

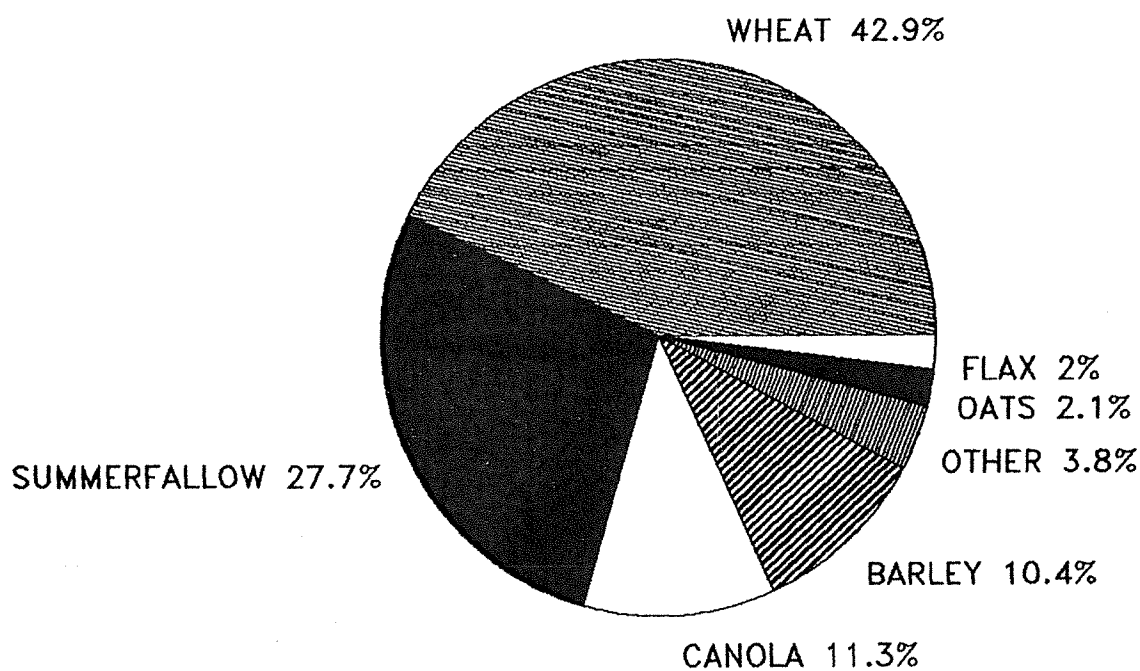
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Summer 1986

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Volume 5 Number 2

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Survey of Canadian Manufacturing 1985

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AN OVERVIEW OF CANADIAN MANUFACTURING

For some years the Canadian manufacturing sector has been the subject of investigation, concern and policy prescription. Throughout the seventies various organizations issued research reports chronicling the decline of manufacturing. Perhaps the most notable was the report of the Science Council of Canada, Uncertain Prospects which stated

...the sixties were a period of serious decay in Canadian manufacturing. The end of the recession, the abolition of the Anti-Inflation Board, reduced taxes, and many other measures which could be implemented will not recreate the golden era of the sixties. The troubles besetting our industry are too deep-seated to be resolved by the implementation of short-term or superficial measures[1].

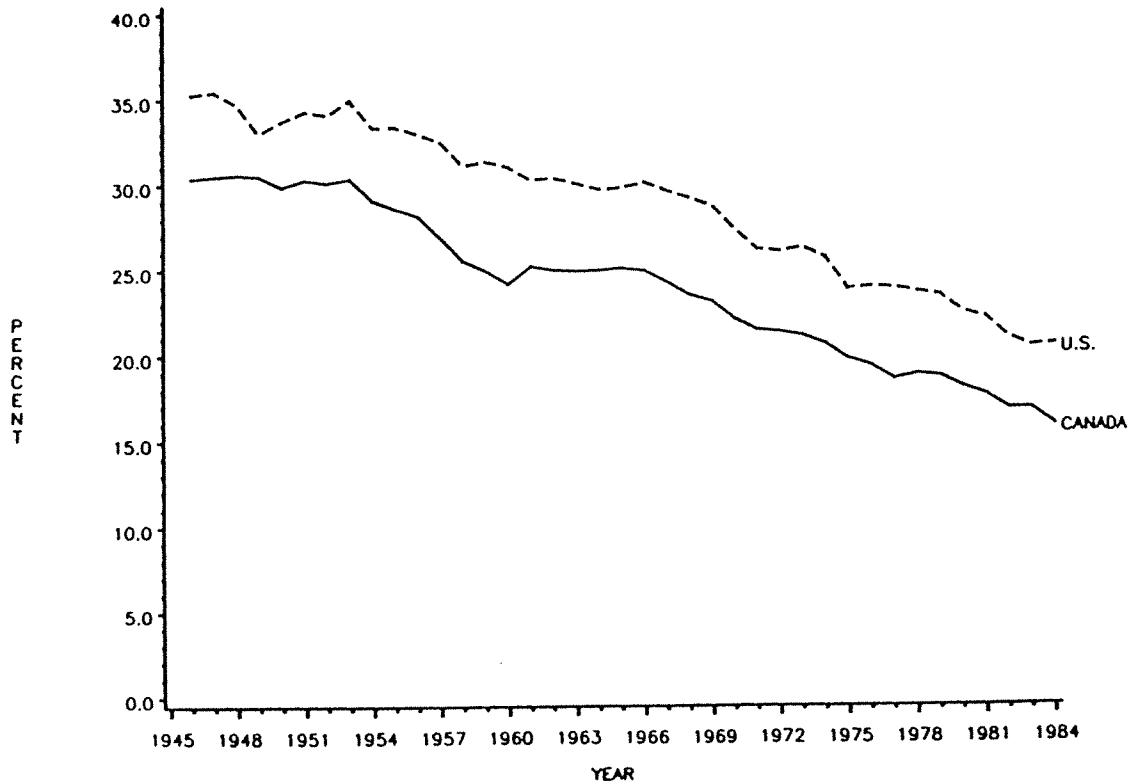
Cited in this report as the "deep-seated" problems were:

- recession over 1975-76;
- international competition;
- productivity decline;
- import substitution;
- inadequate research and development; and,
- "poor" business climate.

To begin it is useful to note that the experience of Canadian manufacturing has paralleled manufacturing in the United States. Thus, the decline in Canada is not really unique; more likely it represents the outcome of similar structural forces and competitive environments. Figure 1.1 shows some evidence in support of this claim. The course of manufacturing employment in both countries has been remarkably the same over the past three decades.

Figure 1.1

Manufacturing Employment as a Percentage of Total Employment



The declining share of manufacturing in national economic activity is readily apparent from almost any

vantage. Table 1.1 is perhaps the easiest way to view this.

TABLE 1.1

Manufacturing as a Percentage of Total Economic Activity

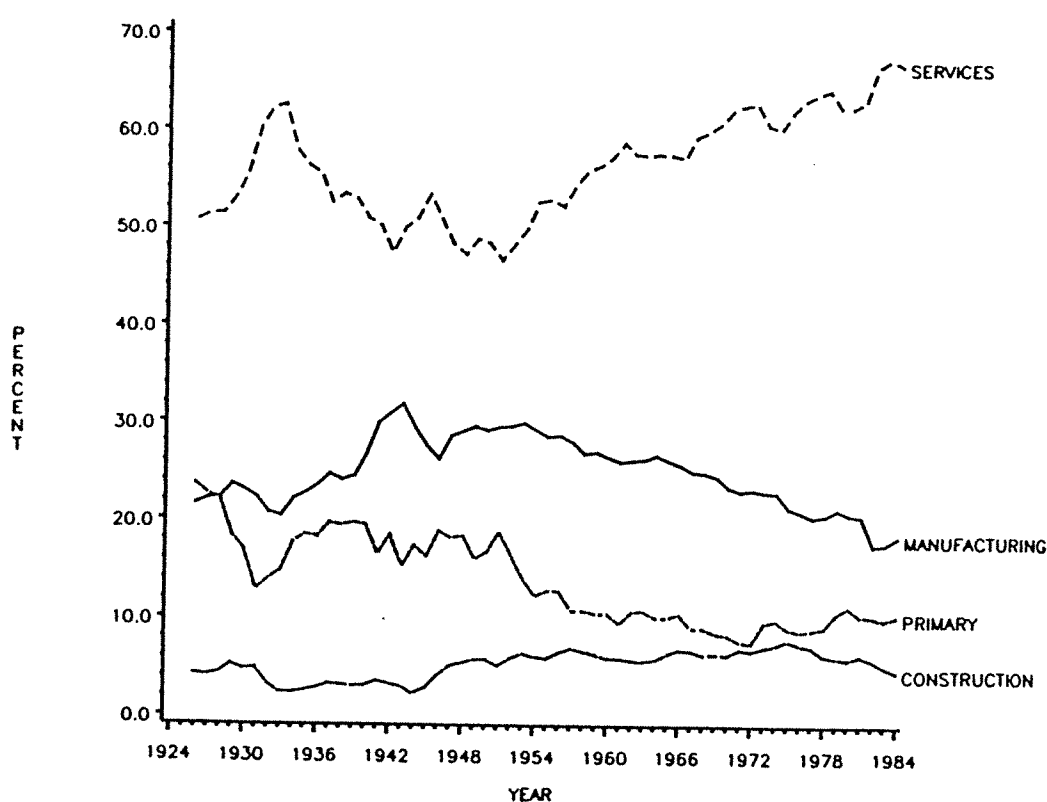
	1960	1970	1980	1984
Employment	21.4	20.7	17.3	15.2
Value Added	26.4	23.3	20.6	18.3
Investment	17.2	21.7	16.7	13.1

The reduced share of manufacturing is obviously "compensated" by services as shown in Figure 1.2. Prior to 1941 the share in total economic activity as measured by gross domestic product was decreasing for

services and increasing for manufactures. Primary sector activity has tended to decline since 1926 when the first reliable information becomes available.

Figure 1.2

Gross Domestic Product at Factor Cost Distribution by Sector
(In % Shares)

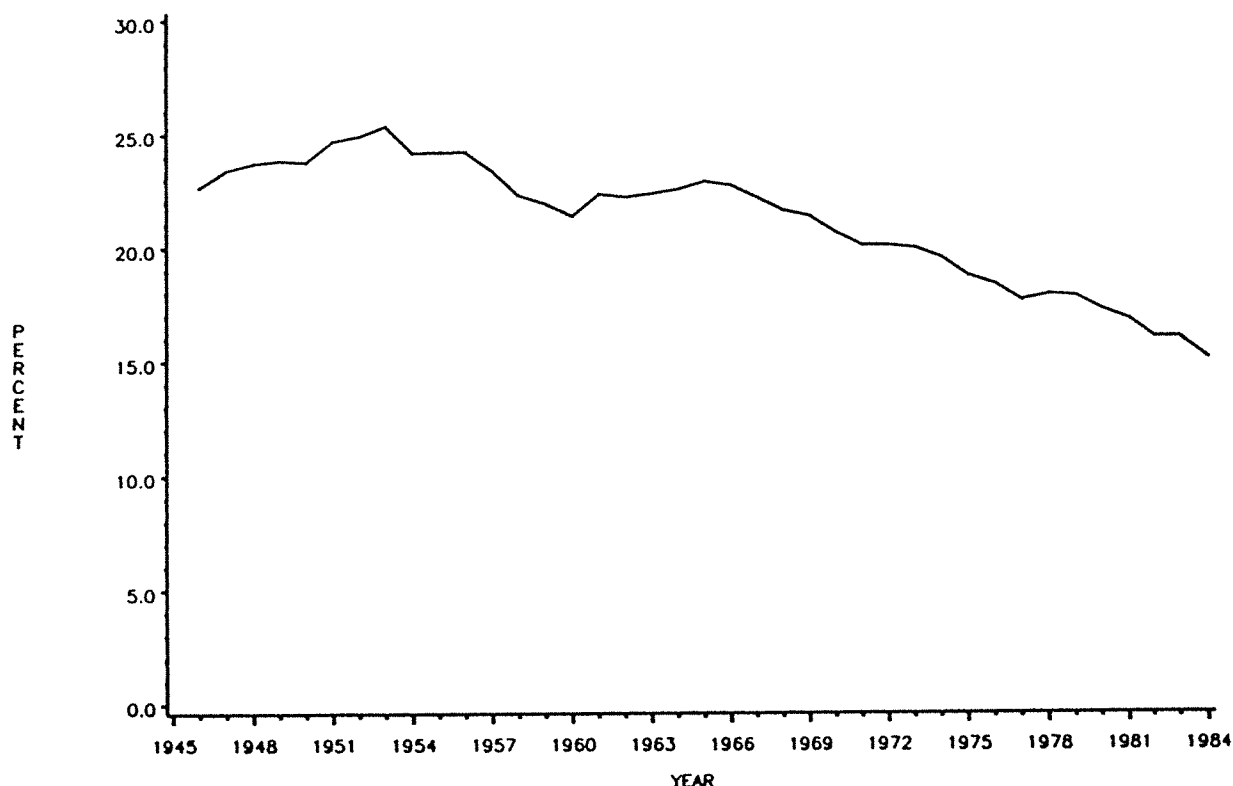


In terms of major indicators, employment tends to dominate policy and consciousness. Current levels of joblessness focus attention on this indicator of economic "health." In manufacturing the decline in em-

ployment compared to the total has been sharp and regular as shown below in Figure 1.3. Noteworthy is a brief period, in the early to mid-sixties when the overall trend was reversed.

Figure 1.3

Canadian Manufacturing Employment as a Percentage of
Total Employment



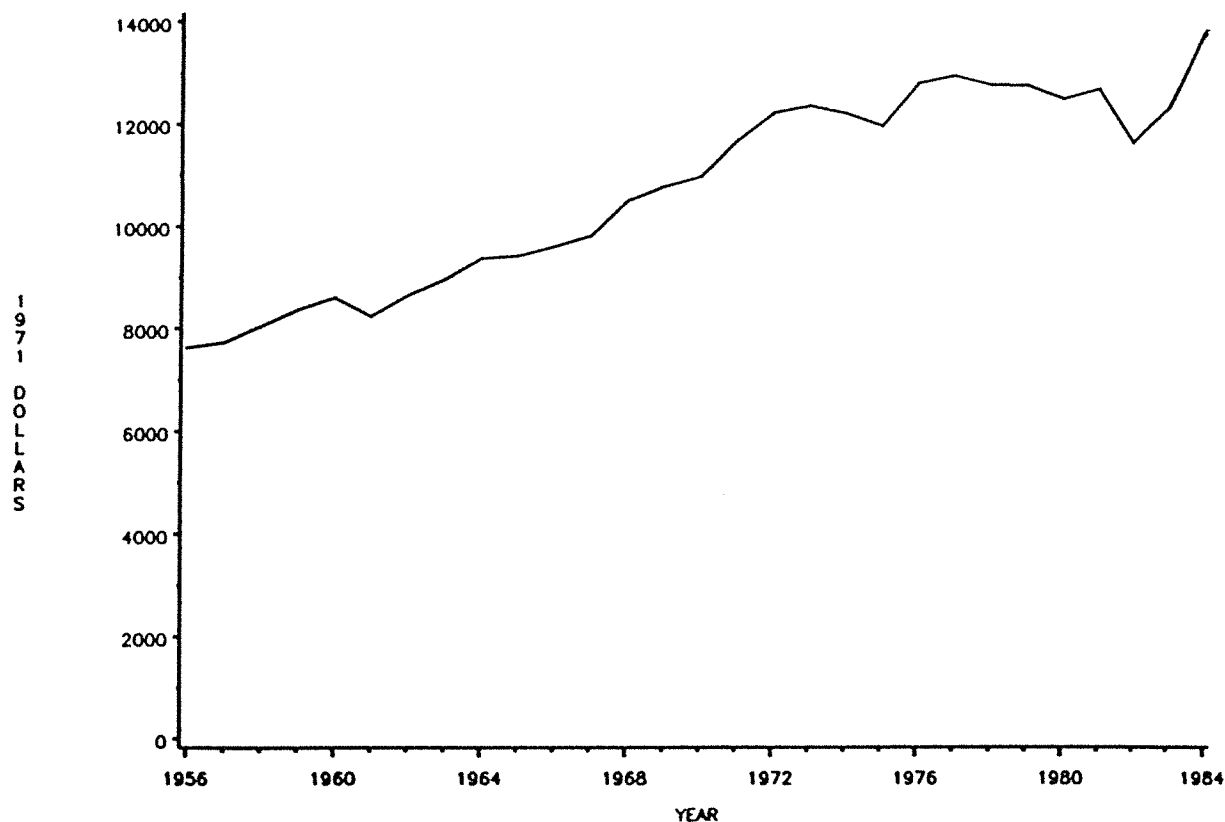
A key explanation of the decline in manufacturing employment lies in technical change. Throughout the period 1956 until 1971 the output per worker increased steadily and rapidly. Thus while the number of workers was declining, overall output was increasing.

In 1971 the story changes. The recession of the seventies, provoked by the energy "crisis" and the deep depression of the early eighties have left a deep mark on manufacturing in Canada. Indeed, a key aspect of this presentation is the demon-

stration that these international events have left fundamental changes in the Canadian economy in their wake.

Figure 1.4 shows both the effects of technical change in terms of a steady increase in output per worker, and also the levelling off, then decline in productivity in manufacturing in the early 1980's. It is difficult to bring the numbers completely up to date, since the measure of output here is real value added, and these numbers do not become available for two years[2].

Figure 1.4
Real Output per Worker in Canadian Manufacturing



From Figure 1.4 it is apparent that the recession of 1971-73 and subsequently the depression of 1981-82 have had marked impacts on manufacturing. Table 1.2 below shows the relation between periods of expansion (E) and recession (R)

in the national economy and changes in employment in manufacturing. Examination of Figure 1.5 also indicates that changes in manufacturing employment is strongly related to the business cycle[3].

TABLE 1.2

Employment in Manufacturing
Average Annual Percentage Change Over the Business Cycle

February 1961	to May 1974 (E)	2.1
June 1974	to March 1975 (R)	- 7.4
April 1975	to October 1979 (E)	0.8
November 1979	to June 1980 (R)	- 5.4
July 1980	to June 1981 (E)	4.7
July 1981	to December 1982 (R)	-10.4
January 1983	to April 1985 (E)	- 1.1

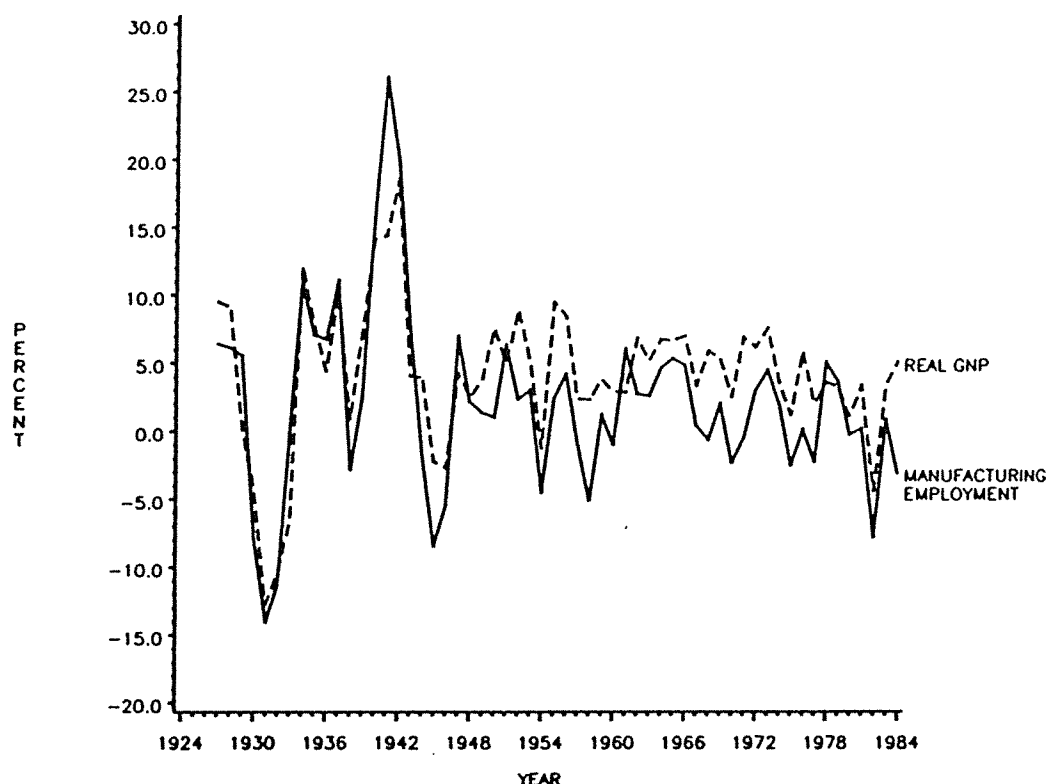
Note: E = Expansion, R = Recession

The data only permit suggestive references to the relationship between the business cycle and the manufacturing industries. Major elements of the story, such as a standardized indicator for output appear irregularly and only on an annual basis. At first glance, the initial period, until 1980, saw the business cycle and changes in manufacturing employment quite congruent. During the last depression, it appears as though this relationship has become less pronounced. Consider Figure 1.5, where changes in real GNP are compared to changes in manufacturing employment. Over the longer period, there is an apparent relation between activity in manufacturing and

the national economy. This relationship has tended to weaken through time. Two reasons for this exist. First, as manufacturing become less important in the national economy, it will have less effect on the overall economy, and therefore influence total output to a lesser extent. Second, feedback from the national economy to manufacturing apparently is declining which implies national recovery can occur, at least to some extent, without having significant impact on the manufacturing sector as a whole. Certainly some subindustries, notably auto manufacturing, will increase with a rise in overall activity.

