurance, various tax variables, and a dummy variable for wage and price controls. The third step is to solve the price equation for the rate of unemployment that is consistent with steady inflation. This is the NAIRU and is estimated to be 6.6 per cent in 1978.

4.2.7 Guindon and Grignon (1981b)

Guindon and Grignon (1981b) followed a two step procedure in estimating the NAIRU. The first step was to estimate a standardized unemployment rate. This rate is the weighted sum of the standardized unemployment rates for six demographic groups: young men 15-19 years old; young men 20-24 years old; men 25-54 years old; young women 15-19 years old; young women 20-24 years old; women 25-54; and older workers 55 years and older. Standardized unemployment rates for the various groups are explained using various measures of aggregate demand, demographic variables, policy variables, and relative price variables. The aggregate demand variables used in the equation explaining the unemployment rate for prime age males were different indicators of the deviation of actual GNP from potential. In the equations for the other demographic groups the aggregate demand variable was the unemployment rate of prime age males corrected for estimated structural variations. The policy variables pertain to minimum wages, Unemployment Insurance, public sector wages, and benefits under the Guaranteed Income Supplement. The relative price variables are for the energy and the cost of capital. Their main empirical results are that changes in the composition of the labour force and in the relative price of energy have significantly affected

the unemployment rate for prime age men. Also their estimates indicate that 60 per cent of the increase in unemployment between 1966 and 1979 can be attributed to structural changes in the Canadian labour market, the most important of which were the increase in the participation rate of women and the 1971 revisions to the Unemployment Insurance Act.

4.2.8 Riddell and Smith (1982)

Riddell and Smith (1982) estimated the natural rate by solving an estimated wage equation for the unemployment rate consistent with price stability. The wage equation was specified for wage increases in major wage settlements and is a function of the unemployment rate, a constructed inflationary expectations variable, the difference between actual and expected inflation over the previous contract, a variable reflecting the generosity and coverage of Unemployment Insurance, and a dummy for wage and price controls. This equation was then used to derive changes in the structural rate of unemployment and these estimated changes are used in conjunction with an assumed initial value of the natural rate of 6.6 per cent in 1978 taken from Fortin and Phaneuf (1979) to estimate the natural rate. This, of course, requires an additional assumption that the behaviour of wages in the portion of the economy not covered by major collective agreements is the same as in that which is. The specific estimate of the natural rate provided by Riddell and Smith was 6.2 per cent in 1979.

4.2.9 Samson (1985)

Lucie Samson (1985) followed the approach utilized by David Lilien (1982) in the United States to explain the increase in the aggregate unemployment rate by sectorial shifts in the composition of employment demand among industries.[2] She thus estimates equations for the actual unemployment rate as a function of the dispersion of employment growth among industries, the difference between expected and actual money growth, a time trend and the U.S. rate of unemployment. The equation for the actual rate is then solved for the natural rate assuming that there were no monetary surprises and no random fluctuations in unemployment. This has the implausible implication of making the Canadian natural rate primarily dependent on the U.S. actual unemployment rate. The natural rate of 11 per cent estimated for 1983 thus reflected a U.S. unemployment rate of almost 10 per cent. Now that the U.S.

unemployment rate has dropped to near 7 per cent, the Canadian natural rate predicted by her equation could also be expected to drop correspondingly.

The most fundamental criticism of Samson is that there is no necessary link in economic theory between the natural rate in Canada and the U.S.. Natural rates are independently determined in both countries based on supply and demand conditions in their respective labour market. For instance, if unemployment insurance were abolished in the United States, then the U.S. natural rate could be expected to fall while the Canadian rate remained unchanged. The estimated equation captures the predominantly cyclical relationship between unemployment in Canada and the U.S. When the U.S. economy is strong and the unemployment rate is low, this is usually transmitted to Canada through trade and capital flow links lowering the rate of unemployment in Canada. It is a mistake to attribute this effect to structural rather than cyclical factors.