Figure 1.5

Changes in Manufacturing Employment
Compared to Changes in Real GNP



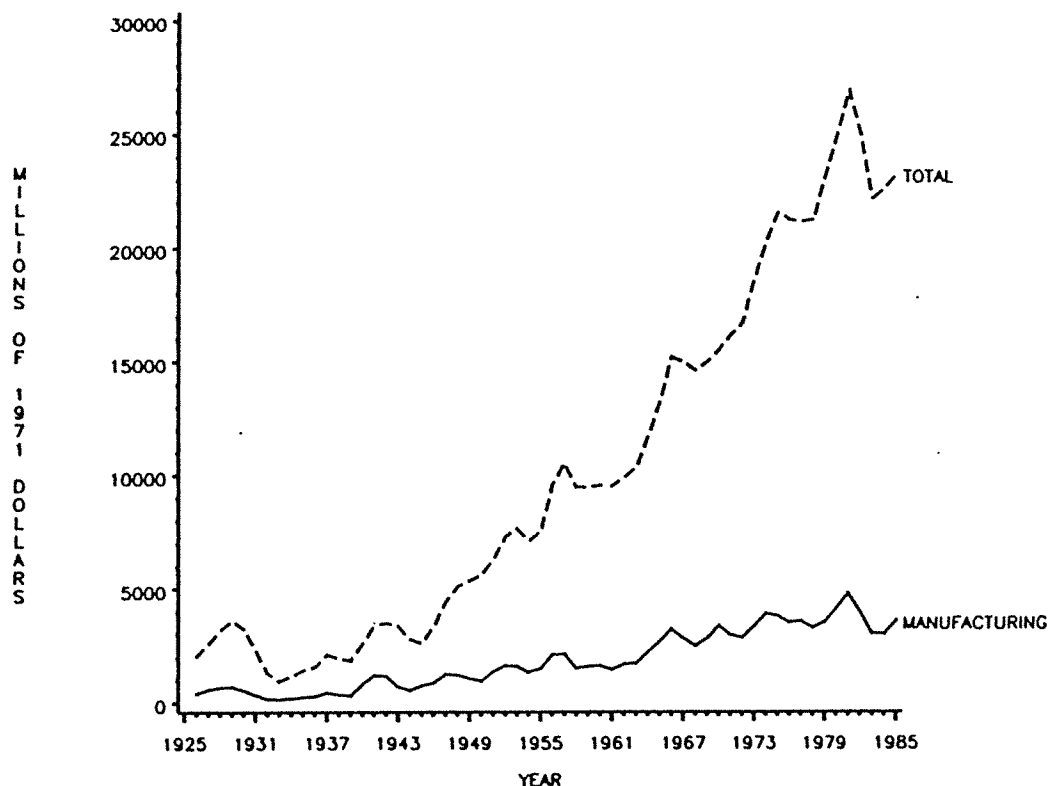
It is easy to overstate the divergence of the national economy and the manufacturing sector. Recent evidence seems to indicate that at long last the manufacturing sector is recovering. A useful measure of the short-term activity in any sector is the change in investment (real gross fixed capital formation). This indicator is a valuable

harbinger.

First, compare investment in manufacturing to total investment. Over the period 1926-1985, investment in manufacturing has lagged well behind investment in other areas of the economy. Figure 1.6 also shows the volatility of investment and the sharp decline produced by the recent depression.

Figure 1.6

Gross Fixed Capital Formation
Manufacturing Versus the Total Economy

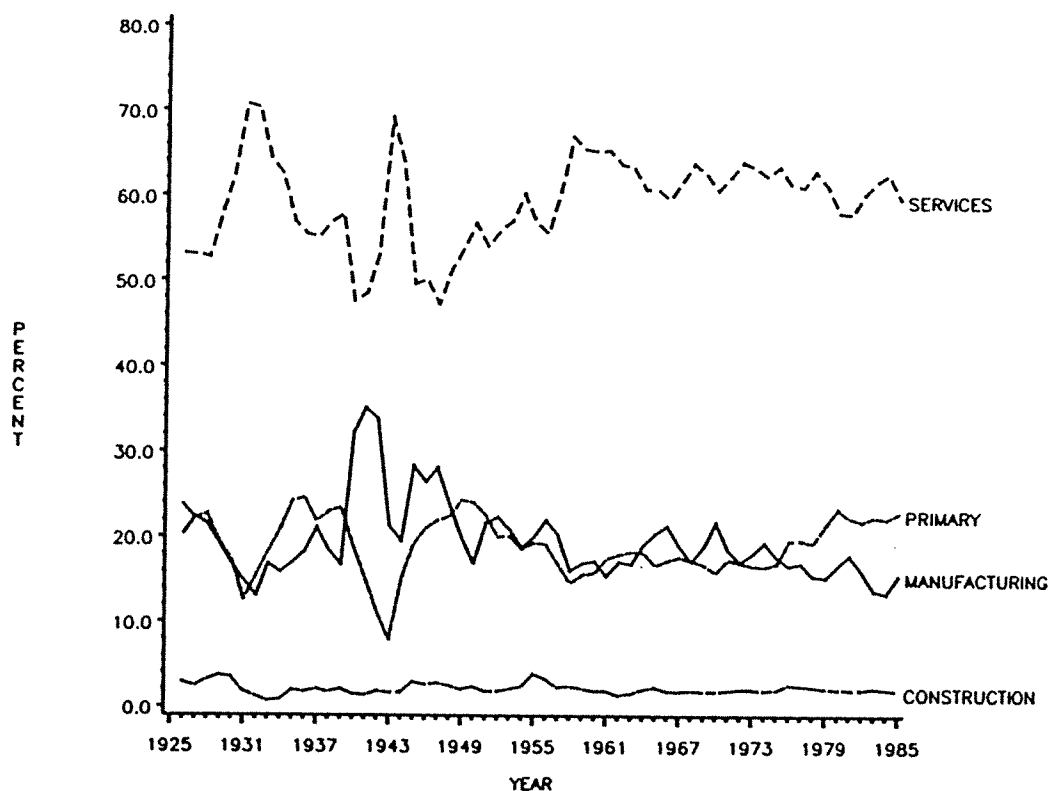


Most recently, there is some evidence that investment is recovering as shown in Figure 1.6, but it is important to view these recent increases in the context of the longer term trend. The question is simply whether or not the current increase in investment levels will exceed and persist beyond the highs in 1980 or 1973.

Compared to other sectors, the relative decline of manufacturing

investment is also apparent. In Figure 1.7 it is apparent that manufacturing is declining relative to the primary sector. This chart is distorted by the extraordinary increase in capital formation in the western and off-shore oil and gas industries. This has dominated all measures of investment activity and makes it hard to trace the course and destination of investment within the economy.

Figure 1.7
Gross Fixed Capital Formation
Distribution by Sector (In % Shares)



This figure shows that of the total, manufacturing has declined in terms of investment activity. However, the information is distorted by the fact that since 1970, invest-

ment in oil and gas has dramatically boosted activity in that sector, which tends to overstate the apparent reduced share of manufacturing in total investment.

MANUFACTURING AND THE REGIONAL ECONOMY

1.1 OVERVIEW

Throughout the sixties and seventies, culminating in the policies of the Department of Regional Economic Expansion and the development programs pursued by every province and municipality, manufacturing employment was a major goal. A host of policies were aimed at enticing industry to locate in various regions ranging from outright grants to tax expenditures. More recently, some provinces have begun to explore development agreements whereby a firm, in exchange for government support, agrees to undertake specific training or guarantees a certain number of jobs over a specified period.

Although this document cannot answer how well these various policies worked, it is possible to develop a general perspective of manufacturing at the provincial level. A certain artificiality exists in this analysis, since provincial boundaries do not reflect a "natural" economic region. Indeed all political and administrative borders are artificial and, in the same way they tend to distort policy, economic analysis is forced to become somewhat more artificial than were the country as a whole the sole focus of attention. The simplest way to understand this is to imagine that the three prairie provinces were one, and what a difference that would make to our per-

ception of the relative prosperity of the three sub-regions which were once provinces.

This chapter reviews the manufacturing sector at the provincial level, using employment, shipments and real investment as indicators of performance. One important caveat must be made at the outset. As the focus shifts to regional economies, the availability of data becomes more limited. At times, the resolution on a particular provincial economy is reduced, obscuring analysis and definitive conclusions. This is most apparent for the Atlantic region.

1.2 BRITISH COLUMBIA

The recent depression has profoundly affected B.C. This is very apparent in the performance of its manufacturing sector.

1.2.1 Employment

The employment index for B.C. manufacturing has remained above national levels since 1969, but the recession of 1973-74 and especially since the downturn of 1981-83, the provincial manufacturing index has declined sharply, more so than national trends.

Figure 2.1

Index of Employment in Manufacturing (1961 = 100)
British Columbia Compared to Canada



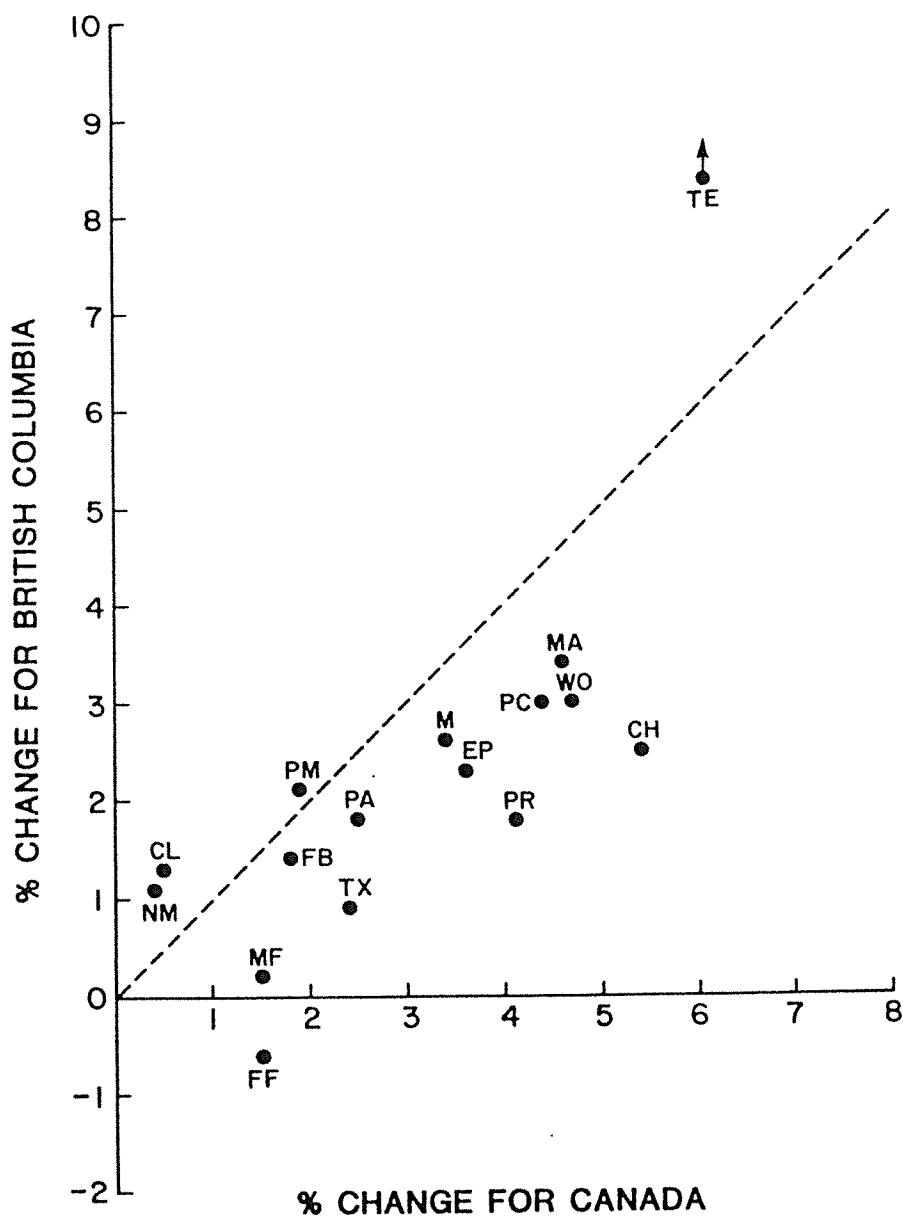
2.2.2 Shipments

One simple way to look at performance over the last decade is to compare growth in shipments compared to Canada as a whole as shown in Figure 2.2[4]. In chart the diagonal shows the positions of equal growth in the

province and at the national level. Points above the line indicate provincial performance in excess of the nation, while points below show that the national industry has grown faster than the provincial industry throughout the period 1971-84[5].

Figure 2.2

Annual Percentage Change in Real Shipments, 1971-1984
British Columbia Compared to Canada



Note:

M=Manufacturing, FB=Food and Beverages, TO=Tobacco Products, RP=Rubber and Plastics, LE=Leather, TX=Textiles, KM=Knitting Mills, CL=Clothing, WO=Wood, FF=Furniture and Fixtures, PA=Paper, PR=Printing and Publishing, PM=Primary Metals, MF=Metal Fabricating, MA=Machinery, TE=Transportation Equipment, EP=Electrical Products, NM=Non-metallic Mineral Products, PC=Petroleum and Coal Products, CH=Chemical Products.

See footnote 5 for an explanation of this chart.

From Figure 2.2 it is clear that most sectors in B.C. manufacturing have done relatively worse than Canadian manufacturing as a whole. One industry - furniture and fixtures (FF) - declined provincially while growing nationally. The one really significant area of manufacturing growth has been in transportation equipment (TE) which has grown both regionally and nationally at comparatively high rates largely as the result of recent public policy initiatives.

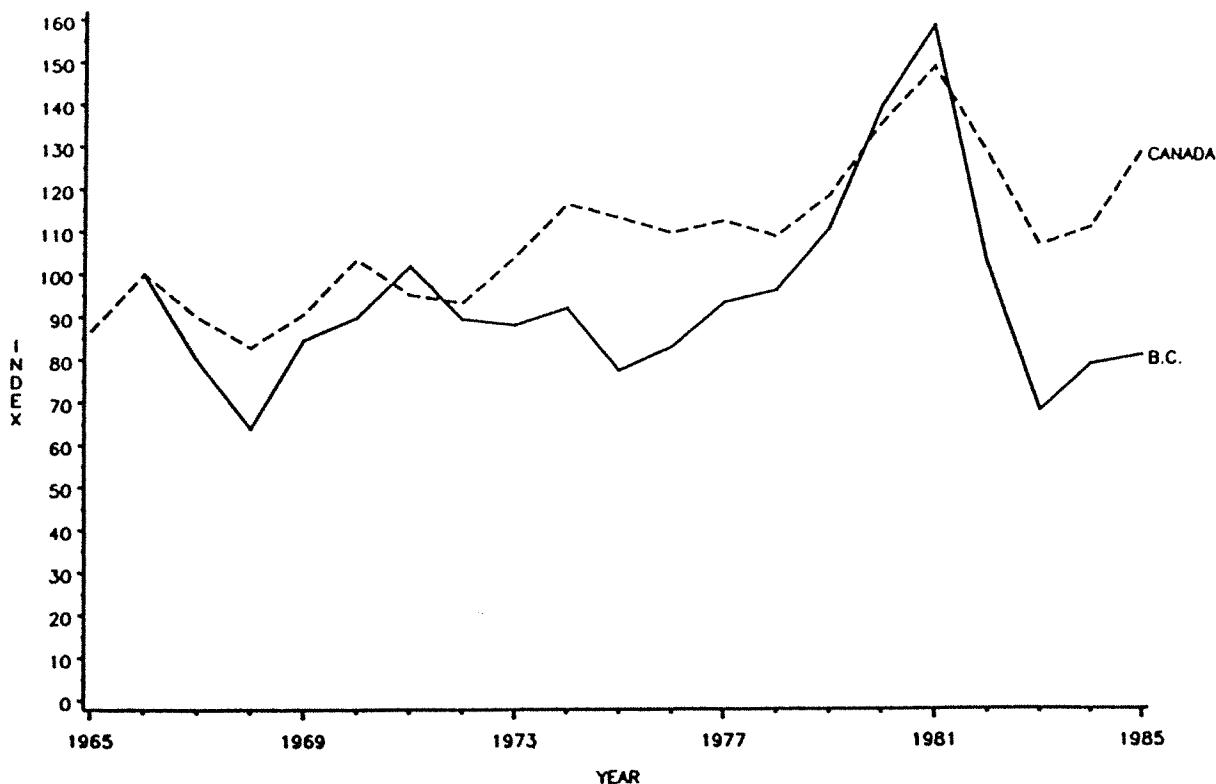
2.2.3 Investment

Investment in manufacturing has been very volatile. Particularly

noteworthy is the sustained increase between 1976 and then sharp collapse in 1982. While Canada as a whole has exhibited a general increase in investment levels over the period 1966-1985, with the national index standing almost thirty points higher in 1985 compared to 1966, in B.C. the level of the index in 1985 is actually 20 points lower than in 1966. The large increase in the latter part of the seventies reflects increased investment in pulp and paper as well as energy related (coal) development. The sharp collapse in 1982 is related both to the recession and possibly to overexpansion in equipment for resource extraction and processing.

Figure 2.3

Index of Real Investment in Manufacturing (1966 = 100)
British Columbia Compared to Canada



2.2.4 Summary

The mark of the recessions is clear, but longer-run change is also evident. Over the period 1966-1985 manufacturing in B.C. has declined in terms of employment, real levels of shipments and levels of real investment.

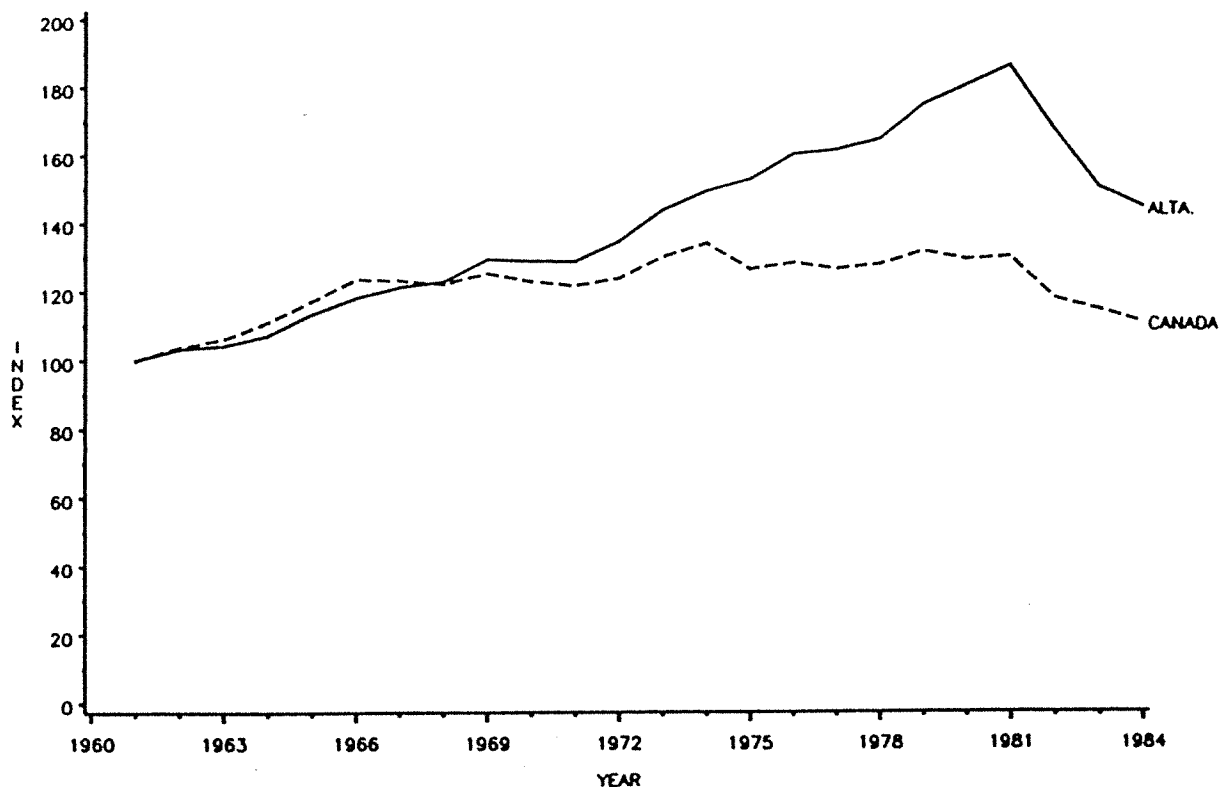
2.3 ALBERTA

2.3.1 Employment

The employment picture in Alberta was very favourable until the depression of 1981-82. Until this, provincial manufacturing employment outpaced national performance. The recession of 1973-74 had no impact on employment - indeed, there is evidence to suggest that employment in manufacturing grew throughout this period.

Figure 2.4

Index of Employment in Manufacturing (1961 = 100)
Alberta Compared to Canada



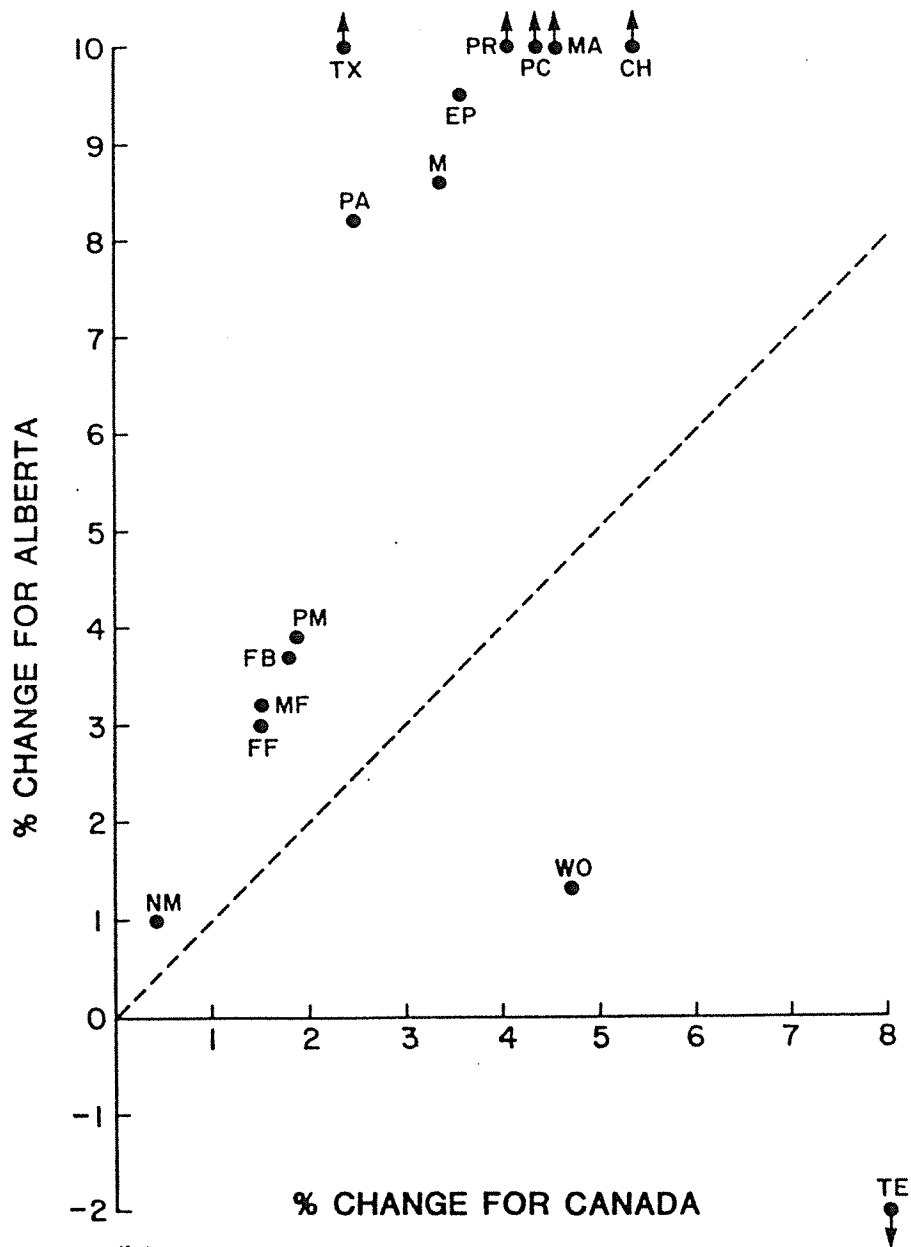
The depression of 1981-83 had a profound impact on Alberta manufacturing and employment fell to 1974 levels. At this point, the jobs lost in manufacturing have not been recovered, despite renewed economic activity in the province.

2.3.2 Shipments

Over the period 1971-84, due to very strong growth in the seventies, the growth in shipments rapidly outpaced national performance. Only in one sector, wood products (W0), was national performance superior to provincial activity.

Figure 2.5

Annual Percentage Change in Real Shipments, 1971-1984
Alberta Compared to Canada



Note:
M=Manufacturing, FB=Food and Beverages, TO=Tobacco Products,
RP=Rubber and Plastics, LE=Leather, TX=Textiles, KM=Knitting
Mills, CL=Clothing, WO=Wood, FF=Furniture and Fixtures,
PA=Paper, PR=Printing and Publishing, PM=Primary Metals,
MF=Metal Fabricating, MA=Machinery, TE=Transportation
Equipment, EP=Electrical Products, NM=Non-metallic Mineral
Products, PC=Petroleum and Coal Products, CH=Chemical
Products.

See footnote 5 for an explanation of this chart.

Many industries have significantly outperformed national levels and cannot be conveniently plotted.

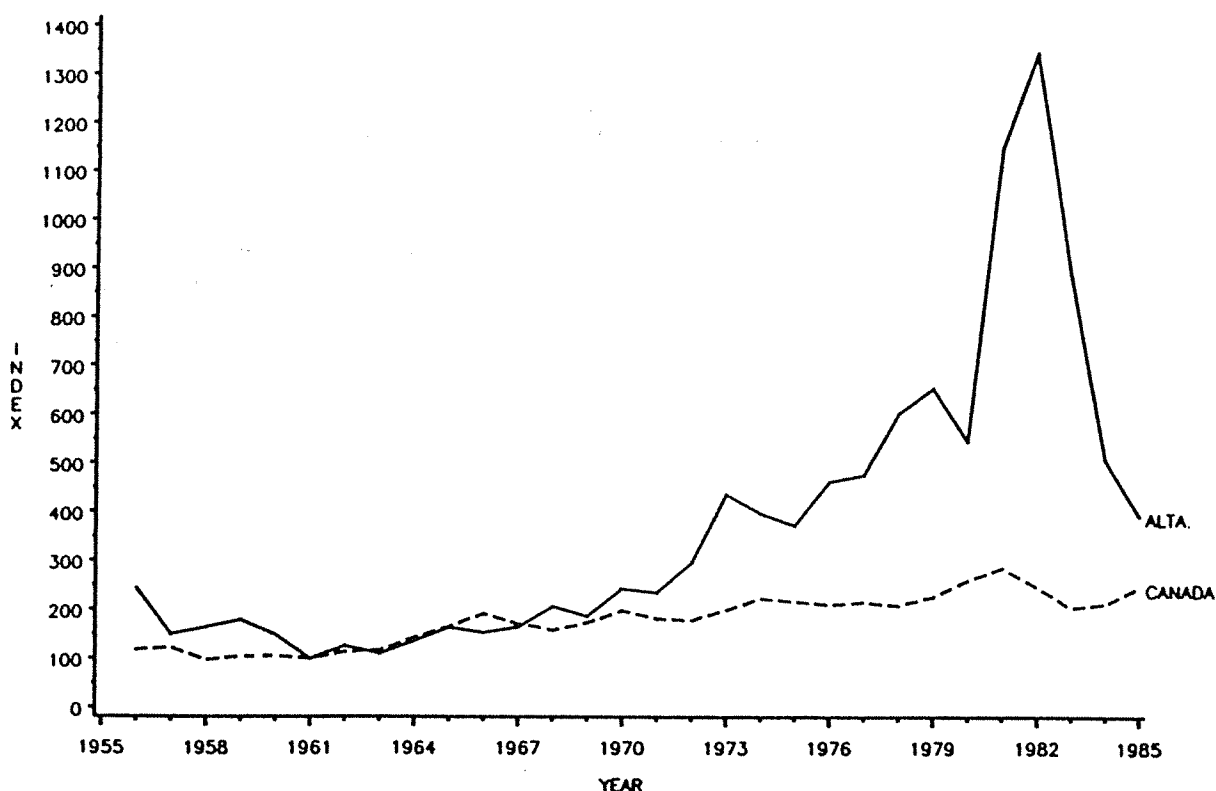
2.3.3 Investment

Investment in Alberta has been dramatically different than for other regions. The impact of the oil boom is very clear and the relationship between a resource boom and manufac-

turing investment quite startling. The sheer magnitude of the Alberta investment boom causes the entire scale of the graph to shift. What goes up must come down it seems, and with the boom came an equally flamboyant bust. In 1984-85 the level of investment in Alberta manufacturing had receded to near 1976 levels, and there was little sign of a turnaround.

Figure 2.6

Index of Real Investment in Manufacturing (1961 = 100)
Alberta Compared to Canada



2.3.4 Summary

Alberta is the classic resource based economy, with sharp expansion and recovery. What the data presented above clearly demonstrate is that resource sector activity can have a profound influence on the manufacturing sector. With an era of stability emerging in oil prices, it is likely that growth in manufacturing will be more measured in the near future.

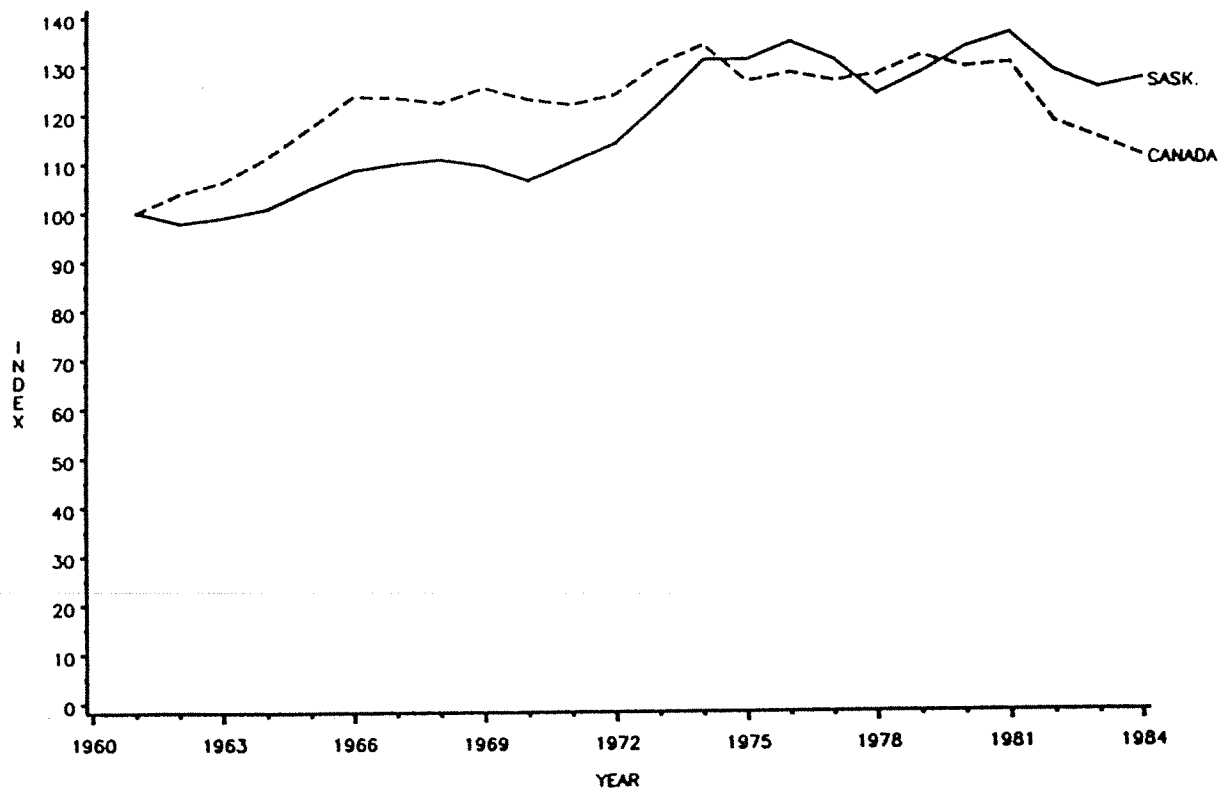
2.4 SASKATCHEWAN

2.4.1 Employment

Saskatchewan manufacturing has shown steady growth throughout the study period. This is apparent in the employment data. Until 1976 the provincial employment index remained below that of the nation as a whole. In 1972, the provincial employment index began to increase more rapidly than national trends, and more recently, especially since the recent depression has significantly outperformed Canadian manufacturing employment. What is also significant is that the employment index has recently been registering increases, while in almost every other region and the nation the employment index in manufacturing is only just showing signs of life.

Figure 2.7

Index of Employment in Manufacturing (1961 = 100)
Saskatchewan Compared to Canada



There is one very important point with respect to Saskatchewan manufacturing performance, especially in relation to a province such as Manitoba. In many ways manufacturing in Saskatchewan is undeveloped and "immature." [6] Recent growth is largely due to industries such as food and beverages expanding in response to population increases, and secondary processing of products such as potash and various agricultural products. Saskatchewan growth in manufacturing during the seventies and eighties may simply be reflecting the maturation associated with adolescence, whereas in other regions, this occurred some decades ago.

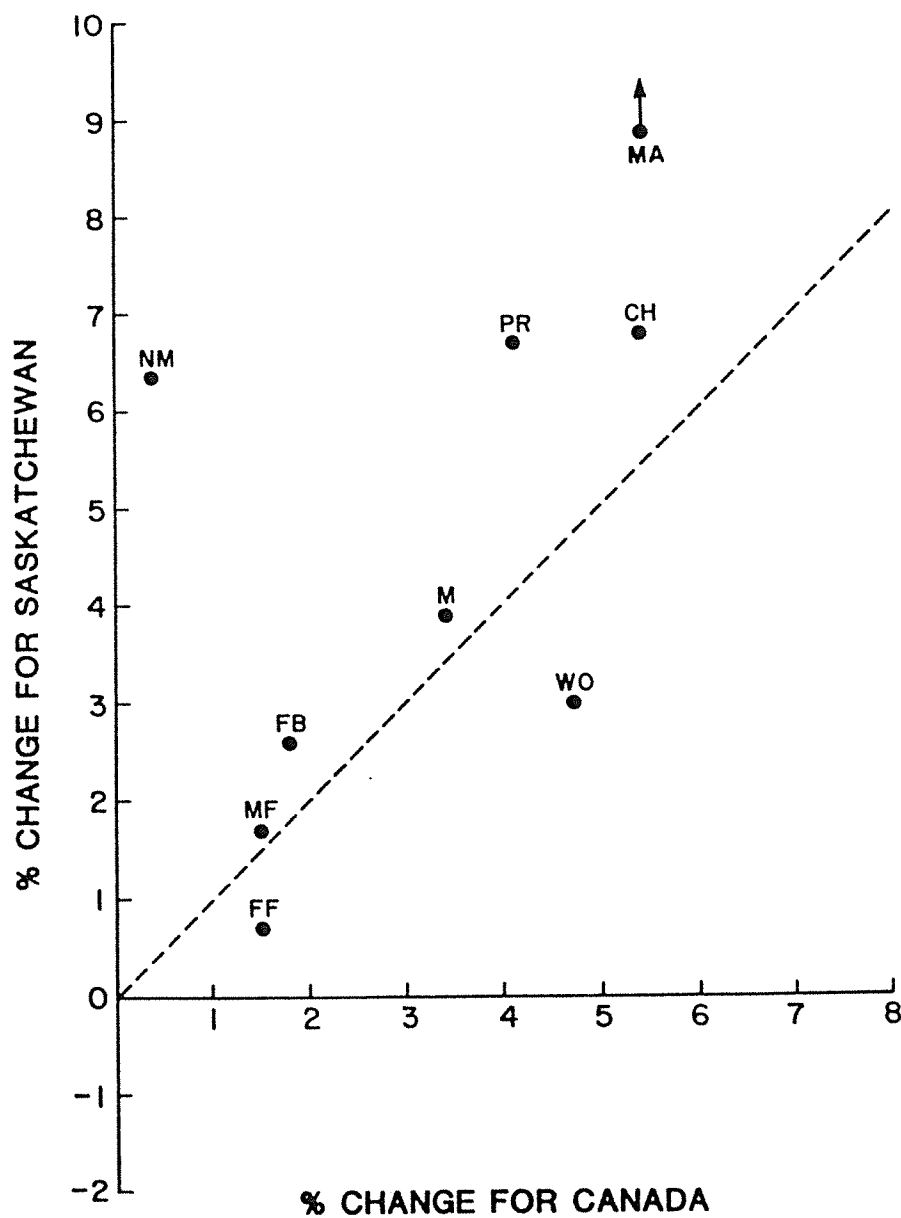
1.4.2 Shipments

Data at the subindustry level becomes less available for Saskatchewan. This is due to the relatively small number of sectors on which there is sufficient data to allow the release of information without risking violation of confidentiality. This is also a reflection of the relatively underdeveloped state of manufacturing in the province.

With respect to output, Saskatchewan manufacturing has tended to outperform the nation over the period 1971-84, although not as dramatically as its neighbour to the west. Wood (WO) and furniture (FF) lagged behind national performance, but machinery (MA) and non-metallic minerals (NM) (potash) were significant performers for the province.

Figure 2.8

Annual Percentage Change in Real Shipments, 1971-1984
Saskatchewan Compared to Canada



Note:

M=Manufacturing, FB=Food and Beverages, TO=Tobacco Products, RP=Rubber and Plastics, LE=Leather, TX=Textiles, KM=Knitting Mills, CL=Clothing, WO=Wood, FF=Furniture and Fixtures, PA=Paper, PR=Printing and Publishing, PM=Primary Metals, MF=Metal Fabricating, MA=Machinery, TE=Transportation Equipment, EP=Electrical Products, NM=Non-metallic Mineral Products, PC=Petroleum and Coal Products, CH=Chemical Products.

See footnote 5 for an explanation of this chart.

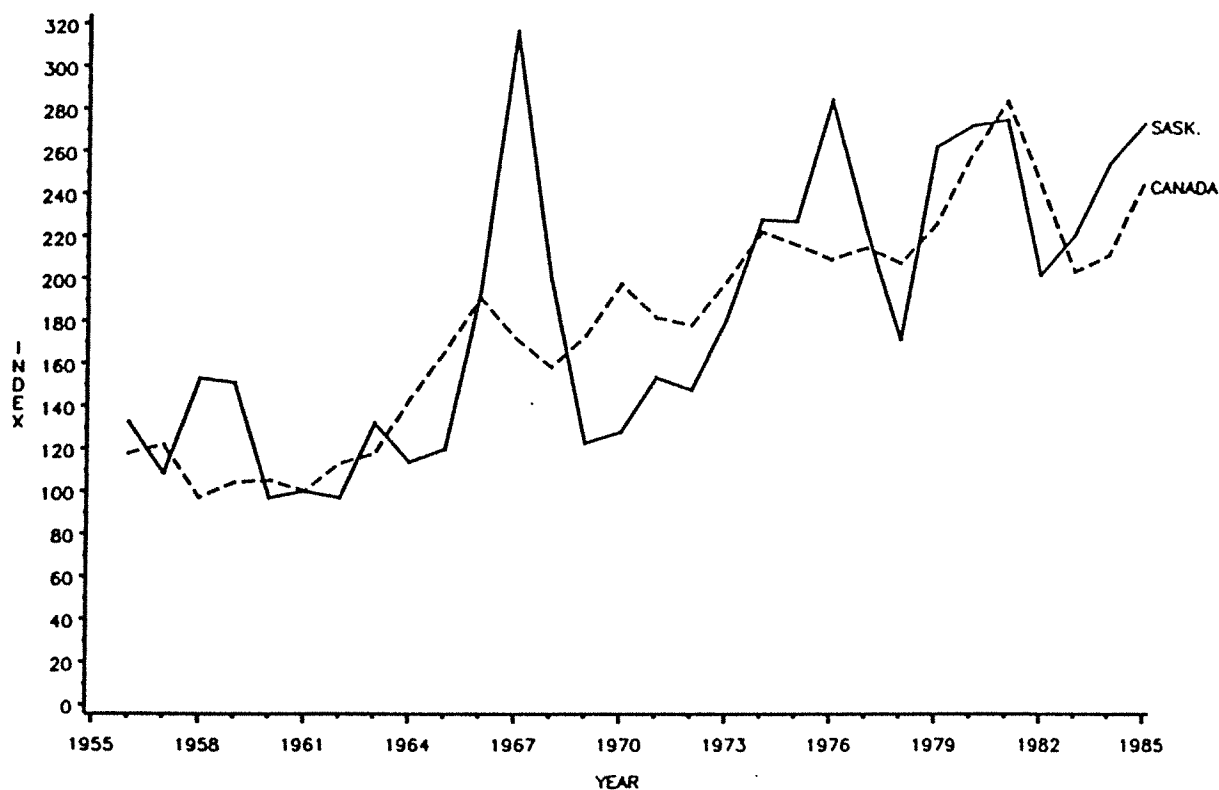
2.4.3 Investment

The investment picture in Saskatchewan manufacturing is interesting. It too shows the resource boom/bust cycle, but the upward trend is ap-

parent. Indeed, unlike the other western provinces (Manitoba included) and Canada as a whole, the index of real investment has already exceeded pre-1981-83 depression levels. This is strong performance.

Figure 2.9

Index of Real Investment in Manufacturing (1961 = 100)
Saskatchewan Compared to Canada



2.4.4 Summary

Saskatchewan manufacturing has grown steadily and at a more consistent rate than other areas of the country. In an important sense this is due to the relative underdevelopment of manufacturing in the province.

Saskatchewan simply started from a smaller base, and absolute increases in activity tend to cause high growth rates. However, there is no reason to believe that performance is slowing and the substantial recovery in real investment augurs well for the future.

2.5 MANITOBA

Manitoba was the first western province to industrialize. It has a diversified manufacturing base, but there are indications of longer term change.

2.5.1 Employment

Consider Figure 2.10 below. The em-

ployment index in manufacturing lagged behind the nation as a whole until 1976, but upon catching up to Canada it then began to decline in step. Compare this with Saskatchewan and Alberta performance above, and Atlantic province performance below. The recession of 1973-74 and the latest depression of 1981-83 both reduced manufacturing employment with present levels close to 1966.

Figure 2.10

Index of Employment in Manufacturing (1961 = 100)
Manitoba Compared to Canada



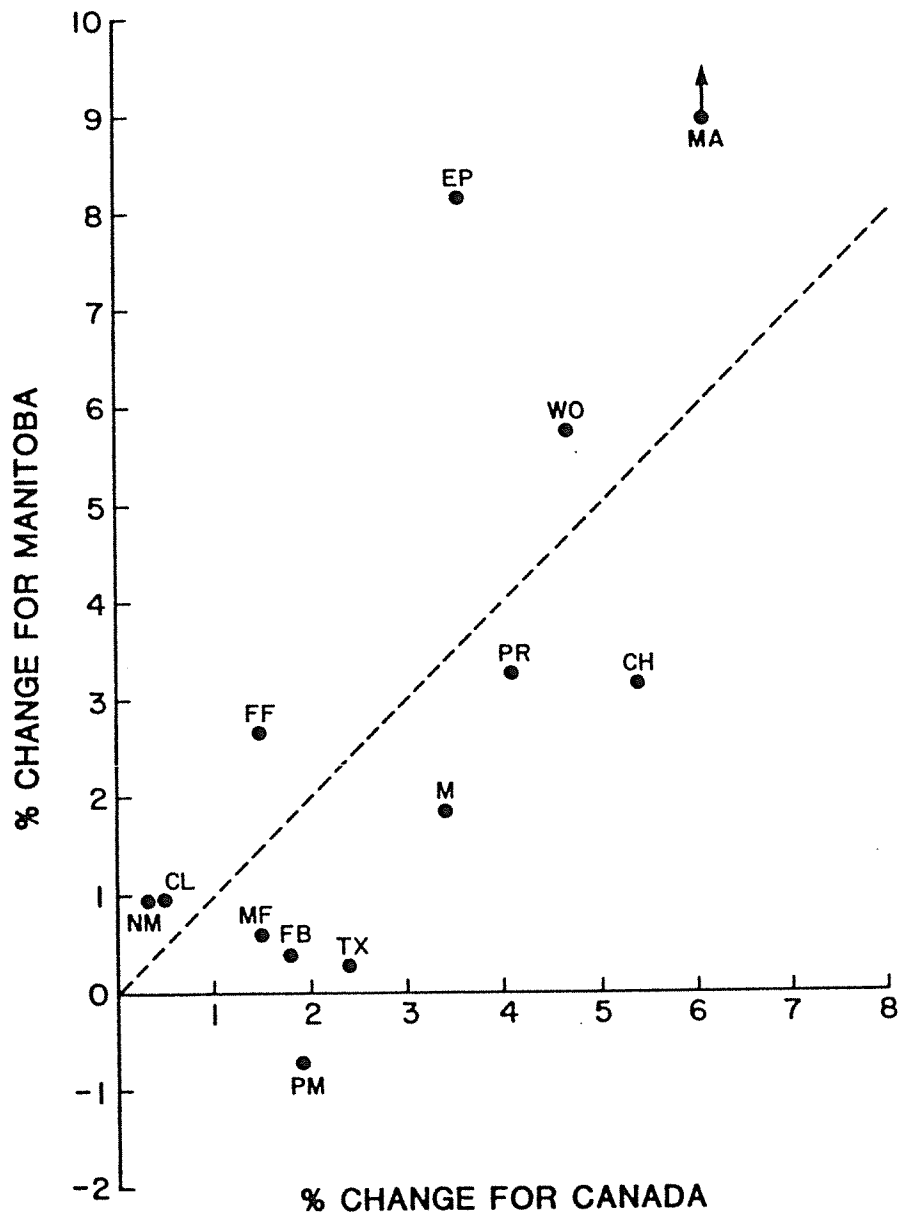
2.5.2 Shipments

Some sectors have grown faster than national counterparts, others have not. Conspicuous among the "losers" over the 1970-84 period were primary

metals (PM), Textiles (TX) and to a lesser extent Food and Beverages (FB). The "winners" have included machinery (MA) and electrical products (EP).