4.2.10 McCallum (1985)

John McCallum (1985) estimated the natural rate using an equation which explains the actual unemployment rate as function of the U.S. unemployment rate, the Unemployment Insurance replacement rate after allowance is made for changes in coverage and the taxation of benefits, the change in real business fixed investment as a percentage of potential GNP, the change in the ratio of government tax revenues minus subsidies to GNP, a distributed lag on the change in the growth rate of the broadly defined money supply, and the lagged value of the unemployment rate.

Since the fiscal and monetary policy and investment explanatory variables in McCallum's equation were expressed in terms of rates of change or rates of change of rates of change, they drop out of any calculation of the natural rate in equilibrium leaving it to be determined by the U.S. natural rate and the value of the replacement rate for unemployment insurance. Assuming a U.S. natural rate of 6 per cent, McCallum estimated a Canadian natural rate of 6.6 per cent. This estimate, while it appears more reasonable than that of Samson is subject to the same criticism concerning its overdependence on the U.S. unemployment rate.

4.2.11 Marion (1985)

Gerald Marion (1985) estimated the natural rate of unemployment using a wage equation. In his equation estimated on quarterly data the rate of change of wages is a function of the unemployment rate, the dispersion in the level of the wage rate among eight broad industry groupings, the change in the payout of Unemployment Insurance benefits, the overall level of economic activity, and a dummy variable for the Anti-Inflation Program. The lagged rate of wage change is also included as an explanatory variable. Equations are also estimated for the wage dispersion and level of activity variables to close the model.

Marion's estimate that the natural rate rose to 12 per cent in 1982 is troubling. Even more troubling, if the graph of the natural rate provided in the text of the article can be taken at face value, is that by the fourth quarter of 1982 the natural rate is estimated to have shot up above 14 per cent. From the information supplied in the text of the article it is not possible to determine what is driving the natural rate, but there are several obvious misspecifications that could be the source of the problem.

The first misspecification is that the equation does not follow the conventional extended Phillips curve specification and include a price expectations variable. Instead, it incorporated the lagged value of the dependent rate of wage change variable. This could cause the estimate of changes in the natural rate to compound if one of the other explanatory variables were shocked. A possible source of the shock in 1982 could be the increase in Unemployment Insurance benefit payouts as the unemployment rate rose. If this is so, it would be the result of another misspecification because the increase in Unemployment Insurance benefits entirely reflects the increase in the unemployment rate and does not stem from any increases in benefit rates or coverage such as would be necessary to raise the natural rate.

Given the obvious problems with the equations used to estimate the natural rate, not much weight should be put on the Marion's estimate that the natural rate was 12 per cent in 1982. Also if the natural rate were indeed 12 per cent in 1982, it would be very difficult to reconcile such a high natural rate with the dramatic deceleration in wage inflation which began in mid-1982.

4.3 The Impact of UI on the Rate of Unemployment

Unemployment Insurance is widely recognized to have the undesirable side effect of raising the rate of unemployment. It does this by reducing the incentive to work, to keep working if employed, and to look for a job if unemployed. It also makes it easier for employers to lay off workers by reducing the hardship associated with unemployment and lowering the probability that the worker will take another job and be lost to the industry. The current UI program with uniform premiums, regardless of the employment patterns of the industry covered, subsidizes those industries characterized by employment instability. The magnitude of the impact of UI on the unemployment rate depends on the coverage and generosity of the program.

Before 1971, the UI benefit rate ranged between 43 and 53 per cent of previous earnings, the higher figure applying if the claimant had dependents. In July 1971 the benefit rate was raised to 66.6 per cent of actual insurable earnings, provided the earnings were below the ceiling, and to 75 per cent for claimants with dependents who had low earnings or experienced prolonged unemployment. The maximum weekly benefit under the new act was increased to $100 from $53. The new UI legislation also reduced the minimum qualification period from 30 weeks during the preceding two years to 8 weeks for the preceding year. The entitlement period of one week of benefits for every two weeks of work was changed to a maximum entitlement of 28 weeks and 44 weeks in a depressed region for a minimum of 8 weeks of work. Assuming that the benefit replaced about 80 per cent of the net wage, this constituted an implicit subsidy of between 280 per cent and 440 per cent for those in the most unstable segment of the labour market (80 per cent replacement rate times 28 or 44 weeks of benefits divided by 8 weeks qualification period). This compared with a subsidy of only 33 per cent under the old act (66 per cent replacement rate times 1 week per 2 weeks of employment). At the same time the program's coverage was broadened, increasing the number of employees covered by UI by about a third and raising the percentage of the labour force covered to almost 90 per cent. Extended benefits based on regional unemployment rates were also established. This enrichment of the UI program contributed to an increase in total UI benefits from around $700 million in 1970 to almost $2 billion in 1972.

Some estimates of the increase in the unemployment rate attributable to the 1971 revisions to Unemployment Insurance compiled by Fortin and Newton (1982) and updated are shown in table 7. The methodology used in most of these studies has already been discussed in the preceding section. They fall in

the 0.7 per cent to 2.0 per cent range. The average estimated increase is 1.2 per cent.

Table 7

ESTIMATES OF THE IMPACT OF THE 1971 UNEMPLOYMENT INSURANCE ACT REVISIONS ON THE UNEMPLOYMENT RATE

Study	Effect (percentage points)
Grubel, Maki and Sax (1975)	0.8
Jump and Rea (1975)	1.0
Green and Cousineau (1976)	0.7
Siedule, Skoulas and Newton (1976)	1.3
Rea (1977)	1.2
Lazar (1978)	1.2
Bodkin and Cournoyer (1978)	1.3
Reid and Meltz (1979)	1.9
Fortin and Phaneuf (1979)	0.7
Wilson and Dungan (1979)	1.4
Vanderkamp and Wilson (1980)	2.0
Guindon and Grignon (1981a)	0.7
Riddell and Smith (1982)	1.4

Source: Update of estimates presented in Table 2 of preliminary version of Fortin and Newton (1982), as updated from Wilson and Dungan (1979, table 11, p. 39).

The unemployment insurance program was modified in 1979 to reduce benefits and tighten eligibility requirements. The benefit rate was reduced to 60 per cent of insured earnings. In addition, qualification requirements for new entrants and re-entrants into the labour force (those with fewer than 14 weeks work in the year preceding the qualifying period) were raised to 20 weeks of insurable employment from 10 to 14. Qualification requirements for repeat users (those who received benefits in the preceding year for longer than the prescribed minimum qualifying period) were also raised by up to 6 weeks depending on the regional unemployment rates. A study by Riddell and Smith (1982, p.390) of the effect of these modifications suggest that they caused the NAIRU to decline by nearly half a percentage point after 1979. Fortin and Newton (preliminary version of 1982) estimate that the recent UI revisions coupled the swift deceleration in minimum wages and demographic developments have reduced the NAIRU by 0.5 to 0.7 per cent between 1977 and 1980. Guindon and Grignon (1981a) estimate that the 1977 and 1979 UI revisions lowered the aggregate unemployment rate by 0.3 per cent. These estimates are summarized in table 8. The average of these three estimates suggests that the tightening of UI in the late 1970s lowered the rate of unemployment by 0.5 per cent. This would reverse the average estimated increase of 1.2 per cent associated with the 1971 UI changes by some 40 per cent.