Figure 2.11

Annual Percentage Change in Real Shipments, 1971-1984
Manitoba Compared to Canada



Note:

M=Manufacturing, FB=Food and Beverages, TO=Tobacco Products, RP=Rubber and Plastics, LE=Leather, TX=Textiles, KM=Knitting Mills, CL=Clothing, WO=Wood, FF=Furniture and Fixtures, PA=Paper, PR=Printing and Publishing, PM=Primary Metals, MF=Metal Fabricating, MA=Machinery, TE=Transportation Equipment, EP=Electrical Products, NM=Non-metallic Mineral Products, PC=Petroleum and Coal Products, CH=Chemical Products.

See footnote 5 for an explanation of this chart.

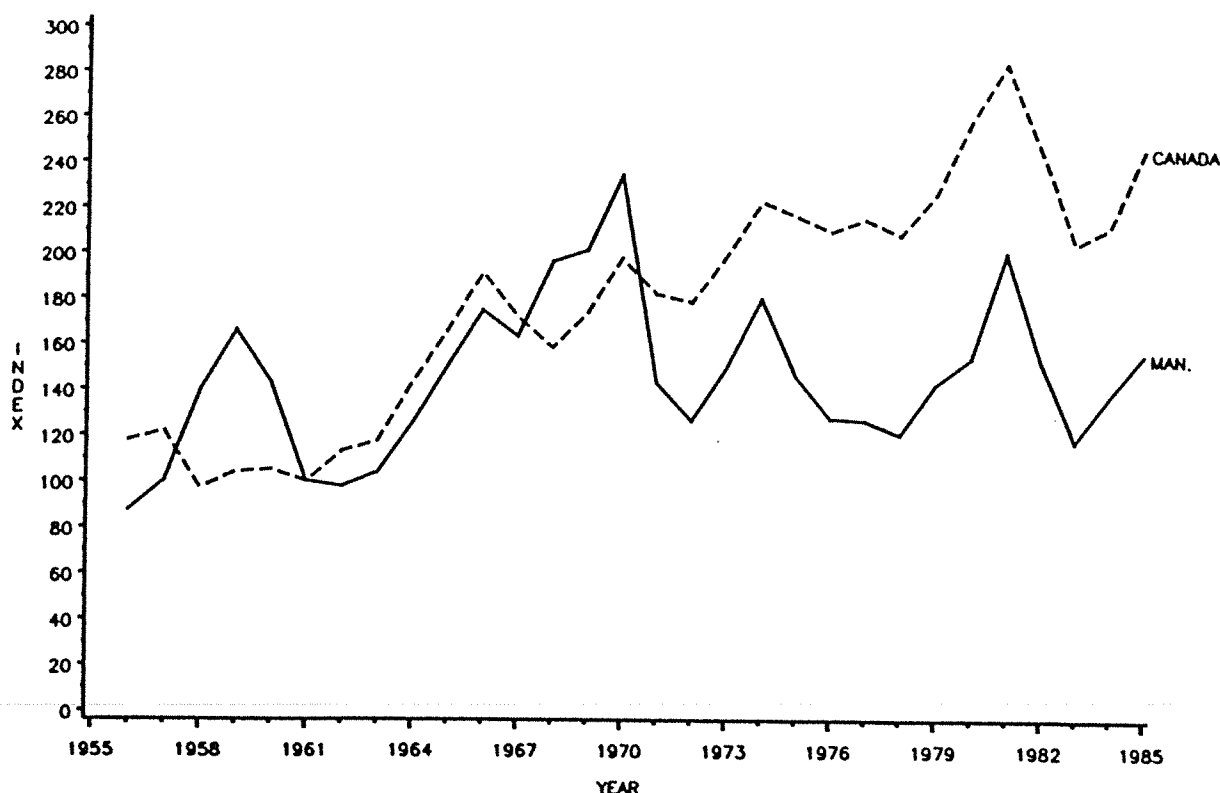
2.5.3 Investment

Investment performance in Manitoba manufacturing can be roughly divided into two phases. From 1956-1971 there was a general upward trend while from 1972 to the present there has been general decline. In examining a series such as Figure 2.12 below, it is always important to look at the "peaks" and "valleys." The key question is not whether the trend is up or down (although this is important), but rather, "will recent increases (or declines) be

higher (or lower) than previous peaks (or troughs)?" The recent increase in manufacturing investment has been sharp and sustained over two years. But there is still some considerable distance to go before surpassing the previous peak of 1982 and even further before exceeding the peak of 1970-71. To be sure, the recent initiation of hydro development could take the index above previous highs with resulting favourable impact on manufacturing employment and output.

Figure 2.12

Index of Real Investment in Manufacturing (1961 = 100)
Manitoba Compared to Canada



2.5.4 Summary

With its "mature" manufacturing sector Manitoba has experienced some losses due to the recessions of the seventies and early eighties. Also longer term decline over the study period is evident. It is important to recall the caveats made in the

first chapter. It is possible that this is a turning point in the structure of the economy with future growth emerging from services. It is also possible that the decline in manufacturing activity could be signalling longer term decline in the economy as a whole. It is simply too soon for a clear conclusion.

NOTES

* This article consists of the first two chapters of the Survey of Canadian Manufacturing 1985 published by the Institute for Social and Economic Research, ISBN 0-9691641-7-3.

[1] Science Council of Canada, Uncertain Prospects: Canadian Manufacturing Industry 1971-1977, Minister of Supply and Services Canada, Cat. No.:ss23 - 4/1977.

[2] Value added is computed from financial data provided by firms and there is often a delay in closing the "books." This reporting lag makes it very difficult to monitor the economy at the sectoral level.

[3] The business cycle is crudely measured by changes in real gross domestic product. The period 1960-1985 can be roughly classified into expansion and recession, and this is shown in Table 1.2.

[4] Valued added data is more accurate as an output measure, but since it is derived from balance sheets it is available only with a two year lag. Also it tends to be less complete with respect to industry coverage.

[5] This type of graph is a simple way to see a "shift-share" process. Points along the diagonal indicate industries which perform equally well at the provincial and national levels and which also represent regional growth that is probably due to strong national growth. Points which lie along (or close) to the vertical axis indicate provincial industries which have

countered national performance and which therefore are leading areas for the regional economy. Industries lying close to the horizontal axis are those which have had poor regional performance compared to the nation as a whole.

These graphs are only suggestive, and like shift-share analysis they are sensitive to the choice of period used to form the percentages and offer no explanation as to why a particular industry has led or lagged national performance.

[6] Immature is used in a developmental, not pejorative sense.

Rational Expectations and Monetary Policy

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University of Saskatchewan.

This paper surveys the implications of the rational expectations revolution for the conduct of monetary policy. Among the topics covered are the two main approaches to modelling business cycle fluctuations and the resulting implications for policy, and the issue of credibility of policy. The major conclusion is that rational expectations have altered in a fundamental way the view of policy. The new perception is that of a non-cooperative, non-zero-sum game between rational agents, and this perception suggests commitment of the policy-maker to well-defined and simple rules.

3.1 INTRODUCTION

In spite of some initial controversy, the rational expectations hypothesis appears to be firmly embedded in the macroeconomic literature. Thus, it would appear appropriate to attempt a perspective regarding the lasting contribution of this hypothesis for the design and implementation of monetary policy. I choose to limit the discussion to monetary policy for two reasons. First, there does appear to be a consensus in the profession about the long-run effects of different rates of growth of the money supply. Yet, this consensus appears to be lacking for fiscal policy as evidenced by the continuing debate about the relevance of the Ricardian equivalence theorem[1].

Second, there appears to be a growing recognition that the theory of fiscal policy, at least as it is applied to macroeconomic models, is far removed from the actual conduct of governments. In this view an understanding of the policy process is dependent upon the assumption that particular policies arise out of the rent-seeking activities of a vested interest. In contrast, there appears to be a greater willingness to believe that monetary policy is formulated through an optimizing process designed to stabilize particular economic aggregates.

The literature dealing with the design and implementation of monetary policy may be dichotomized into tactical and strategic issues. In the former category there are a

number of major issues of which the following are perhaps the most important. First, there is the tradition following Poole (1970) which emphasizes that the choice of a particular target for control forces variance resulting from exogenous shocks upon other variables of importance. Second, there is the issue of feasibility of control and the institutional reform necessary to guarantee it. Third, there is the concern, brought on by the rapid financial innovation in North America in the late seventies, that any variable controlled by the authorities will have its significance altered in a fundamental manner.

The literature surrounding these questions will not be reviewed in this paper primarily because the hypothesis of rational expectations does not bear directly upon them[2]. Rather, we will concentrate on the strategic issues of rules versus discretion and commitment, areas where the rational expectations hypothesis has had a major impact.

Finally, since the objective is to provide a solid introduction to the non-specialist, it will not provide detailed analysis such as that found in the NBER volume edited by Fischer (1980b).

Before proceeding with a discussion of monetary policy however, it will prove useful to review briefly the major innovations in macro modelling which have accompanied the development of the rational expectations hypothesis. In what follows, Section 2 discusses the natural rate and rational expectations hypotheses. Section 3 introduces the time inconsistency property of optimal policy and Section 4 summarizes the major conclusions.

3.2 THEORIES OF THE BUSINESS CYCLE [3]

There are two alternative approaches to modelling business cycle fluctuations which have broad support in the discipline. These are the market-clearing, imperfect information approach identified with Lucas (1972, 1976, 1977) and Barro (1976) and the non-market-clearing, overlapping contracts, approach associated with Hall (1975), Taylor (1979, 1980), Fischer (1977a) and Phelps and Taylor (1977). While these alternatives differ dramatically from the market-clearing models in their view about the underlying market processes, they share important characteristics. Specifically, they both ascribe to the natural rate and rational expectations hypotheses and, as a consequence, they both yield the implication that policy should be formulated in terms of a rule. The major contentious issue between proponents of the two approaches is the particular form of the rule. The advocates of non-market-clearing propose a feedback component to the rule while market-clearing advocates view this property as irrelevant at best and probably undesirable. However, before discussing this aspect of disagreement, it is probably useful to review the areas of agreement.

3.2.1 The Natural Rate Hypothesis

The natural rate hypothesis, attributed to Phelps (1967) and Friedman (1968) states that for a given state of preferences and technology the behaviour of individuals if based on correct expectations of the inflation rate will generate unique values of economic aggregates such as output and employment. These values are referred to as natural rates. However, actual rates of

output and employment can differ from their natural values to the extent that individuals incorrectly perceive or forecast inflation. Moreover, there is a unique relationship between the difference of actual and natural values and the unanticipated component of the inflation rate.

The theoretical foundation for this hypothesis is the homogeneity property of individual demand and supply functions which states that plans based on optimizing behaviour are a function of endowments and relative prices but not of nominal prices. It is natural to think of a Walrasian market-clearing model when contemplating natural rates and in fact Friedman utilized this model in his development of the hypothesis. Yet, the natural rate hypothesis can also be embedded in models where markets do not clear such as that of Barro and Grossman (1976). Because this proposition follows directly from optimizing behaviour it has wide support in the profession as a necessary property of any correctly specified model. McCallum (1982) argues further that nonconformity of a model to the natural rate hypothesis is prima facie evidence of some type of irrationality which will render it vulnerable to the Lucas (1976) critique. That is, the model will not be policy-invariant and, as a consequence, it will not be able to accurately predict the consequences of alternative policy options. Therefore, it cannot be a suitable vehicle for policy analysis.

Despite its impeccable theoretical underpinnings, however, it is probably safe to say that had the seventies not provided the empirical support for it, this hypothesis would not have gained such overwhelming support. As Lucas (1982) has observed, when Phelps and Friedman presented this hypothesis the

data necessary to distinguish it from the prevailing view of a stable short-run Phillips Curve was not available.

3.2.2 The Rational Expectations Hypothesis

The second major development in macro theorizing since 1968 was the popularization by Lucas (1972, 1976), Sargent and Wallace (1975) and Barro (1976) of the concept of rational expectations first proposed by Muth (1961). In retrospect, this hypothesis represents a logical extension of economic theory since it simply extends the principle of optimization to the acquisition and processing of information. Nevertheless, it was greeted initially with some skepticism[4].

As Grossman (1980) has noted, the hypothesis of rational expectations as originally formulated involves two major assumptions about the availability and use of information. First, it assumes that individuals know enough about the structure of the economy to forecast accurately on average the effects of changes in the money supply. Of course, this assumption can be modified to allow for learning (Friedman (1979)) but generally the implicit view is that it pertains to stationary states in which the process of learning is complete. This assumption is sometimes referred to as the model consistent property of rational expectations. That is, if one builds a model to explain the process of price generation, then agents will utilize this model to derive conditional forecasts of the price level. Furthermore, this interpretation renders moot the question of whether the model is true in any fundamental sense[5].

A corollary of this assumption is that if monetary policy involves

systematic responses to fluctuations in economic aggregates about their natural rates, then individuals will be able to accurately forecast this response regardless of whether the policy authority provides information about it or not.

The second major assumption is that individuals are able to adjust their behaviour as a result of their expectations. That is, there is some time frame within which markets clear. In the imperfect information approach alluded to above, there is instantaneous market clearing. In the overlapping contract models, individuals can react to new information only when contracts are renegotiated. They attempt to achieve market clearing but this attempt is successful only in an asymptotic sense.

The combination of these two assumptions with the natural rate hypothesis yields the neutrality or policy-ineffectiveness proposition - namely, that the systematic component of monetary policy has no influence on average on the difference between actual and natural levels of real economic aggregates. In its strong form (when it is assumed that market clearing is instantaneous) the proposition precludes any scope for systematic policy. However, in its weak form (when it is assumed that market-clearing is approached asymptotically) there is still a role for systematic policy. This result obtains because private agents are unable to take advantage of new information as quickly as the policy authority. I will return to a discussion of this point in Section 3.2.3 below.

3.2.3 Nonneutrality of Money

At first glance the neutrality proposition would appear to be inconsistent with the view that a principal cause of business cycle fluctuations is the behaviour of the stock of money. However, this is not the case. If one assumes that there is an important subset of money stock changes which are not perceived or anticipated when expectations are formed, then even if expectations are rational they will not correspond to perfect foresight, and the corresponding expectational error will generate divergences between actual and natural values of output and employment.

This nonneutrality proposition is a feature of both the market-clearing and non-market-clearing paradigms referred to above. In the former, it arises because of a mistaken perception on the part of the individual agents about potential gains from trade. Specifically, it is assumed that individual prices only imperfectly yield information about the aggregate price level. Consequently, aggregate disturbances resulting from (say) changes in the stock of money can be mistakenly perceived as relative disturbances and the resulting intertemporal substitution of labour forms the basic impulse for business cycle fluctuations.

Some of the early tests of this approach (Barro (1977a, 1978b) and Barro and Rush (1980)) involved testing the reduced form which implies that only unanticipated money (defined as that part of the money supply which is not correctly forecast on the basis of information available in the preceding period) affects the gap between actual and natural values of real aggregates. While there was some initial controversy regarding the measurement of unanticipated money, the hypothesis

appears to stand up to variations in this definition. However, Mishkin (1983) has demonstrated that Barro's results appear to rely upon a relatively short lag structure.

Furthermore, it is becoming evident that this reduced form is not a proper implication of the market-clearing approach (Barro (1981), Grossman (1983)). The problem appears to be that not only must money be unanticipated but also it must be imperfectly perceived in the current period. In other words, the assumption of instantaneous market clearing implies that if information about the money supply is currently available, it can be taken into account in the formation of inferences about the aggregate price level. Consequently, a nominal disturbance may be identified as such and the neutrality proposition will hold.

Since contemporaneous information about the money supply is readily available in the form of preliminary estimates of the money supply, this argument suggests the hypothesis proposed by King (1981) that any current observation which provides unbiased information about current monetary aggregates cannot generate fluctuations in real variables about their natural levels. Boschen and Grossman (1983) test this hypothesis along with a second which implies that changes in real aggregates about their natural values are positively correlated with revisions in preliminary measures of changes in monetary aggregates. This implication follows since only the difference between revised and preliminary estimates, that is unperceived money, should lead to misperceptions about the origin of a disturbance. In other words, unperceived rather than unanticipated money must be the force behind business cycle fluctuations in the market-clearing paradigm. Boschen and Grossman reject both hypotheses and they conclude

that the market-clearing rational expectations approach fails empirically.

The apparent failure of the market-clearing model to provide a convincing explanation for time series data has elicited two distinct responses. Those who do not wish to abandon the market-clearing framework have taken to reinterpreting the empirical evidence which suggests a causal relationship between money and income. Barro (1984) argues that this evidence is consistent with the view that business cycles originate in real shocks with subsequent effects on monetary aggregates generated through the interaction of financial intermediation and real aggregates. In this view, money is indeed largely neutral but it is also endogenous and the causality of the time series data runs from real aggregates to monetary aggregates.

A second alternative is to question one or both of the assumptions underlying the market-clearing rational expectations model. One approach which has rather broad support is to relax the assumption of market-clearing in the short-run but to maintain the assumption of rational expectations. In the overlapping contract theory of Fischer (1977), for example, agents optimize at both the individual and market level in that they settle on an expected real wage such that all expected gains from trade are realized. However, for reasons not well understood they sign contracts which fix nominal wages and which specify that employment is to be demand determined.

The determination of the contract wage depends critically upon the price level expected to prevail over the contract life. Expectations of the price level are formed rationally and are consistent with market-clearing assumptions. Nevertheless,

aggregate disturbances which were not anticipated at the time of the contract formulation are capable of generating an actual real wage different from the expected market-clearing real wage, and, since employment in this situation is demand determined, divergences between the actual values of income and employment and their natural levels.

In addition, this model implies the neutrality proposition if monetary policy is correctly anticipated when contracts are formulated. Nevertheless, even if policy is unanticipated when contracts are signed, at the time of renegotiation information about the actual values of policy parameters will be utilized in the calculation of the new contract wage and, accordingly, the neutrality property will obtain. Somewhat ironically, therefore, the very evidence initially believed to be consistent with the market-clearing approach - namely, that only unanticipated money will generate innovations in real aggregates - is now interpreted as support for the non-market-clearing approach.

Furthermore, in this framework there is no role for imperfectly perceived changes in monetary aggregates. If agents are bound by contracts, they cannot react to any information which may be revealed to them. Therefore, whether or not money is correctly perceived is irrelevant and the empirical failure of the unperceived money hypothesis has no consequences for this approach.

The attempt to combine the assumptions of non-market-clearing and rational expectations is not without its critics. No explanation is given either for nominal wage contracts or for employment rules which generate ex post inefficiencies which could be avoided ex ante. As Barro (1977b, 1984) has noted, contracts allow for the separation of wage

rate and employment negotiations. Therefore, contracts should allow for more not less mutually advantageous trades to be exhausted than spot markets where price and quantity decisions cannot be divorced. Consequently, to assume this type of contract, he argues, is to violate the basic proposition which lies at the heart of all economic theorizing - namely, that agents optimize[6].

A further argument against this approach is that the duration of the contract is likely not exogenous to a change in the policy regime which (say) leads to a greater variance in the aggregate price level. Consequently, the model may not be policy-invariant at least to regime changes.

In spite of these criticisms the non-market-clearing rational expectations approach maintains broad support and for two reasons. First, the main alternative is not consistent with time series data while it is. In other words, some type of price stickiness appears to be necessary to explain the short-run behaviour of real aggregates. Second, models combining the assumptions of non-market-clearing and rational expectations are relatively close in spirit to the optimization principle in that agents attempt to achieve market-clearing results but for technical factors not well understood they are not able to accomplish this result at every point in time.

3.2.4 Policy Implications

Since both methods of modelling business cycle fluctuations embody the natural rate and rational expectations hypotheses, it is not surprising that they share important implications for the conduct of monetary policy. In particular, each suggests that policy should be

viewed in terms of a rule for the evolution of monetary aggregates through time. This proposition follows because a rule implies that the predictability of money will be maximized and, hence, expectational error regarding the inflation rate will be minimized. Since it is expectational error which generates divergences between actual and natural levels of real variables, and because these divergences are utility-reducing, it follows that any scheme for policy which reduces uncertainty about future monetary aggregates will increase welfare.

A second reason for viewing a rule for policy as desirable follows from the market-clearing approach alone. The fundamental problem facing individuals in this framework is to extract information from individual price movements regarding changes in the average price level. If the policy authority generates a large variance in the aggregate price level by pursuing a volatile monetary policy, individuals will tend to attribute the majority of perceived movements in individual prices to movements in monetary aggregates which, by assumption, should leave real behaviour unchanged. Consequently, when relative disturbances occur which require adjustments in resource allocation, these disturbances will likely be misinterpreted as nominal in character and the necessary adjustments will not be made. This response results in a misallocation of resources with a corresponding reduction in utility. To the extent that a rule prevents a policy with large variance, it must necessarily lead to a higher level of welfare[7].

Notwithstanding the consensus about the desirability of the rule, there is still disagreement regarding the particular form of the rule. Proponents of the

non-market-clearing approach argue for a feedback from the target variable to the instrument of policy while proponents of the market-clearing approach think that a feedback is at best irrelevant and could lead to less price stability. This difference of opinion follows from the implication of the non-market-clearing framework that systematic policy is capable of influencing real variables within the contract period because the monetary authority is capable of reacting to new information while agents, because of the commitment to a contract, are not. For example, suppose contracts are signed at $t-1$ to prevail over period t and the nominal wage agreed to is based on rational expectations of the price level for period t . Furthermore, suppose a deflationary shock occurs at time t which could not have been forecast with information available at $t-1$. Ceteris paribus, the shock will drive the ex post real wage above the market-clearing real wage and employment and output will decline below their natural rates. If the monetary authority perceives the disturbance contemporaneously, it can neutralize it through a suitably designed monetary policy and thereby maintain the natural rates of employment and output.

While the above example may be complicated by the addition of a recognition lag, so long as there is some persistence to the effect of the disturbance the basic message remains valid - namely, that even with rational expectations there can be a role for systematic policy to play in the stabilization of aggregate income and employment.

Given the lack of consensus regarding the appropriate method to utilize in analyzing business cycle fluctuations, the choice between an activist and non-activist rule would appear to depend upon the cost of

greater price level variance relative to the cost of greater output and employment variance. That is, if the market-clearing approach is correct, then the feedback response will be perceived by individuals and the only effect of monetary policy will be on the variance of the price level. On the other hand, if the non-market-clearing approach is correct, then the feedback response will reduce the variance of real output and employment.

Friedman (1977) has argued that the real cost of price level variance could be significant and there is some evidence of this in the work of Mullineaux (1980). However, there would appear to be a presumption within the profession that the cost of output variance dominates and hence that the rule should be activist in nature. Yet, it should be stressed that the rational expectations hypothesis per se does not provide any criterion for the choice of the form of the rule.

3.3 CREDIBLE RULES

A second requirement for an optimal monetary policy is that the rule should be viewed as credible by private agents. Credible in this usage means that individuals must believe that the government will carry out policy utilizing the rule adopted. The importance of this requirement becomes obvious once one recognizes that the monetary authority has a large number of choices open to it and one cannot determine a priori which is the most likely option to be undertaken. Therefore, even if the authority announces in advance the policy to be followed, the announcement must be believed if private agents are to utilize this information in the formation of expectations.

The issue of credibility was

first raised by Fellner (1976, 1979) who argued that a credible policy of disinflation would be less costly in terms of foregone output than one which individuals do not expect to be pursued. The argument is straightforward and is a special case of the policy-ineffectiveness proposition. An announced policy of disinflation if believed could lead to a revision of expectations pari passu with the fall in inflation without a period of higher than normal unemployment.

In the context of non-market-clearing models the necessity of credibility for costless disinflation is obvious since in this framework a forecast of future policy is crucial to the determination of the contract wage [8]. In market-clearing models, the emphasis on credibility is not so well-motivated. As noted in Section 3.2, contemporaneous monetary data would appear to be sufficient to insure costless disinflation since agents need not commit themselves to a specific course of action until information on current money is available. Nevertheless, there are many actions such as investment decisions which do require expectations of future policy. Mistakes in these forecasts, while not necessarily implying particular times series for output, have undesirable implications for the profit levels of firms and, as such, should be avoided. Therefore, if the government objective is welfare maximization, then credibility will be an important feature of any policy regardless of the assumption whether markets clear or not.

An interesting analysis of the implications of credibility is undertaken by Blanchard (1983) who investigates the impact of the 1979 change in the United States monetary policy regime on two central macroeconomic equations, the Phillips curve and the term structure of

interest rates. He solves a simple aggregate model under three assumptions about policy - namely, that policy is believed to be random, that the new policy is believed instantaneously, and that beliefs about policy are slowly adjusted to the new reality. One conclusion of this analysis is that partial adjustment of belief about the true process generating money can yield results which bear a strong resemblance to those generated under the assumption that inflationary expectations are formed in an adaptive fashion. Clearly, therefore, either analysis or prediction of the response of a macrosystem to an announced policy change depends critically upon the degree of credibility of the policy.

There are two basic reasons why any particular policy may not be credible. The first and perhaps most obvious is when the particular option is inconsistent with other policies being pursued. An example of an inconsistency between policies is explored by Sargent and Wallace (1981) who posit a long-run budget constraint for the government which limits the amount of revenue it can obtain through deficit financing. If the government attempts to exceed this limit, the resulting deficit implies a specific rate of growth of the money supply necessary to generate through seignorage revenue which cannot be obtained by borrowing. In this environment an announcement by the central bank of a rate of growth of the money supply less than that implied by the Treasury Board constraint will have no credibility.

A second and more subtle reason for a policy to lack credibility is if it is in the interest of all for the government to renege on its policy once individuals have taken decisions based on the announced policy. If rational agents anticipate this result, then obviously they

will not believe that the announced policy will be carried out. This property is referred to as time inconsistency.

If lack of credibility is generated by an inconsistent set of policies, then the solution to this problem is straightforward - simply choose a consistent set. However, if the difficulty is due to time-inconsistency, then the solution is quite different. It would appear that elimination of time inconsistency requires some type of institutional reform which limits to some extent the ability of the monetary authority to initiate changes in the policy rule. In other words, not only should policy be circumscribed by a rule but also there should be a significant amount of commitment to the rule imposed from outside of the system. Since this advice is quite radical, particularly from the perspective of the monetary authority, it is instructive to explore in more detail the concept of time-inconsistency.

3.3.1 Time-Inconsistency of Optimal Policy[9]

As Fischer (1980a) has demonstrated, there are three necessary conditions for time inconsistency. First, the policy maker's objective is to maximize the representative agent's utility and the agent's utility function is known to the policy maker[10]. Second, the representative agent maximizes utility subject to rational expectations of the policy maker's objective function. Third, there is some distortion in the system attributable to government policy. Given these conditions it is possible to demonstrate that the optimal policy of the government is to announce a particular policy, and at a later date, once individuals have taken action

based on this policy, to renege on its commitment. Somewhat surprisingly, individual welfare will be higher if the authority does dissemble. The difficulty arises if agents take into account this incentive of the government to cheat. If they do so, the appropriate response will be to base decision plans on the assumption that the authority will renege. This behaviour in turn yields an outcome which is inferior to that associated with pursuing the announced policy. In other words, the only possible outcome is the worst case scenario.

As an example, consider a two-period analysis of a government that spends on a public good and raises the necessary revenue by placing proportional taxes on labour and capital income. A tax on current labour income is avoidable and distortionary. However, since a tax on current capital income cannot be avoided, current government spending is financed optimally by a tax on capital income alone. Nevertheless, it is not optimal for private agents to believe that second period taxation will fall on capital alone since that belief will tend to restrict capital accumulation too much. Consequently, the optimal policy today requires a promise to tax both labour and capital tomorrow such that at the margin the distortion per dollar of tax revenue raised is equalized between the two. This policy is known as the open-loop solution.

The problem with the open-loop solution is that once the future arises, the government has an incentive to renege and tax capital only. Taxes on capital in the second period cannot be avoided and, therefore, they are non-distortionary. This solution - to tax capital alone in each period - is the time-inconsistent solution. Clearly, the utility of each individual is higher

relative to the open-loop solution since the time profile of the capital stock is the same, but under the inconsistent solution there is no distorting tax levied on labour income in the second period.

The above solution is time-inconsistent because private agents will have every reason to believe that the government will renege on its announced policy upon reaching the second period since it is in the interest of all for the government to do so. Consequently, in the first period private agents will attempt to avoid some capital taxation by investing less and the capital stock carried over into period two will be smaller than under the previous two scenarios[11]. Once individuals have taken their action, the government has no option but to carry through the same policy in each period - namely, the taxation of capital only - since to do otherwise would reduce utility even further. This policy is time consistent in the sense that all individuals believe the policy will be pursued and it will in fact be carried out. Nevertheless, this solution also yields the lowest possible utility of the three since the tax is placed on only one income thereby generating the greatest distortion.

The reason for this result is well-known to students of game theory. As Fischer (1980a, p. 100) notes

there is an externality at work here in which each person acting individually, and taking the actions of others (including the government) as given, ends up worse off than if coordinated action were possible. The rational expectations optimum tax allocations ...are implicit Nash equilibria in a game with very many players.

The implication for policy is that for a particular rule to be credible, it must be time consistent. Yet, in the absence of further constraints, the time consistent solution is undesirable. If, however, we could limit the discretion of the government through an externally imposed constraint, and thereby force it to abide by its announced decisions, then the open-loop control situation (which yields the highest level of utility in a noncooperative framework) can be obtained. That is, credibility can be achieved by ruling out dissembling behaviour on the part of the authorities.

The analysis of time-inconsistency has been extended by Barro and Gordon (1983a) to the area of monetary policy. They assume an economy characterized by an expectations-augmented Phillips Curve and a government which seeks to minimize an intertemporal cost function which is an increasing function of the gap between the actual and target unemployment rates and the actual inflation rate. The target unemployment rate is assumed to be a fraction of the natural unemployment rate because in the presence of unemployment insurance and income taxation the natural rate will tend to exceed the level associated with efficiency. The actual inflation rate enters the cost function because of either the cost of changing prices or the inefficiency associated with the inflation tax on real balances. It is assumed that the cost function reflects the preferences of individual agents.

The problem facing the government may be described as follows. It is optimal to generate an unemployment rate less than the natural rate in every period. However, the only way this can be accomplished is by generating systematic expectational error. If expectations are formed rationally, then it will not be

possible through a systematic policy to generate the desired expectational error. Consequently, the optimal policy will entail setting a rate of growth of the money supply consistent with a zero long-run inflation rate. That is, the only cost the government can minimize is that due to inflation and therefore it should announce a policy of zero inflation. We can characterize this as the open-loop control solution. As in the preceding example, this solution is not time consistent since if agents enter a period with zero inflationary expectations, the monetary authority can generate an unanticipated inflation thereby driving the realized unemployment rate closer to the target rate. Furthermore, it is in the interest of private agents for the government to renege on its policy since welfare will be higher in this situation.

Barro and Gordon demonstrate that the consistent solution is the solution to a non-cooperative game between the central bank and a large number of private agents with the following characteristics. Individuals know that the government enters each period with the freedom to choose any inflation rate treating private expectations of inflation as constant. Since they know the objective function of the government, the rational expectations hypothesis implies that in their formation of expectations they take into account the incentive for the government to deceive them. Formally, they solve at time $t-1$ for the optimal inflation at time t given constant expectations. This solution implies an inflation rate such that the marginal cost of a higher inflation rate equals the marginal benefit of a lower unemployment rate. Individuals then rationally anticipate this inflation rate for period t .

At time t , the monetary authority still retains the option of

generating an inflation rate larger than anticipated and thereby reducing unemployment. However, it will not have an incentive to do so since individuals will have chosen an expected inflation rate such that the marginal cost of additional inflation is equal to the marginal benefit of lower unemployment. Consequently, the government can do no better than generate an inflation rate equal to the expected rate and the solution will be time consistent. As in the case analyzed by Fischer, however, this is the worst possible outcome. Over time there is a positive inflation rate yet since it is fully anticipated the unemployment rate equals its natural level. As a consequence, society incurs the cost of this inflation without any corresponding benefit.

Once again it is possible to achieve the open-loop control solution (the optimal solution) if it is possible to constrain the future actions of the central bank. For example, if the authority is bound to a once-and-for-all choice of a rule for policy, it will recognize that it has no control over the unemployment rate and it will choose a rule designed to insure zero inflation in all periods. Since individuals know the authority is committed to the rule, it will be credible and, accordingly, the expected inflation rate will be zero as well. Therefore, a commitment of the authority to a particular rule will generate a rise in social welfare[12].

Barro and Gordon concluded that the presence or absence of commitment is the single most important distinction between rules and discretion. The traditional argument in favour of discretion is that a rule needlessly restricts the freedom of the central bank to do good. The conventional response to this argument is that a rule also limits the ability of the bank to do harm.

The importance of the consideration of credibility lies in the conclusion that even if the government correctly optimizes each period, an inability to generate credibility will yield an outcome inferior to a situation where long-term contracts with the public are feasible. From this perspective, "discretion amounts to disallowing a set of long-term arrangements between the policymaker and the public. Purely discretionary policies are the subset of rules that involve no guarantees about the government's future behaviour." (Barro and Gordon, (1983a) p. 607.)

2.3.2 Monetary Rules

While there is general agreement that a rule and a commitment to a rule are two necessary conditions for an optimal policy, there is much less consensus about the general characteristics of a rule necessary to insure credibility. In this section we outline some of the more important considerations.

First, it may be desirable to have the rule contingent on particular outcomes such as wars since an important reason why governments may wish to generate unanticipated inflation is to raise revenue. Unanticipated inflation amounts to a lump-sum tax on money and nominally denominated bond holdings and as such it can generate revenue without incurring the distortions associated with a personal income tax. This consideration would loom largest in wartime when the distortions would have the most deleterious effect. Nevertheless, the difficulty with contingent rules is that they may be difficult to verify. The more contingencies embedded in the rule, the more difficult it would be to separate the contingencies from situations where the government simply

reneges on its commitment for the reasons outlined above. Thus, the rule should be as simple as possible with exceptions limited to well-defined events.

Second, an important criterion for the choice of instrument(s) of a rule is ability of the central authority to control the instrument. In other words, an inability to control an instrument will preclude the possibility of credibility even if commitment is established.

Third, questions remain regarding the amount of information required (and the method by which it would be generated) to choose the parameters of the rule. The Lucas critique referred to in Section 3.2 maintains that parameters of reduced form models are not invariant to the policies pursued by the monetary authorities. Consequently, the only manner by which the authorities can acquire reliable information regarding the parameters of a rule is to estimate a complete structural rational expectations macro model. In principle this is possible, but it remains a formidable task.

The above considerations would suggest that commitment to a rule should not be viewed as a once-and-for-all choice of a particular rule but rather as a recurring commitment for a well defined duration. This would allow the authorities to modify the rule in light of new information acquired under the rule as well as to respond to structural change. Yet, during the commitment period, uncertainty resulting from policy actions would be eliminated.

Finally, we turn to the issue of the type of institutional reform necessary to achieve commitment. It is not clear that economists have any comparative advantage in the design of such reform. Nevertheless, two comments appear in order. First, for the commitment to be taken seriously, it must be imposed

upon the central bank from without. Casual observation of the policy-making process of Parliament would suggest that it should not be viewed as the appropriate source for the commitment. This leaves a constitutional amendment as the obvious alternative.

Second, for this proposal to have any chance of implementation it must originate from the central bank. Five years ago, one might have attached a reasonably high probability on this occurrence for the Bank of Canada appeared willing to commit itself to a highly publicized and easily varifiable course of action. However, since the abandonment of M1 targeting in the fall of 1982, the Bank has refused to provide a benchmark against which their policy actions could be judged. For this reason one must be pessimistic about the possibility of achieving a credible rule for policy.

3.4 CONCLUSIONS

The development of the rational expectations hypothesis has had dramatic implications for the way in which academic economists view policy. It does not seem too long ago that the conventional view was one of a policy authority facing a well-specified policy invariant disequilibrium regime. In this framework the principal policy problem is simply the determination of the values for the policy instruments which maximize social welfare. Now, according to the proponents of rational expectations the view is that of a non-cooperative, non-zero-sum game between rational agents. This change in perception suggests significant limitations on the conduct of policy regardless of one's view of whether the economy is best characterized by market-clearing or non-market-clearing assumptions. In

particular, it suggests commitment of the policy-maker to well-defined and simple rules. Nevertheless, I am not optimistic that the new view of policy will be embraced enthusiastically by those who actually formulate and execute policy. This pessimism stems, in large part, from

the assumption that government officials maximize utility subject to constraints just as private agents do and a significant argument in their utility function is the amount of discretion they possess over day-to-day control of policy strategies.

NOTES

- [1] This theorem states that the method of financing government expenditures, whether by debt or taxes, is irrelevant since both methods yield the equivalent macroeconomic effect. See Barro (1978a) for the theoretical underpinnings of this theorem and Tobin (1980) for an alternative view.
- [2] For a recent survey of this literature, see McCallum (1985).
- [3] This section borrows heavily from Grossman's (1983) excellent survey of the two approaches to modelling business cycle fluctuations.
- [4] Shiller (1978) surveys some of the grounds for this skepticism. One of the interesting problems for future historians of economic thought to resolve is why economists who were quite comfortable in deriving (say) consumption functions from sophisticated intertemporal optimizing techniques would suddenly rebel against the use of these same techniques for the formation of expectations. One possible explanation for this phenomenon is that the hypothesis was originally presented within market-clearing models and perhaps there was an initial confusion between the two assumptions. As subsequent developments illustrated, rational expectations does not imply market clearing although some would argue that the two hypotheses are most naturally suited to each other.
- [5] It has been argued that individuals have different information sets and they therefore likely hold different expectations. I do not wish to suggest that this is an uninteresting line of inquiry. However, it does seem that any objection based on expectational differences across agents amounts to an objection to the methodology of macroeconomics, not to rational expectations per se. For better or worse the representative agent appears to be the basis for modern macro theory.
- [6] The standard response to this criticism is exemplified by Fischer (1977b, 1984) who argues that, real world contracts do take the form assumed by this approach. Recent research in this area (surveyed by Azariadis and Stiglitz (1983) and Hart (1983)) suggests that differential risk aversion and asymmetric information between worker and firms may provide a rationale for demand-determined contracts which is consistent with the optimization hypothesis.
- [7] See Barro (1976) for a formal development of this hypothesis.
- [8] Of course, not only must the policy be credible, it must be announced sufficiently far in advance to allow all contracts to take it into consideration. Otherwise a policy of disinflation even if believed could lead to a temporary reduction in income.
- [9] Although Kydland and Prescott (1977) are responsible for the original analysis of this problem, this section draws heavily upon the example of Fischer (1980a).
- [10] This is not quite true. If we

assign an arbitrary objective function to the authority such as the maximization of the public interest, then the authority can at any point change its policy and argue that it is in the interest of all to do so. In this situation, of course, individuals will have no reason to believe in any particular policy and time inconsistency will trivially obtain. However, the difficulty of time inconsistency can also occur even when the authority maximizes the same utility function as private agents.

equilibrium.

[11] Specifically, individuals will use the principle of backward solution. This entails treating the amount of capital at the beginning of the second period as given and calculating both the optimal government and individual response. Then, moving back one period, the individual optimizes with respect to the consumption-saving decision taking as given the optimal future government tax rates and spending levels.

[12] Barro and Gordon (1983b) also consider a second manner by which the open-loop control may be achieved. If the government is concerned with its reputation, then it may be willing to forego the short-term gain of unanticipated inflation for the sake of maintaining a long-run zero inflation. This concern creates a link between present policy and future expectations which is assumed to be absent in the discussion in the text. Nevertheless, they demonstrate that there are a number of features (including a high discount rate) which may generate a breakdown in the reputational

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A Revised Forecast of Seeded Area in the Prairie Provinces — 1986

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A previous forecast of seeded acreages in western Canada was made in February. At this time the grain prices were based upon market conditions between October 1985 and January 1986 and on-farm March grain inventories were estimated. The Canadian Wheat Board (CWB) initial price for spring wheat had not been announced. The two previous forecasts differed according to the assumed initial payments. Whereas one assumed initial price of \$130 turned out to be correct, the falling prices of the feed grains and oilseeds have changed the economic setting. In addition the inventories of grain stored on-farm prior to seeding are now known. Our estimates of March on-farm grain stocks, however, were close to the figures published by Statistics Canada. Thus, the differences between the April forecasts (revised) and the February forecasts are primarily due to changes in feed grain and oilseed prices. Table 1 outlines the grain prices used in the February forecasts and those used in the April forecast.

Under the forecasts made in February, the price of wheat was low relative to the prices of the other major grains. The result of this was that the area seeded to wheat

was forecast to decline just over 5 million acres from 1985 levels. Acreages previously utilized for wheat production were forecast to be seeded to barley and canola. Under the revised forecasts made in April, the prices of the major grains tend to be more in line with one another. The result of this is that wheat acreages are forecast to decline slightly from 1985 levels, the area seeded to barley is estimated to decline the most and the area seeded to canola continues to be substantially above 1985 levels.

Table 2 presents the detailed 1986 forecasts for seeded acreages in the prairie provinces made in February and the revised forecasts made in April. Also included in the table are the seeding intentions estimated by Statistics Canada through a survey of farmers.

The April forecasts estimate a prairie wheat acreage of 32.7 million acres, a decline of 400,000 acres from 1985 levels. The area seeded to wheat on fallow is forecast to decrease from 1985, while prairie wheat acreages seeded on a stubble seedbase are estimated to increase from 1985 levels. On a provincial basis, Manitoba and Saskatchewan wheat acreages are predic-

TABLE 1

Prices of the Major Grains Utilized in the Forecasted 1986 Seeded Area in the Prairies

	February Forecast (in \$/tonne)	April Forecast
Wheat	\$ 146 ¹	\$ 146 ¹
Oats	100	75
Barley	105	80
Canola	316	279
Flax	309	277

¹ An initial price of \$130/tonne and an assumed final payment of \$16/tonne which is equal to the most recent final payment.

ted to decline in 1986. The area seeded to wheat in Alberta is expected to show a modest increase due to additional wheat seeded on stubble. Statistics Canada suggests the seeded area in wheat will increase by 700,000 acres.

Oats seeded for grain are forecast to decline from 1985 levels on both seedbeds in all three prairie provinces. The greatest reduction will occur on stubble seedbeds. The Statistics Canada survey indicates that prairie farmers intend to seed the same area to oats.

The area seeded to barley in western Canada is now forecast at 7.9 million acres, a decrease of 2.6 million acres from 1985 levels. This decrease is expected in all three prairie provinces. Estimates from Statistics Canada's most recent survey are that barley acreage will decrease by 0.4 million in 1986.

Prairie canola acreages are forecast to increase above the 1985 levels. The April forecast predicts

8.6 million acres of canola to be seeded, an increase of almost 2 million acres from 1985. The April forecast exceeds the February forecast in spite of canola prices falling \$37/tonne. Feed grain prices fell only \$25/tonne but the drop in receipts per acre exceeded canola. For example, with a yield of 0.6 tonnes/acre of canola, a decrease of \$37/tonne represents a drop in revenue of \$22.20/acre. Barley, on the other hand, with an expected yield of 1.2 tonnes/acre, would return \$30/acre less with prices falling by \$25/tonne. Because the forecasting procedure evaluates the relative returns between crops, it is not surprising that the feed grain area is predicted to decline the most. On a provincial basis, all three prairie provinces are expected to exhibit increased areas seeded to canola. On the basis of the Statistics Canada survey, the canola area is expected to fall by 0.5 million acres.

Our forecasted flax acreages for

western Canada show a 0.3 million acre drop from 1985 while Statistics Canada predicts a 0.1 million acre increase. The area seeded to flax on a fallow seedbed in the prairies is expected to show no change from 1985 levels, while the area seeded to flax on stubble is forecast to decrease 300,000 acres.

Under the April forecast, the area seeded to other crops is forecast to be 2.9 million acres, an increase of 600,000 acres from 1985 levels. Given the market conditions for grains and oilseeds, this predicted increase appears to be more likely.

Poor grain prices combined with higher inventories may result in a decrease of the total area seeded on the prairies in 1986. The April forecast estimates the total area seeded to be 55.2 million acres, a decrease of 1.8 million acres from 1985. Land summerfallowed is expected to increase even further under the revised forecasts to 21.1 million acres. Statistics Canada suggests no change in summerfallow. Total land utilized for crop production on the prairies in 1986 is forecast to be 76.3 million acres.

The revised 1986 forecasts of

seeded area in the prairie provinces indicate a reduction in 0.4 million acres of wheat, 2 million acres of oats, 2.6 million acres of barley, 0.3 million acres of flax, while the area in canola, other specialty crops and summerfallow are projected to increase by 1.9, 0.6 and 2.3 million acres, respectively. Statistics Canada survey of seeding intentions showed no increase in summerfallow, a drop in canola production, an increase in area seeded to wheat and minimal change in the areas seeded to feed grains. Their survey was undertaken prior to the announcement of initial prices and the most recent price changes. Our forecasts are based upon how prairie farmers have seeded their land in relationship to economic conditions over the past twenty-five years. Since the 1986 conditions cannot be found in any previous year, the forecasts are a statistical judgement of how prairie farmers will react in these extremely uncertain times. Divergent opinions and forecast errors are inevitable when entering uncharted economic waters. All predictions should be viewed in this context.