Table 8

ESTIMATES OF THE IMPACT OF THE 1979 UNEMPLOYMENT INSURANCE ACT REVISIONS ON THE UNEMPLOYMENT RATE

Study	Effect (percentage points)
Fortin and Newton (1981a)	0.4 to 0.7
Riddell and Smith (1982)	0.5
Guindon and Grignon (1981a)	0.3
Average	0.5

5 PROSPECTS FOR FULL EMPLOYMENT

The unemployment rate in December 1985 was 10 per cent. This is well above the 6 to 7 per cent range in which most estimates of the NAIRU or natural rate fall. According to theory, there are forces at work that, ceteris paribus, should cause the unemployment rate to decline towards this range. Unemployment in excess of the NAIRU should exert downward pressure on wages which will increase the demand for labour. There are several channels whereby this will occur. First, lower relative wages will provide an incentive to substitute labour for capital in the production process. Second, lower wages will reduce the relative cost of labour intensive products, thereby indirectly stimulating the demand for labour. Third, lower wages will improve the economy's competitive position and help to bolster its current account balance.

While there is some agreement among economists about the long-run tendency of the actual unemployment rate to gravitate to the NAIRU or natural rate, there is no agreement about how fast the unemployment rate can be expected to decline or, indeed, about the likelihood of other developments that could cause the unemployment rate to diverge from the natural rate in the short-or even medium-term. Short- and medium-term forecasts for the unemployment rate provide a good indicator of the speed with which the unemployment rate is expected to approach the natural rate. Table 9 provides a compilation of some of the more recent forecasts for the unemployment rate

It is evident from the table that the private sector forecasters expect the unemployment rate to decline only very slowly in 1986 and 1987. By 1990 or 1991, however, the unemployment rate is forecast to be down to a level about 1 to 1.5 percentage point above the to of the NAIRU range.

The Department of Finance published three medium-term projections for the unemployment rate in the May 1985 budget. The first assumes a favourable international policy environment, in which the U.S. government succeeds in reducing the deficit and the Federal Reserve responds by allowing interest rates to decrease towards more normal historical levels, facilitating relatively high real output growth. In this case, the unemployment rate drops to the level of about 1 percentage point above the top of the NAIRU range by 1990. The second assumes

more moderate U.S. deficit reduction and a Federal Reserve monetary policy aimed at maintaining at least moderate growth. In this case, the unemployment rate only decreases to 8.5 per cent or 1.5 percentage points above the level of the NAIRU. The third projection assumes little U.S. deficit reduction and has high levels of real interest and low real growth. In this case, the unemployment rate remains stuck at around 10 per cent through 1990.

Table 9

SHORT- AND MEDIUM-TERM FORECASTS FOR THE UNEMPLOYMENT RATE

(per cent)

	1985	1986	1987	1988	1989	1990	1991
DRI	10.5	9.9	9.5	10.0	9.3	9.0	8.5
University of Toronto	10.6	10.0	9.5	8.9	8.4	7.8	
Informetrica	10.5	9.8	9.2	8.2	7.3	7.0	6.3
Conference Board	10.5	9.6	9.4	9.1	8.6	8.3	
Chase Econometrics	10.5	9.8	9.4	9.3	9.1	8.6	
Economic Council	10.6	10.1	9.2	8.7	8.2	8.1	
Survey of 18 Private Forecasters							
Low	10.5	9.7	8.6				
Average	10.6	10.1	9.4				
High	10.7	10.7	10.0				
Department of Finance							
Favourable	10.7	10.3				7.8	
Mid-range	10.7	10.3				8.5	
Unfavourable	10.7	10.3				10.0	

Source: Data Resources Inc., Long-term Projection, November 1985; Institute for Policy Analysis, University of Toronto, The Outlook for Project Link - Fall 1985, September 1985; Informetrica, Long-term Projection, January 1986; Conference Board, Medium-term Forecast, January 1986; Chase Econometrics, Forecast, December,1985; Economic Council of Canada, Strengthening Growth - 22nd Annual Review, October 1985; survey of Forecasters from Department of Finance, Securing Economic Renewal A Progress Report, November 1985, p. 7; and Department of Finance forecast from Canada'a Economic Prospects, 1985-1990: The Challenge of Economic Renewal, May 1985.