TABLE 2

Actual and Predicted Seeded Acreages in the Prairies 1986
(Revised)

Crop/ Seedbed	(Million Acres)			
	1985 Harvested Area	February Forecast	1986 Forecast April Forecast	Statistics Canada Seeding Intentions
Wheat				
Fallow	15.1	12.9	13.2	
Stubble	<u>18.0</u>	<u>15.0</u>	<u>19.5</u>	
Total	33.1	27.9	32.7	33.62
Oats ¹				
Fallow	.6	.4	.4	
Stubble	<u>2.1</u>	<u>1.6</u>	<u>1.2</u>	
Total	2.7 ¹	2.0 ¹	1.6 ¹	3.80 ²
Barley ²				
Fallow	1.2	1.5	.9	
Stubble	<u>9.3</u>	<u>11.0</u>	<u>7.0</u>	
Total	10.5 ¹	12.5 ¹	7.9 ¹	11.40 ²
Canola				
Fallow	2.8	3.6	4.1	
Stubble	<u>3.9</u>	<u>4.6</u>	<u>4.5</u>	
Total	6.7	8.2	8.6	6.25
Flax				
Fallow	.2	.3	.2	
Stubble	<u>1.6</u>	<u>1.3</u>	<u>1.3</u>	
Total	1.8	1.6	1.5	1.98
Other	2.3	2.7	2.9	1.21
Total Area Seeded	57.0	54.9	55.2	58.26
Summerfallow	18.8	20.9	21.1	19.15
Total Cropland	75.8	75.8	76.3	77.41

¹ Oats and barley for grain only.

² Oats and barley for grain and hay. The oats area normally harvested as forage is 0.7 million acres while barley is about 0.6 million acres.

NOTES

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Economic Indicators

FIGURE 1
COMPOSITE INDEX OF LEADING INDICATORS
1971 = 100



TABLE 1a
Gross National Expenditure
% Change From Same Quarter Last Year

	1985	1985	1985	1985	1986	1986	1986	1986	1985	1986
	I	II	III	IV	I	II	III	IV		
Private Consumption	3.7	4.4	6.3	6.4	.	.	.	.	5.2	.
Public Consumption	2.8	2.3	1.3	2.0	.	.	.	.	2.1	.
Investment	1.7	6.4	9.0	10.6	.	.	.	.	7.0	.
-Public	5.1	2.8	-1.6	-4.0	.	.	.	.	0.5	.
-Residential	2.1	13.0	23.4	34.2	.	.	.	.	18.2	.
-Non Residential	1.3	8.8	7.5	4.5	.	.	.	.	5.5	.
-Mach.&Equipment	0.6	2.3	6.9	9.1	.	.	.	.	4.7	.
Change in Stocks, %GNE	1.0	0.1	1.3	0.7	.	.	.	.	0.8	.
Exports	9.0	6.8	0.5	2.1	.	.	.	.	4.5	.
Imports	6.8	4.5	6.5	9.0	.	.	.	.	6.7	.
GNE	4.3	4.3	4.4	4.9	.	.	.	.	4.5	.
**	4.1	3.2	7.0	5.4	.	.	.	.

**: % Change from previous quarter, at annual rate.

TABLE 1b
Gross National Expenditure
% Change From Previous Quarter, At Annual Rate.

	1985	1985	1985	1985	1986	1986	1986	1986	1985	1986
	I	II	III	IV	I	II	III	IV		
Private Consumption	5.8	6.2	7.2	6.3	.	.	.	.	5.2	.
Public Consumption	2.0	0.5	-1.1	6.8	.	.	.	.	2.1	.
Investment	3.2	19.1	15.3	5.6	.	.	.	.	7.0	.
-Public	-6.6	-1.5	-1.9	-6.0	.	.	.	.	0.5	.
-Residential	6.9	44.6	53.9	36.2	.	.	.	.	18.2	.
-Non Residential	4.1	36.0	-4.5	-11.8	.	.	.	.	5.5	.
-Mach.&Equipment	4.8	2.4	21.4	8.7	.	.	.	.	4.7	.
Change in Stocks, %GNE	1.0	0.1	1.3	0.7	.	.	.	.	0.8	.
Exports	0.8	-5.9	4.6	9.7	.	.	.	.	4.5	.
Imports	18.3	-5.5	22.4	2.9	.	.	.	.	6.7	.
GNE	4.1	3.2	7.0	5.4	.	.	.	.	4.5	.
**	4.3	4.3	4.4	4.9	.	.	.	.

**: % Change from same quarter last year.

FIGURE 2
UNEMPLOYMENT RATE

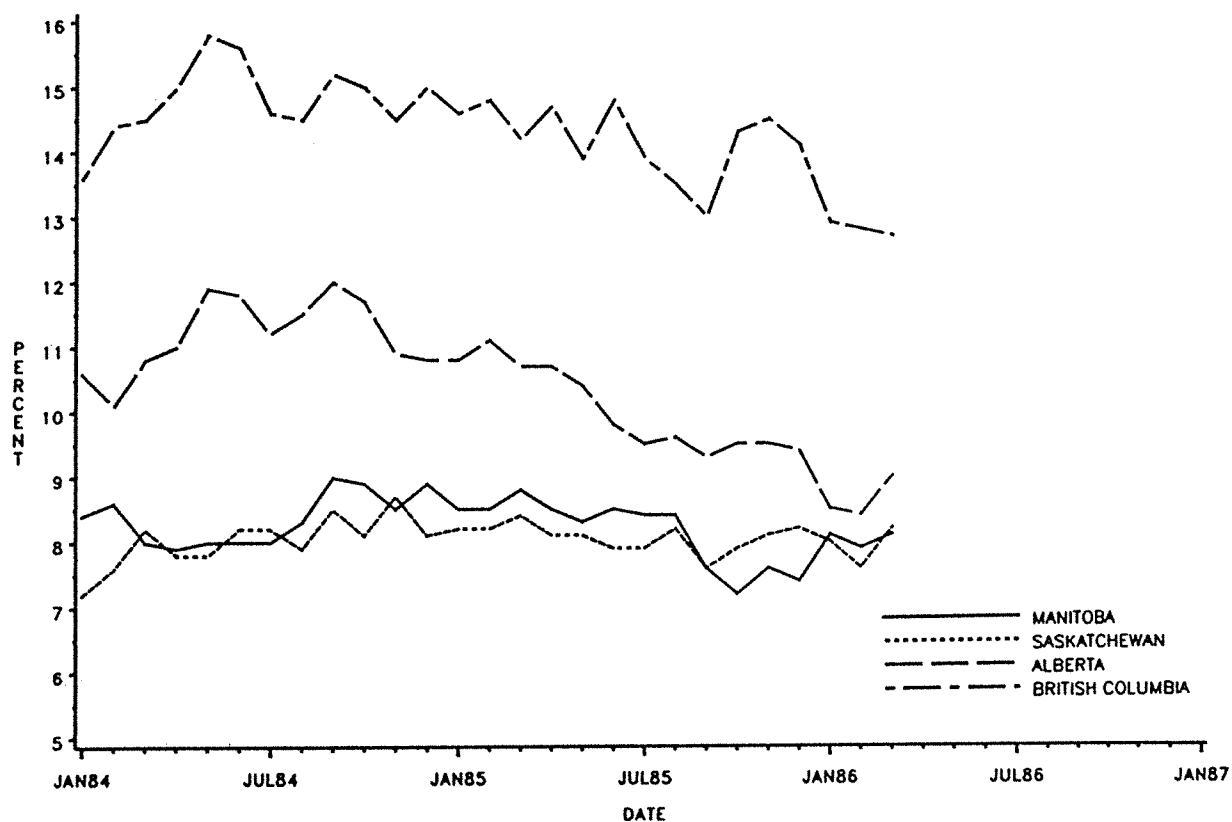


FIGURE 3
EMPLOYMENT
(PERCENTAGE CHANGE FROM SAME MONTH LAST YEAR)

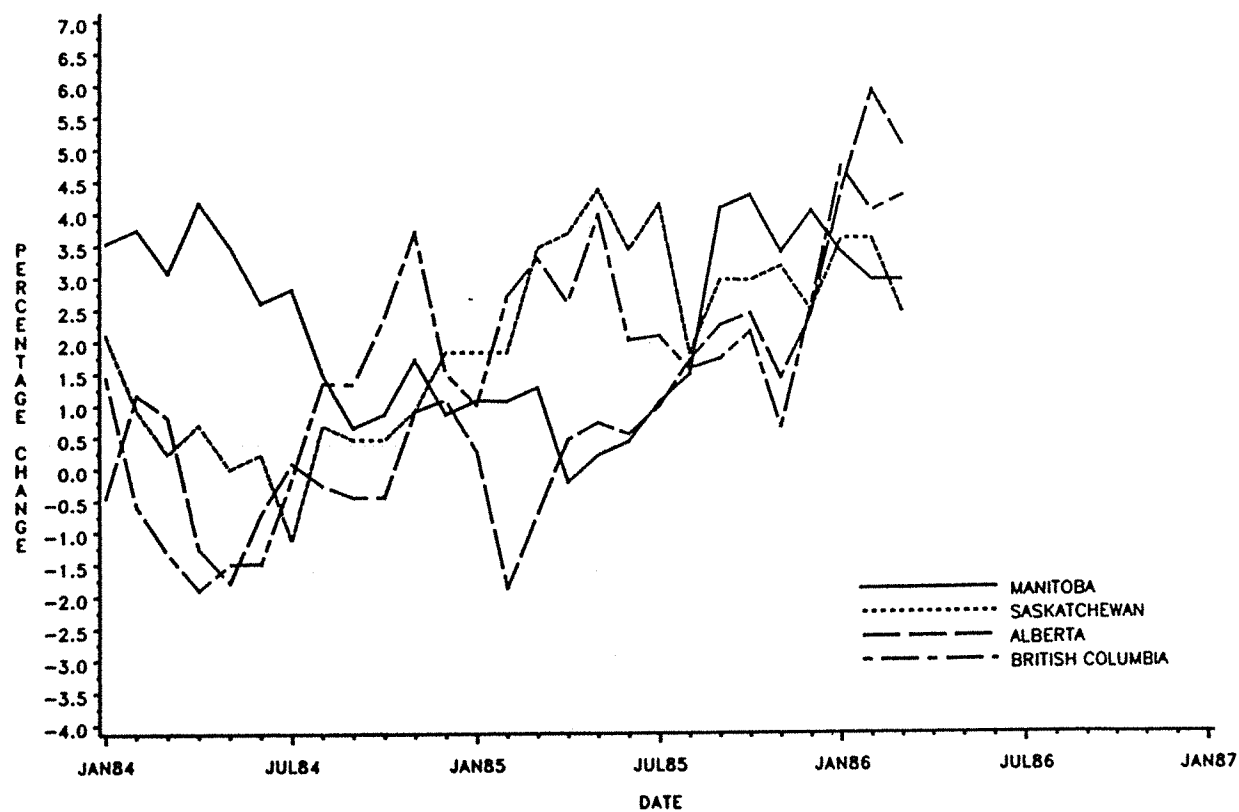


FIGURE 4
HELP WANTED INDEX
1981 = 100

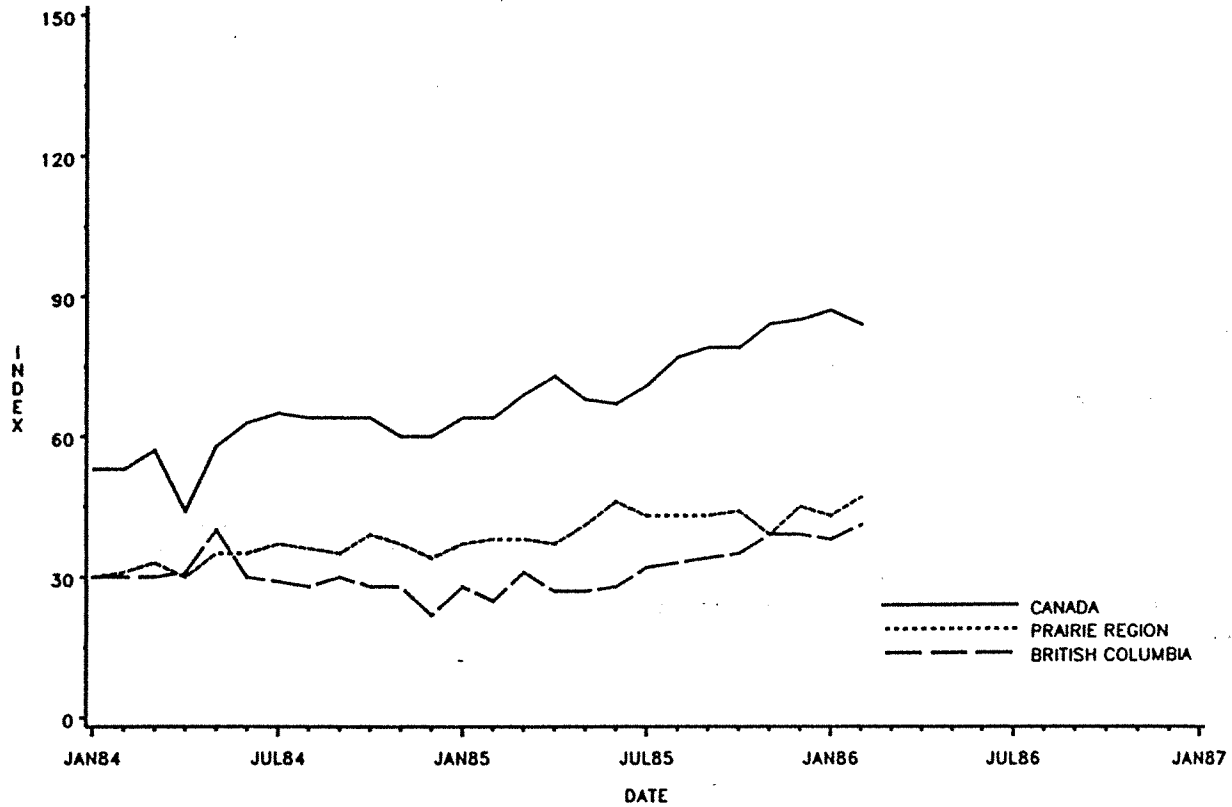


TABLE 2a
Regional Employment And Unemployment
% Change From Same Quarter Last Year

	1985	1985	1985	1985	1986	1986	1986	1986	1985	1986
	I	II	III	IV	I	II	III	IV		*
<u>CANADA</u>										
Labour Force	2.1	2.2	1.4	2.1	2.8	.	.	.	1.9	3.5
Employment	2.3	3.2	2.6	3.2	4.3	.	.	.	2.8	5.1
Unemployment Rate	11.1	10.5	10.3	10.2	9.7	.	.	.	10.5	9.7
<u>MANITOBA</u>										
Labour Force	1.4	0.6	1.9	2.3	2.4	.	.	.	1.6	2.6
Employment	1.1	0.1	2.2	3.9	3.1	.	.	.	1.8	1.6
Unemployment Rate	8.6	8.4	8.1	7.4	8.0	.	.	.	8.1	8.0
<u>SASKATCHEWAN</u>										
Labour Force	3.0	3.9	2.6	2.6	2.8	.	.	.	3.0	3.4
Employment	2.4	3.8	3.0	2.9	3.2	.	.	.	3.0	3.8
Unemployment Rate	8.3	8.0	7.9	8.1	7.9	.	.	.	8.1	7.9
<u>ALBERTA</u>										
Labour Force	-0.4	-0.9	-0.7	0.2	2.5	.	.	.	-0.4	3.4
Employment	-0.8	0.6	1.6	2.1	5.1	.	.	.	0.9	6.4
Unemployment Rate	10.9	10.3	9.5	9.5	8.6	.	.	.	10.0	8.6
<u>B. C.</u>										
Labour Force	2.8	1.7	0.3	1.1	2.2	.	.	.	1.5	2.6
Employment	2.3	2.9	1.8	1.8	4.3	.	.	.	2.2	7.0
Unemployment Rate	14.5	14.5	13.5	14.3	12.8	.	.	.	14.2	12.8

*: Average rate of growth based on the first available quarters, at annual rate.

TABLE 2b
Regional Employment And Unemployment
% Change From Previous Quarter, At Annual Rate

	1985	1985	1985	1985	1986	1986	1986	1986	1985	1986
	I	II	III	IV	I	II	III	IV		*
<u>CANADA</u>										
Labour Force	1.4	2.8	0.5	3.7	4.1	.	.	.	1.9	3.5
Employment	1.5	5.3	1.9	4.2	6.1	.	.	.	2.8	5.1
Unemployment Rate	11.1	10.5	10.3	10.2	9.7	.	.	.	10.5	9.7
<u>MANITOBA</u>										
Labour Force	1.8	-0.5	4.7	3.3	2.3	.	.	.	1.6	2.6
Employment	2.6	0.3	6.0	6.8	-0.5	.	.	.	1.8	1.6
Unemployment Rate	8.6	8.4	8.1	7.4	8.0	.	.	.	8.1	8.0
<u>SASKATCHEWAN</u>										
Labour Force	3.4	5.0	-1.6	3.9	4.1	.	.	.	3.0	3.4
Employment	3.4	6.1	-0.9	3.0	4.8	.	.	.	3.0	3.8
Unemployment Rate	8.3	8.0	7.9	8.1	7.9	.	.	.	8.1	7.9
<u>ALBERTA</u>										
Labour Force	-5.2	-0.1	3.2	3.3	3.8	.	.	.	-0.4	3.4
Employment	-4.1	2.6	7.0	3.2	7.7	.	.	.	0.9	6.4
Unemployment Rate	10.9	10.3	9.5	9.5	8.6	.	.	.	10.0	8.6
<u>B. C.</u>										
Labour Force	-1.9	2.0	-1.9	6.5	2.4	.	.	.	1.5	2.6
Employment	-0.7	2.4	2.8	2.6	9.7	.	.	.	2.2	7.0
Unemployment Rate	14.5	14.5	13.5	14.3	12.8	.	.	.	14.2	12.8

*: Average rate of growth based on the first available quarters, at annual rate.

TABLE 3a
Regional Prices And Wages
% Change From Same Quarter Last Year

	1985	1985	1985	1985	1986	1986	1986	1986	1985	1986
	I	II	III	IV	I	II	III	IV		*
<u>CANADA</u>										
CPI, Total	3.7	4.0	4.0	4.2	4.2p	.	.	.	4.0	4.4
Average Weekly Earnings	3.0	3.3	3.7	3.9	.	.	.	.	3.5	.
<u>MANITOBA</u>										
CPI, Winnipeg	3.5	4.6	4.0	4.4	4.8p	.	.	.	4.1	4.6
Average Weekly Earnings	1.8	1.9	2.2	3.7	.	.	.	.	2.4	.
<u>SASKATCHEWAN</u>										
CPI, Regina	3.9	4.2	3.3	3.4	2.8p	.	.	.	3.7	2.2
CPI, Saskatoon	3.0	3.1	3.7	4.2	4.2p	.	.	.	3.5	4.2
Average Weekly Earnings	2.2	1.7	1.0	1.7	.	.	.	.	1.7	.
<u>ALBERTA</u>										
CPI, Edmonton	2.7	3.6	2.8	3.1	3.3p	.	.	.	3.1	4.0
CPI, Calgary	2.3	3.2	2.9	3.3	3.4p	.	.	.	2.9	3.2
Average Weekly Earnings	0.3	1.3	2.0	1.9	.	.	.	.	1.4	.
<u>B. C.</u>										
CPI, Vancouver	3.1	3.4	2.9	3.2	3.3p	.	.	.	3.1	2.7
Average Weekly Earnings	1.9	1.7	3.6	4.0	.	.	.	.	2.8	.

p: Preliminary figure.

TABLE 3b
Regional Prices And Wages
% Change From Previous Quarter, At Annual Rate.

	1985	1985	1985	1985	1986	1986	1986	1986	1985	1986
	I	II	III	IV	I	II	III	IV		*
<u>CANADA</u>										
CPI, Total	4.8	4.5	3.7	3.6	4.7p	.	.	.	4.0	4.4
Average Weekly Earnings	3.7	4.9	3.6	3.3	.	.	.	.	3.5	.
<u>MANITOBA</u>										
CPI, Winnipeg	3.1	7.6	3.0	4.0	4.8p	.	.	.	4.1	4.6
Average Weekly Earnings	4.2	4.3	4.6	1.9	.	.	.	.	2.4	.
<u>SASKATCHEWAN</u>										
CPI, Regina	3.7	4.0	1.7	4.2	1.5p	.	.	.	3.7	2.2
CPI, Saskatoon	3.9	4.2	3.5	5.1	4.1p	.	.	.	3.5	4.2
Average Weekly Earnings	-1.1	3.2	-1.4	6.5	.	.	.	.	1.7	.
<u>ALBERTA</u>										
CPI, Edmonton	4.6	5.1	1.4	1.5	5.1p	.	.	.	3.1	4.0
CPI, Calgary	3.1	5.2	3.0	2.1	3.4p	.	.	.	2.9	3.2
Average Weekly Earnings	4.1	-0.5	6.1	-2.0	.	.	.	.	1.4	.
<u>B. C.</u>										
CPI, Vancouver	2.0	4.8	3.5	2.4	2.4p	.	.	.	3.1	2.7
Average Weekly Earnings	-0.7	7.5	2.3	6.9	.	.	.	.	2.8	.

p: Preliminary figure.

FIGURE 5

CONSUMER PRICE INDEX
(PERCENTAGE CHANGE FROM SAME MONTH LAST YEAR)

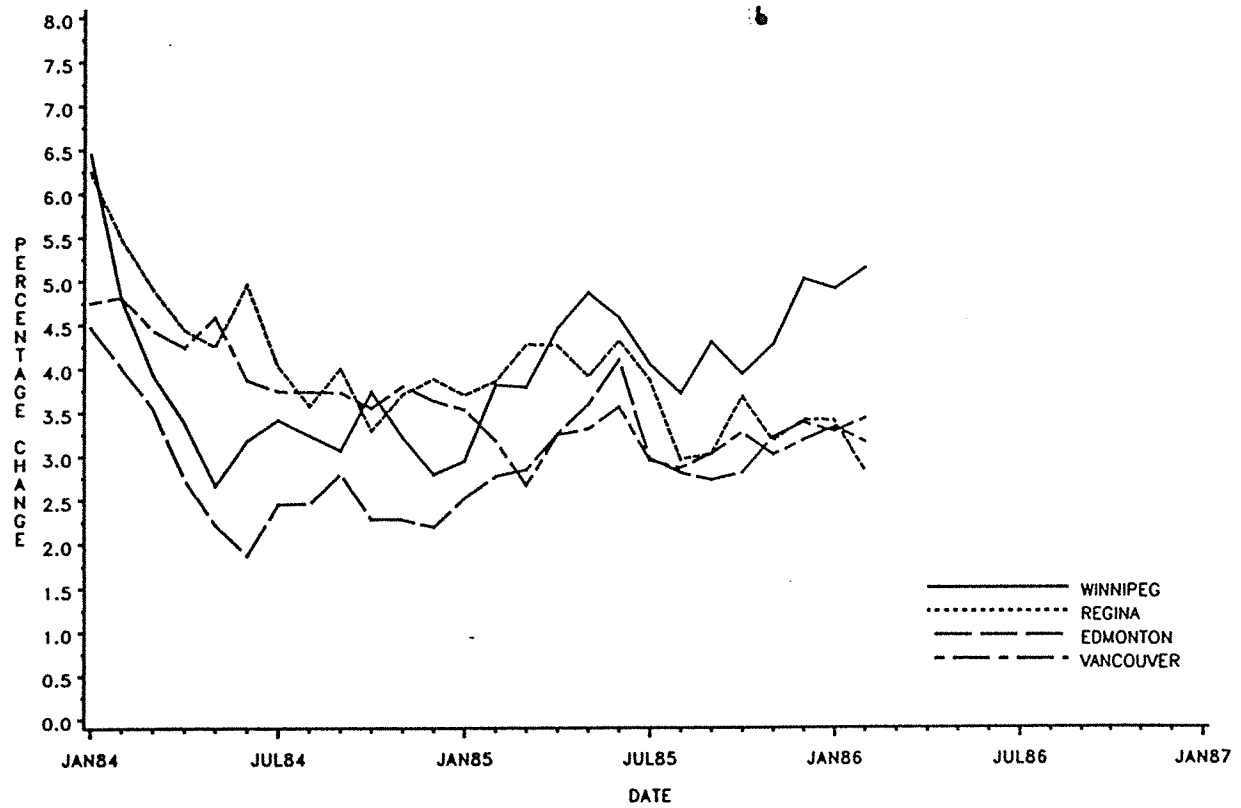


FIGURE 6

AVERAGE WEEKLY EARNINGS (REAL)
(PERCENTAGE CHANGE FROM SAME MONTH LAST YEAR)

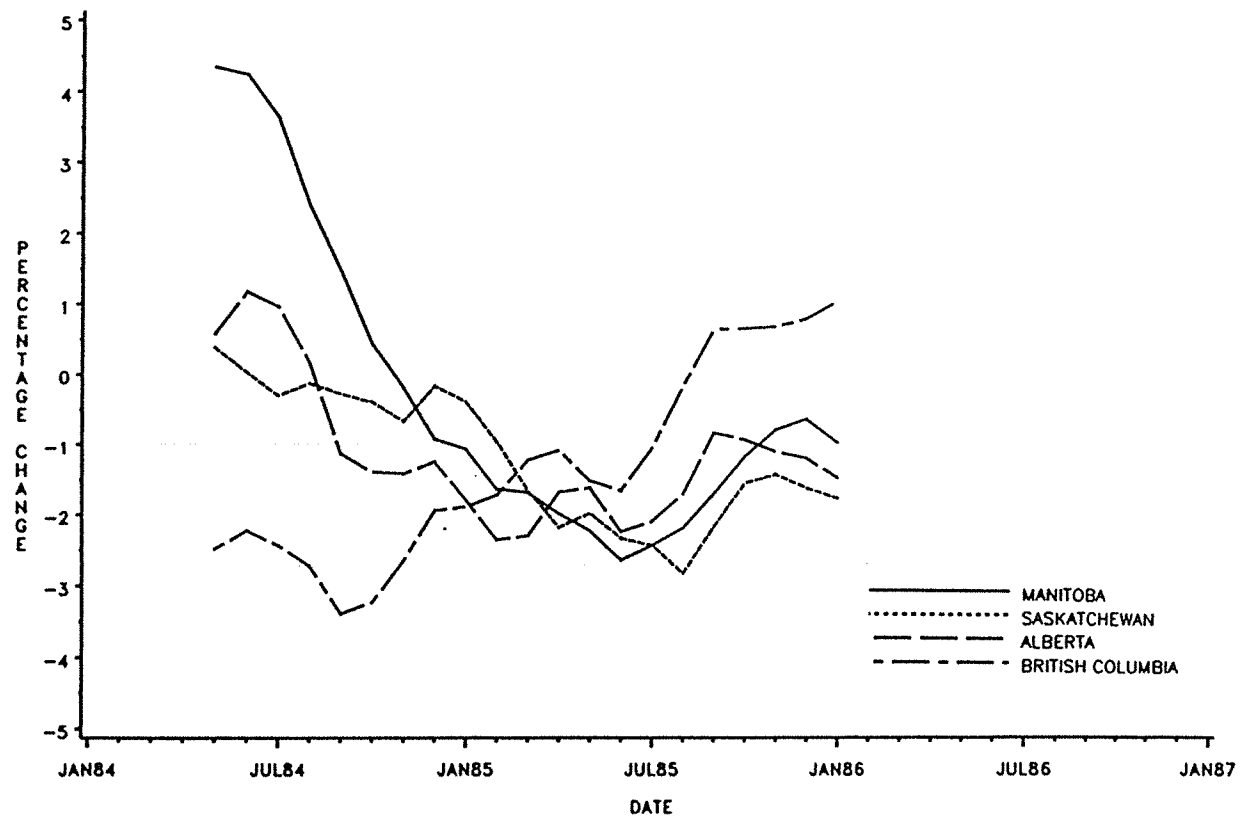


TABLE 4a
Regional Indicators Of Economic Activity
% Change From Same Quarter Last Year

	1985	1985	1985	1985	1986	1986	1986	1986	1985	1986
	I	II	III	IV	I	II	III	IV		
<u>CANADA</u>										
Retail Trade	-9.4	17.6	26.0	53.5	.	.	.	.	21.4	.
Shipments	5.9	6.9	7.6	9.2	.	.	.	.	7.4	.
Housing Starts	4.0	4.0	12.2	4.6	.	.	.	.	6.1	.
<u>MANITOBA</u>										
Retail Trade	-0.2	1.8	-3.3	5.5	.	.	.	.	0.8	.
Shipments	4.8	10.8	10.9	8.9	.	.	.	.	8.9	.
Housing Starts	16.1	7.4	4.1	5.0	.	.	.	.	7.8	.
<u>SASKATCHEWAN</u>										
Retail Trade	11.9	14.4	14.3	11.6	.	.	.	.	13.0	.
Shipments	7.0	7.0	9.2	7.0	.	.	.	.	7.5	.
Housing Starts	9.6	12.5	15.9	13.4	.	.	.	.	12.9	.
<u>ALBERTA</u>										
Retail Trade	6.3	7.7	9.6	10.5	.	.	.	.	8.5	.
Shipments	9.3	9.5	11.5	11.9	.	.	.	.	10.6	.
Housing Starts	-20.0	20.0	0.0	75.0	.	.	.	.	13.6	.
<u>B. C.</u>										
Retail Trade	-50.0	25.0	40.0	0.0	.	.	.	.	-4.5	.
Shipments	-44.4	-14.3	71.4	83.3	.	.	.	.	17.2	.
Housing Starts	-4.8	0.0	0.0	81.8	.	.	.	.	11.9	.

TABLE 4b
Regional Indicators Of Economic Activity
% Change From Previous Quarter, At Annual Rate.

	1985	1985	1985	1985	1986	1986	1986	1986	1985	1986
	I	II	III	IV	I	II	III	IV		
<u>CANADA</u>										
Retail Trade	-6.2	130.4	103.8	26.1	.	.	.	.	21.4	.
Shipments	5.4	6.5	12.3	12.6	.	.	.	.	7.4	.
Housing Starts	-10.6	37.1	3.6	-5.8	.	.	.	.	6.1	.
<u>MANITOBA</u>										
Retail Trade	-15.3	91.4	-11.4	-13.8	.	.	.	.	0.8	.
Shipments	-14.5	75.1	9.7	-14.4	.	.	.	.	8.9	.
Housing Starts	-14.1	33.6	5.1	0.7	.	.	.	.	7.8	.
<u>SASKATCHEWAN</u>										
Retail Trade	23.3	10.8	9.2	4.1	.	.	.	.	13.0	.
Shipments	25.4	3.6	-0.1	0.9	.	.	.	.	7.5	.
Housing Starts	15.1	16.9	17.8	4.3	.	.	.	.	12.9	.
<u>ALBERTA</u>										
Retail Trade	12.2	13.7	12.4	4.1	.	.	.	.	8.5	.
Shipments	14.2	10.4	11.5	11.7	.	.	.	.	10.6	.
Housing Starts	0.0	406.3	216.0	-41.4	.	.	.	.	13.6	.
<u>B. C.</u>										
Retail Trade	-59.0	144.1	284.2	-74.0	.	.	.	.	-4.5	.
Shipments	-51.8	107.4	1500.0	-29.4	.	.	.	.	17.2	.
Housing Starts	992.8	-47.8	25.7	52.4	.	.	.	.	11.9	.

FIGURE 7
CAPACITY UTILIZATION IN MANUFACTURING

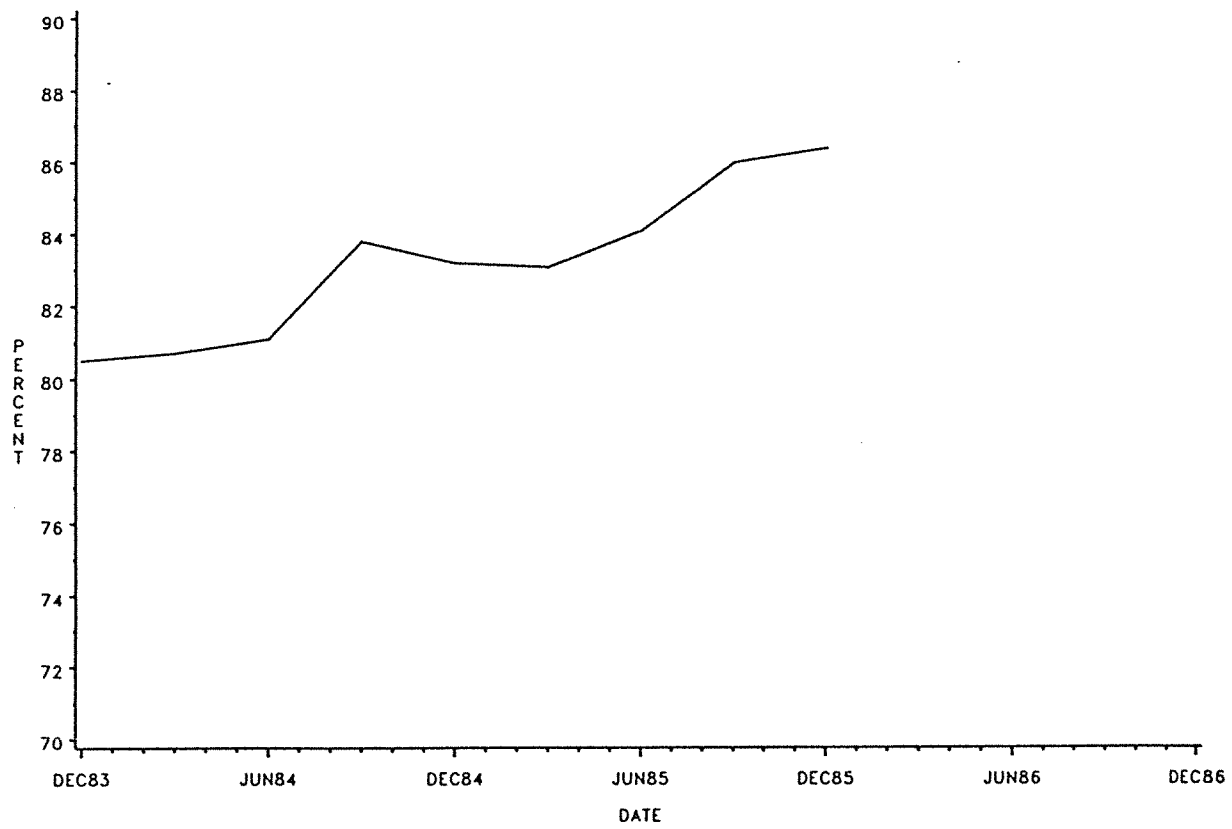
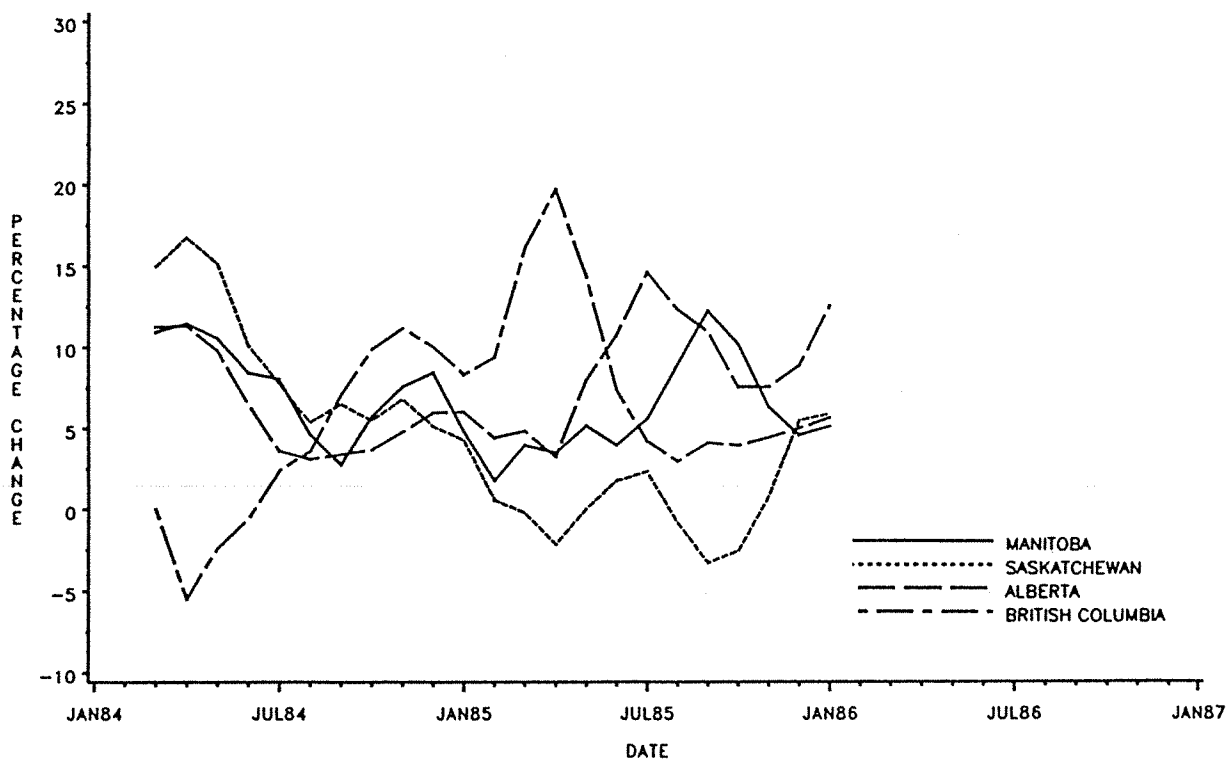


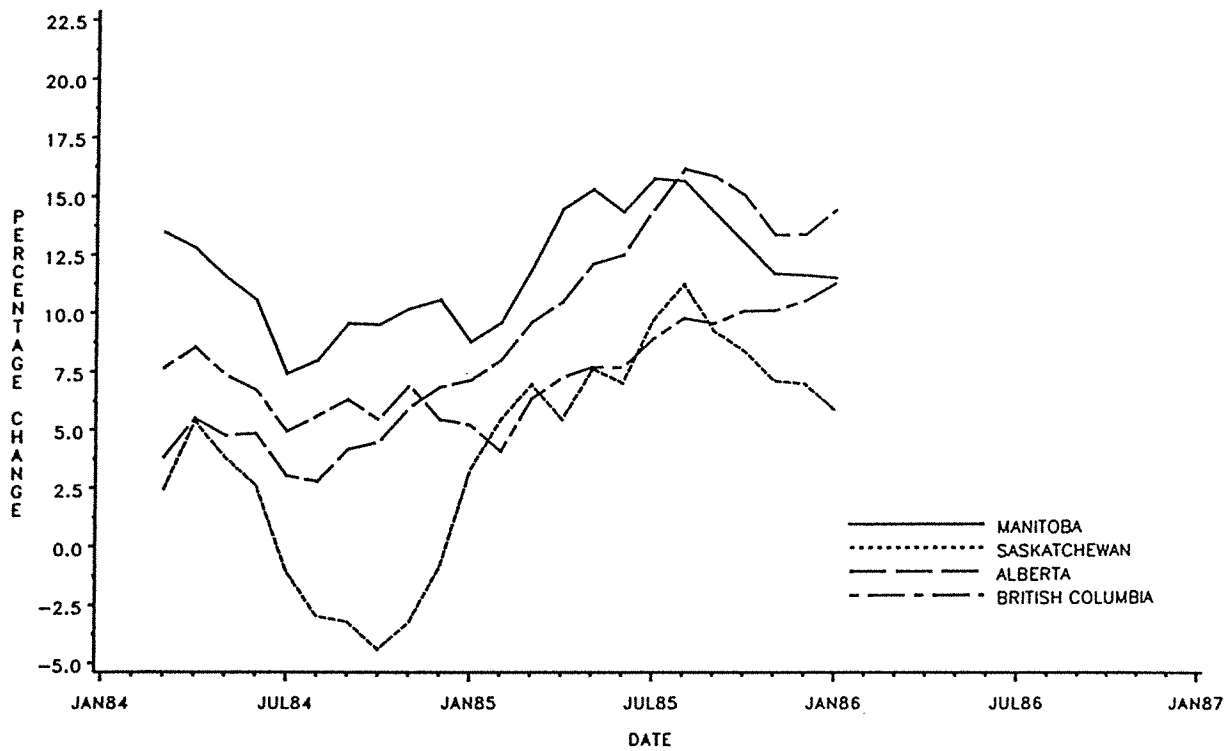
FIGURE 8
MANUFACTURING SHIPMENTS
(PERCENTAGE CHANGE FROM SAME MONTH LAST YEAR)



NOTE: THREE MONTH MOVING AVERAGE

FIGURE 9
RETAIL TRADE
(PERCENTAGE CHANGE FROM SAME MONTH LAST YEAR)