Long-term projections for the unemployment rate convey useful information about what the forecasters consider to be the long-term sustainable level of the unemployment rate or NAIRU. This is because longer-term projections tend to be based on a view of potential labour supply and sustainable unemployment rates and tend to abstract from cyclical developments. The usual assumption made in preparing these projections is that the actual rate of unemployment will equal the natural rate in the long-run. Table 10 provides long-run projections for the unemployment rate prepared for the Macdonald Commission by four leading private sector forecasters. For the 1990s two of the forecasting groups were projecting that the unemployment rate will average just above 6.5 per cent, which is within the 6 to 7 per cent range of estimates for the NAIRU. One of the remaining forecasting groups was projecting that the rate of unemployment will average 7.8 per cent or less than a percentage point above the range, and the other that the rate of unemployment will average 8.8 per cent or almost 2 percentage points above the range. It is worth noting that this last forecasting group has subsequently revised its long-term forecast and as of last fall was projecting that the unemployment rate would average 5.6 per cent over the 1991 to 1995 period.

Table 10

LONG-TERM PROJECTIONS OF THE UNEMPLOYMENT RATE BY FOUR FORECASTING GROUPS FOR THE MACDONALD COMMISSION

(per cent)

	1984-1990	1990-2000
Group 1	10.1	7.7
Group 2	10.3	8.8
Group 3	9.7	6.7
Group 4	8.8	6.7

Source: Chase Econometrics, Data Resources Inc., Informetrica, and Institute for Policy Analysis, University of Toronto as cited in Royal Commission on the Economic Union and Development Prospects for Canada (1985, Vol. 2, p. 66).

6 CONCLUSIONS

The only viable operational definition of "sustainable" full employment is that which is consistent with the Non-Acelerating Inflation Rate of Unemployment (NAIRU). If a lower unemployment rate than this was targeted through expansionary fiscal and monetary policies, it would set in train an escalation of inflation that could only be terminated by a severe tightening of fiscal and monetary policy. In the resulting recession, the unemployment rate would again be pushed up to levels much higher than the NAIRU. The best way to minimize fluctuations in the unemployment rate due to demand management policies is to ensure that the policies are directed towards achieving a level of employment consistent with the NAIRU.

The available empirical estimates of the NAIRU canvassed in this paper suggest that a reasonable long-run target for the unemployment rate would be in the 6 to 7 per cent range. This is lower than the 6.5 to 8 per cent range suggested by the Macdonald Commission.

Specifying a target is one thing. Achieving it is another. There are very important questions that are beyond the scope of this paper and remain to be answered. The first is how fast it would be possible to achieve the targeted level of lower unemployment without causing a resurgence of inflation. This is the so-called speed limits to growth question. The second concerns the existence of constraints on the utilization of monetary and fiscal policy to pursue employment objectives. Two such constraints are the external value of the Canadian dollar and the magnitude of current and prospective budget deficits.

While the NAIRU represents a useful approximate guide for stabilization policy, it is important to recognize that it need not be the ultimate objective for employment policy. The government has other policy tools at its disposal than fiscal and monetary policy. In particular, it would be possible to reduce structural unemployment and the NAIRU through carefully selected microeconomic policies designed to improve the functioning of labour markets. Reforms in Unemployment Insurance to enhance work incentives are one example of such microeconomic policies.

A major contribution of the Macdonald Commission in its report was to emphasize the importance of a two-pronged approach to reducing the unemployment rate. The first prong was the pursuit of appropriate monetary and fiscal policy to get unemployment down to the NAIRU. The second was a package of microeconomic policy changes designed to improve the functioning of labour and product markets. This is clearly the way to go.

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1. A detailed discussion of the theory and the Canadian empirical literature on the Phillips curve has been provided in a background paper on inflation and unemployment also prepared by the author for the Commission of Inquiry on Unemployment Insurance.

2. Another paper by Michael F. Charette and Barry Kaufman (1985) also followed the Lilien approach. It is not discussed here, however, because it does not provide estimates of the level of the natural rate.