65



NOTE: THREE MONTH MOVING AVERAGE

FIGURE 10
WHEAT BOARD PRICE

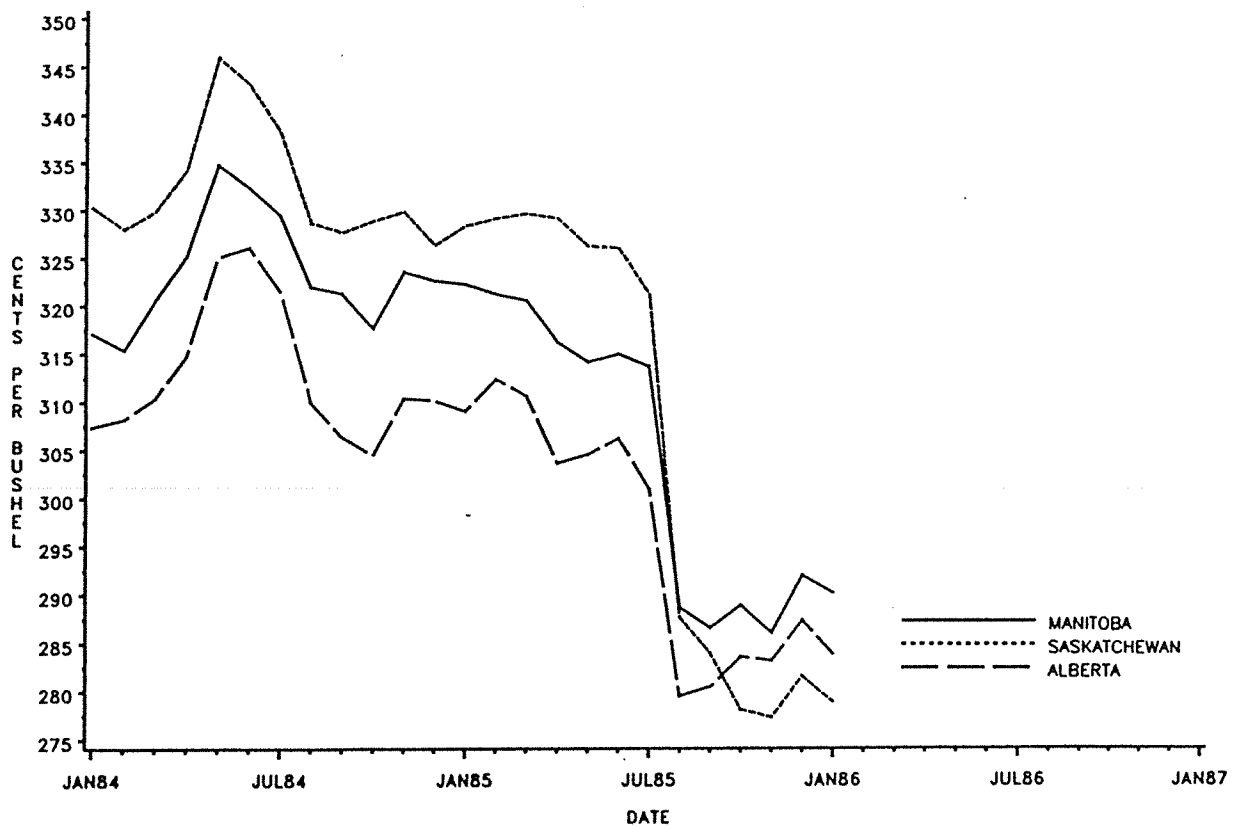


FIGURE 11
MONETARY AGGREGATES

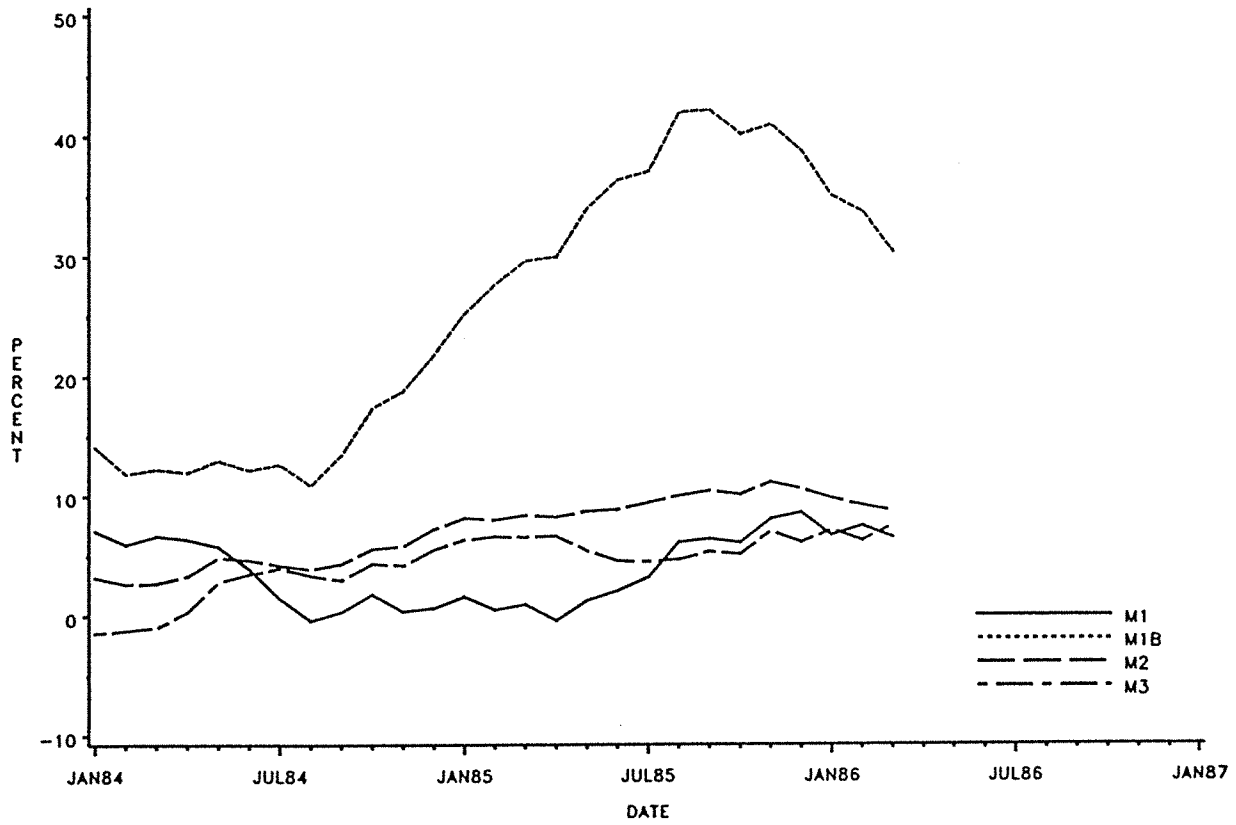


FIGURE 12
BANK RATE

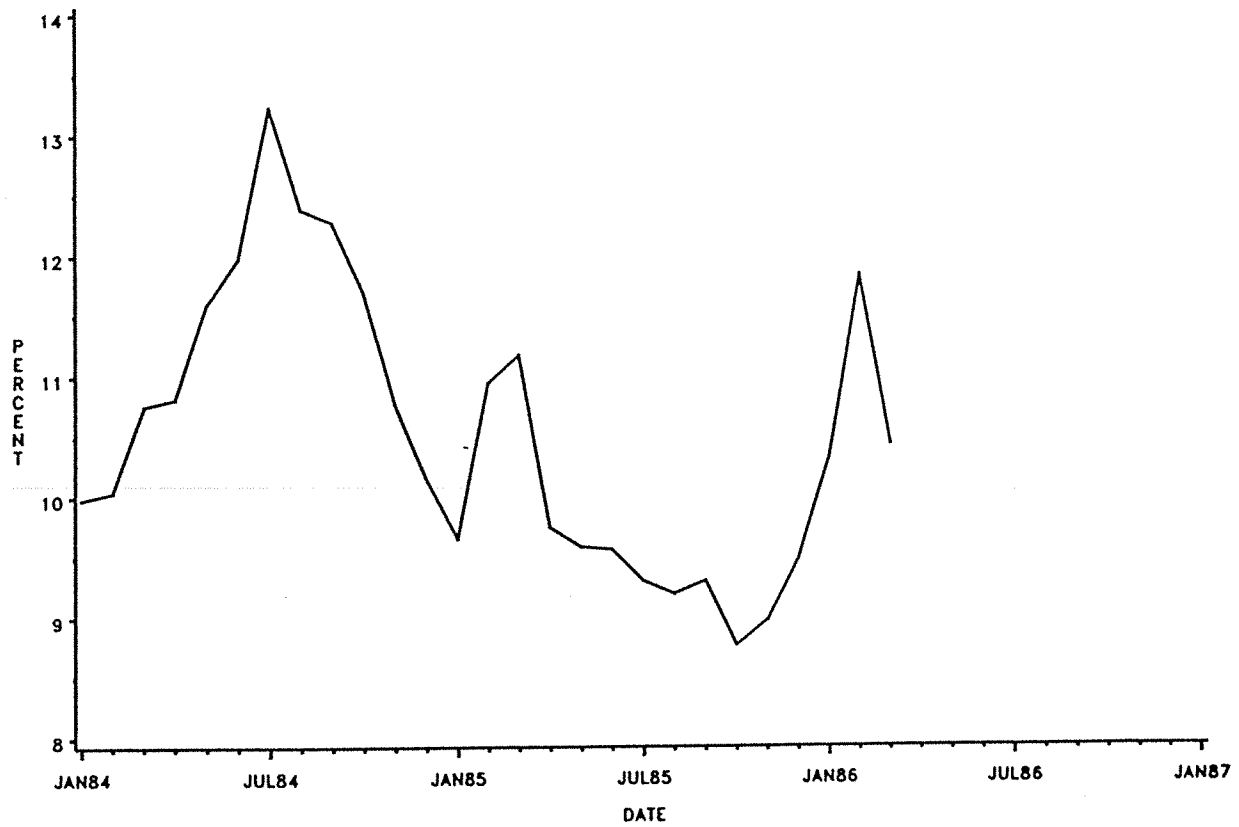


TABLE 5
Manitoba: Percent Changes From Same Month Last Year

DATE	CPI	REAL WAGES & SALARIES	SHIP- MENTS	UNEMPLOY- MENT RATE	EMPLOY- MENT	REAL RETAIL TRADE	REAL AVERAGE WEEKLY EARNINGS	LEADING INDUSTRY EMPLOYMENT: MANUFACTURING
JAN85	2.9	1.8	6.5	8.5	1.1	0.7	-1.4	-5.5
FEB85	3.8	1.2	-2.7	8.5	1.1	9.9	-1.8	-1.8
MAR85	3.8	1.3	8.1	8.8	1.3	14.4	-1.8	0.0
APR85	4.5	0.3	4.7	8.5	-0.2	6.1	-2.3	-1.8
MAY85	4.9	-0.7	2.8	8.3	0.2	11.2	-2.6	-5.0
JUN85	4.6	-1.0	4.5	8.5	0.4	10.6	-3.1	-8.1
JUL85	4.0	-0.6	9.9	8.4	1.1	10.5	-1.7	-3.2
AUG85	3.7	-1.8	13.0	8.4	1.5	12.1	-1.8	1.7
SEP85	4.3	-0.7	13.8	7.6	4.1	7.1	-1.6	3.4
OCT85	3.9	0.3	4.4	7.2	4.3	7.0	-0.1	5.1
NOV85	4.3	0.7	1.5	7.6	3.4	7.6	-0.7	18.9
DEC85	5.0	-1.5	8.3	7.4	4.0	6.2	-1.2	14.5
JAN86	4.9	0.3	6.1	8.1	3.4	5.7	-1.0	11.5
FEB86	5.1	.	.	7.9	2.9	.	.	7.3
MAR86	.	.	.	8.1	2.9	.	.	3.6
APR86	.	.	.	.	.	.	.	.
MAY86	.	.	.	.	.	.	.	.
JUN86	.	.	.	.	.	.	.	.
JUL86	.	.	.	.	.	.	.	.
AUG86	.	.	.	.	.	.	.	.
SEP86	.	.	.	.	.	.	.	.
OCT86	.	.	.	.	.	.	.	.
NOV86	.	.	.	.	.	.	.	.
DEC86	.	.	.	.	.	.	.	.

TABLE 6
Saskatchewan: Percent Changes From Same Month Last Year

DATE	CPI	REAL WAGES & SALARIES	SHIP- MENTS	UNEMPLOY- MENT RATE	EMPLOY- MENT	REAL RETAIL TRADE	REAL AVERAGE WEEKLY EARNINGS	LEADING INDUSTRY EMPLOYMENT: AGRICULTURE
JAN85	3.7	1.8	4.4	8.2	1.8	3.0	-0.8	-6.2
FEB85	3.9	0.4	-1.4	8.2	1.8	-0.6	-2.0	-4.9
MAR85	4.3	0.7	-3.1	8.4	3.5	6.4	-2.1	-1.3
APR85	4.3	-1.4	-1.9	8.1	3.7	-1.8	-2.4	-8.8
MAY85	3.9	-0.8	4.5	8.1	4.4	5.6	-1.4	-2.1
JUN85	4.3	-2.1	2.3	7.9	3.4	4.7	-3.2	-5.3
JUL85	3.9	-0.9	0.1	7.9	4.1	6.1	-2.7	-3.2
AUG85	3.0	0.0	-4.6	8.2	1.8	11.2	-2.6	-8.9
SEP85	3.0	0.5	-5.2	7.6	3.0	0.2	-1.2	-4.3
OCT85	3.7	0.8	2.3	7.9	2.9	3.8	-0.9	2.2
NOV85	3.2	2.3	5.6	8.1	3.2	7.1	-2.2	-1.2
DEC85	3.4	1.4	9.2	8.2	2.5	-0.3	-1.8	-8.1
JAN86	3.4	0.5	3.1	8.0	3.6	0.8	-1.3	6.6
FEB86	2.8	.	.	7.6	3.6	.	.	3.9
MAR86	.	.	.	8.2	2.4	.	.	3.8
APR86	.	.	.	.	.	.	.	.
MAY86	.	.	.	.	.	.	.	.
JUN86	.	.	.	.	.	.	.	.
JUL86	.	.	.	.	.	.	.	.
AUG86	.	.	.	.	.	.	.	.
SEP86	.	.	.	.	.	.	.	.
OCT86	.	.	.	.	.	.	.	.
NOV86	.	.	.	.	.	.	.	.
DEC86	.	.	.	.	.	.	.	.

TABLE 7
Alberta: Percent Changes From Same Month Last Year

DATE	CPI	REAL WAGES & SALARIES	SHIP- MENTS	UNEMPLOY- MENT RATE	EMPLOY- MENT	REAL RETAIL TRADE	REAL AVERAGE WEEKLY EARNINGS	LEADING INDUSTRY EMPLOYMENT: CONSTRUCTION
JAN85	2.5	2.2	7.9	10.8	0.3	4.1	-2.7	-17.9
FEB85	2.8	3.4	1.7	11.1	-1.9	6.1	-2.6	-20.3
MAR85	2.8	4.8	4.9	10.7	-0.7	10.0	-1.6	-16.4
APR85	3.3	4.7	3.0	10.7	0.5	5.9	-0.9	-7.8
MAY85	3.6	4.3	15.8	10.4	0.7	10.0	-2.4	-8.5
JUN85	4.1	5.1	13.2	9.8	0.5	9.8	-3.4	-9.2
JUL85	3.0	6.7	14.9	9.5	1.0	11.8	-0.4	-2.5
AUG85	2.8	6.2	9.1	9.6	1.7	15.9	-1.2	-1.2
SEP85	2.7	6.8	8.9	9.3	2.2	10.4	-0.8	2.6
OCT85	2.8	5.6	4.8	9.5	2.4	9.7	-0.7	1.4
NOV85	3.2	3.2	9.1	9.5	1.4	10.4	-1.7	6.0
DEC85	3.4	4.6	13.2	9.4	2.4	9.8	-1.1	11.3
JAN86	3.3	3.6	15.5	8.5	4.3	12.2	-1.5	21.8
FEB86	3.4	.	.	8.4	5.9	.	.	25.5
MAR86	.	.	.	9.0	5.1	.	.	17.9
APR86	.	.	.	.	.	.	.	.
MAY86	.	.	.	.	.	.	.	.
JUN86	.	.	.	.	.	.	.	.
JUL86	.	.	.	.	.	.	.	.
AUG86	.	.	.	.	.	.	.	.
SEP86	.	.	.	.	.	.	.	.
OCT86	.	.	.	.	.	.	.	.
NOV86	.	.	.	.	.	.	.	.
DEC86	.	.	.	.	.	.	.	.

TABLE 8
B. C. : Percent Changes From Same Month Last Year

DATE	CPI	REAL WAGES & SALARIES	SHIP- MENTS	UNEMPLOY- MENT RATE	EMPLOY- MENT	REAL RETAIL TRADE	REAL AVERAGE WEEKLY EARNINGS	LEADING INDUSTRY EMPLOYMENT: MANUFACTURING
JAN85	3.5	1.8	7.6	14.6	1.0	-0.8	-2.1	-10.5
FEB85	3.2	3.4	18.2	14.8	2.7	3.6	-0.7	-9.3
MAR85	2.7	6.2	23.0	14.2	3.3	6.6	-0.8	-0.7
APR85	3.2	1.5	18.0	14.7	2.6	2.1	-1.7	2.8
MAY85	3.3	0.8	4.4	13.9	4.0	4.8	-2.0	3.5
JUN85	3.6	1.3	1.7	14.8	2.0	5.6	-1.3	3.5
JUL85	3.0	2.8	6.7	13.9	2.1	5.9	0.1	8.2
AUG85	2.9	4.4	0.6	13.5	1.6	7.8	0.6	11.9
SEP85	3.0	3.6	5.2	13.0	1.7	5.5	1.1	6.8
OCT85	3.3	1.9	6.2	14.3	2.1	7.2	0.2	3.2
NOV85	3.0	1.3	1.9	14.5	0.7	7.7	0.7	0.7
DEC85	3.2	1.2	6.9	14.1	2.6	6.5	1.5	2.7
JAN86	3.3	0.3	8.4	12.9	4.7	9.3	0.9	9.5
FEB86	3.2	.	.	12.8	4.0	.	.	10.2
MAR86	.	.	.	12.7	4.3	.	.	4.2
APR86	.	.	.	.	.	.	.	.
MAY86	.	.	.	.	.	.	.	.
JUN86	.	.	.	.	.	.	.	.
JUL86	.	.	.	.	.	.	.	.
AUG86	.	.	.	.	.	.	.	.
SEP86	.	.	.	.	.	.	.	.
OCT86	.	.	.	.	.	.	.	.
NOV86	.	.	.	.	.	.	.	.
DEC86	.	.	.	.	.	.	.	.

Note

- * All data presented here were extracted from the CANSIM, University Base and processed using the Statistical Analysis System.

Book Reviews:

Derek P.J. Hum,
Book Review Editor.

Building the Co-operative Commonwealth. Essays on the Democratic Socialist Tradition in Canada. J. William Brennan, (ed.), Canadian Plains Proceedings 13. Canadian Plains Research Centre, University of Regina, 1984. (255 pp.) No Index. \$15.00. ISBN 0-88977-031-X.

There are some people who think the NDP is committed to "democratic socialism." There are others who think the earth is flat. The second group write few books. The first are quite prolific. There is no greater source of fascination for them than the Regina Manifesto - that great statement of purpose which gave the CCF (and by extension the NDP) its "democratic socialist" credentials. The present volume consists of papers delivered at the Regina conference marking the 50th anniversary of the Manifesto, in 1983. Generally, they are good, historical papers, which shed light on the nature of the CCF in western Canada. But what emerges from the shadows is a reformist political party, not a "democratic socialist tradition."

As Alan Whitehorn notes in the opening essay, there is a conventional idea that the CCF was not just a political party, but also a social movement. This idea rests on some dubious assumptions about the differences between a party and a

movement. Whitehorn's critique of these assumptions is useful, although he gives little attention to the possibility that the CCF was a product of social movements without being a movement itself. The labour and farmers' movements - or were they just organizations? - obviously were essential to the CCF. In the 1930s, they were open to a "democratic socialist" expression of their objectives: hence, the easy acceptance of the principles articulated by the "professors" in the League for Social Reconstruction. As Michiel Horn makes clear, the professors concerned were themselves in a socialist phase, and there was a cleavage between the intellectuals and the prospective party activists. However, the comparatively tough language of the manifesto concealed a commitment to social reform, among activists and intellectuals alike, that overrode any commitment to socialism.

The weakness of the CCF's socialist commitment becomes apparent in the accounts by Jean Larmour, Ian

MacPherson, and Jim Pitsula, of the economic and social policies of the CCF government in Saskatchewan (1944-64). What is clear is how quickly the party shifted from socialist to reformist policies - ones that, by 1948, gave precedence to private capital in the economic development of the province. Perhaps the shift was inevitable, but the ease with which it occurred suggests that the CCF's socialist rhetoric was never much more than that. As the economic and political obstacles to change became more apparent, the government's policies became hardly distinguishable from ones pursued by liberals on either side of the American border. The CCF's long struggle with the Communists - which Christina Nicol discusses in relation to B.C. - helped to reinforce the party's reformism. The Cold War seems to have sealed it.

Alvin Finkel's essay on the CCF in Alberta is especially interesting, because it shows how the party was destroyed there by its implicit acceptance of conservative fiscal policies in the 1930s. In form, the party was committed to more radical policies, but in practice it supported its constituent organizations: The United Farmers' of Alberta, which controlled the provincial government (1921-35), and the Canadian Labour Party, which supported the UFA and for a time dominated the Edmonton City Council (1933-34). These governments were as conservative, fiscally, as most bankers could wish. When people reacted against them they turned not to CCF, but to Social Credit, which really was a social movement.

Thomas Socknat and Joan Sangster explore the CCF's relationship with two movements which were perhaps less prominent in the 1930s and the 1940s than they are today: pacifism and women's rights. The pacifists fared better than the feminists

within the CCF, but even they were overwhelmed, as Woodsworth's lonely dissent to the Declaration of War in 1939 suggests. The cooperative movement got more concrete support from the CCF government in Saskatchewan, but as Ian MacPherson shows, it failed to become central to the government's strategy for economic development. In all three cases, but especially in the first two, the CCF was concerned to incorporate or co-opt these movements. This meant shutting out the Communists. (It is remarkable how many prominent CCF women were expelled for their Communist leanings.) In the labour unions, the struggle for hegemony between the CP and the CCF was particularly vicious, but similar struggles were played out in other social movements. In the process, the democratic socialist tradition seems to have been squeezed between the Scylla of the Stalinist CP and the Charybdis of the liberal CCF.

Economists will be disappointed that this book contains nothing in the way of economic analysis. Although the policies of the CCF government in Saskatchewan are described, no account is offered of their economic effects. Nor is there a comparison of the strategy pursued in Saskatchewan with those of non-CCF governments. The essays are almost all based on original archival research; perhaps as a result, the authors make little effort to theorize their findings, draw relevant comparisons, or examine other data. One result is that the pretensions of the CCF remain uncriticized.

On the whole, this book is a useful addition to the literature on the CCF/NDP. However, any further advance in our understanding of that party depends on breaking with the central myth that identifies the CCF/NDP with democratic socialism. The CCF/NDP may have done as much to

extinguish the democratic socialist tradition in Canada as they did to sustain it.

Warren Magnusson, Department of Political Science, University of Victoria.

Regional Economic Development: Canada's Search for Solutions. Donald J. Savoie, University of Toronto Press, Toronto, Ontario. 1986. (212 pp.) ISBN 0-8020-6614-3 paper bound, \$12.50 or ISBN 0-8020-2589-7 cloth bound, \$25.00.

Differences in the economic performance of Canada's regions, termed regional disparities, have been a national and regional problem since Confederation. Although regional disparities have always been on the political agenda, it was not until the late 1950s and early 1960s that regional development policy emerged as a conscience policy direction.

Regional Economic Development: Canada's Search for Solutions, provides a descriptive and analytical perspective of Canada's regional development efforts since the 1960s. The book also identifies policy and program direction and organizational requirements for future successful regional development policy.

The introductory chapter of the book sets forth the basic principles of regional development theory necessary for an appreciation of the remainder of the text. Given the multi-disciplinary nature and complexity of regional development theory, Savoie manages to present and explain concisely, concepts such as the growth pole approach, the development approach, the trade theory or comparative advantage approach and the neo-classical theory approach to regional development. The concepts of region and regionalism, as well as the nature of the importance of Federal/Provincial relations - translated as Federal/Provincial co-operation - are outlined.

Section II - titled The Efforts - deals with the formation of DREE as the organization charged with responsibility for regional development policy and with its numerous program and organizational manifestations. This part of the book is descriptive and provides the first published comprehensive documentation of the evolution of DREE and its successor DRIE. Within the context of the political and bureaucratic power structure, the interpersonal relations of key actors, the political and economic climate of the time, and Federal/Provincial relations, Savoie traces the decisions to adopt key organizational and program options for addressing regional development policy. From Ottawa's "take or leave it" approach with the provinces in the early period towards a centralization attitude based on Ottawa's concern for "public visibility" for its regional development efforts, Savoie is able to describe the reasons for numerous organizational, policy and program changes. A particularly important shift with regard to program delivery and the spatial distribution of funding was the shift from the early programs that targeted funds to slow-growth regions to broadly based programs that now cover 90 percent of Canada's land area and over 50 percent of the population. This policy and funding shift has

particularly important implications for a slow growth region, as noted by the author.

This section of the book profiles a rapidly changing Federal government policy emphasis with regard to regional development. The complexity and difficulty of defining workable and acceptable regional development policy while meeting both economic and political objectives is painfully obvious.

Using economic indicators for 1961-1981, Chapter 9 provides an assessment of Canada's regional development efforts. Three questions are posed for analysis: "What effect have these (regional development) expenditures had on slow-growth regions? What have we learned from the various initiatives? and, What are the implications of the recent re-orientation of federal regional development policy and programs?" Savoie's responses to these questions will provide both cynical and optimistic observers of regional development policy data for reflection. Clearly, the lessons learned are fundamental yet critically important. Savoie concludes that regional disparities still exist when examining the indicators of unemployment and per capita income.

In Chapter 10 however, the author poses two key questions: "Are we employing realistic indicators?" and, "Can Canada realistically hope to alleviate regional disparities, as defined by income and employment levels?" The author argues that it is "now clear that the goal of alleviating regional disparities is unrealistic" (p. 149) using standard income and employment indicators and suggests broadening the use of indicators. He then goes on to call for clearly defined and realistic regional development objectives as a basis for success.

The author's examination of future directions for a renewed Federal regional development policy initiative suggests a number of key ingredients. These include: a federal government thrust to integrate regional economies, the development of clearly stated objectives for national economic development and region level strategies, Federal incentives to counter interprovincial bidding for new industry, more effective use of a regional development fund with emphasis on cash grant incentives, a pro-active program stance by the Federal government, greater emphasis on local entrepreneurial opportunity and development, and the establishment of a Federal agency with a regional development mandate and authority to cut across jurisdictional lines. Among the author's suggestions is a Federal tax program which would allow individuals, residing in slow growth regions, to accumulate tax-free funds for business purposes.

Given the constantly changing and turbulent history of regional development policy in Canada, as well as the difficulties of achieving co-ordination among Federal departments and among the Federal government and the Provinces, one might wonder whether regional development policy is a utopian dream that may remain illusive in a complex socio-political hierarchy. I remain cautiously optimistic while at the same time providing support for Savoie's suggested policy thrusts.

This book is well worth reading. It should stimulate productive dialogue between Canadians interested in the regional development question. Regional Economic Development: Canada's Search for Solutions should be mandatory reading for Canada's decision-makers at the Federal and Provincial levels of government.

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