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Monetarism: Panacea or Perfidy?

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In the light of the deepening recession of 1982 the Institute for Social and Economic Research convened a group of distinguished economists to consider "Economic Policies for Canada in the 1980s". Over the course of two days, fourteen papers were presented examining all facets of macroeconomic policy. In addition, lively debate occurred late into the night between academics, students and government policy planners.

This monograph, one of a set of three, presents a number of papers and comments provided during the course of the conference. It is hoped that they provide economists and policy planners in the public private and academic sectors with a useful and stimulating reference as Canadians contemplate an "uncertain future".

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Monetarism: Panacea or Perfidy?

Edited by G. Mason

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1
Introduction and Overview

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As the title suggests, monetarism has come to mean a wide variety of things to different people. Some view it in its academic sense as a series of scientific propositions about the relations between changes in the money supply and aggregate price levels. Others take a broader policy perspective and include propositions about the ability of the central bank to actively control monetary policy. Finally, others sweep a broad corpus of propositions about the desirability of government withdrawal from policy intervention under the term monetarism.

The two essays in this monograph represent quite different approaches to the policy debate. In fact this debate between Tom Courchene and John McCallum has become quite familiar and dare one say - a classic?

Courchene begins with clarification on the various types of monetarism currently under discussion. On the one hand there is the strict adherence to a monetary rule, such as a target rate of growth for a specific monetary aggregate such as M1 or M2. On the other hand, he sees much of the recent policy followed by the Bank of Canada as an exchange rate policy, where interest rates are adjusted, through open market operations, to maintain a particular desired relationship between the Canadian and U.S. currency.

Courchene begins with what he feels was the rationale behind monetary gradualism and argues that the Bank of Canada had correctly diagnosed the disease in 1975 as one which involved deep rooted inflationary expectations in the population, that the rate of growth in the money supply was excessive and that one cannot simultaneously control interest rates, money supply and the exchange rate, and finally that the casual link ran from inflation to interest rates, not the reverse. Their intended implementation of monetary policy required a number of critical decisions, including selecting M1 as the target variable, using interest rates to control the demand side of the market for M1 balances and using a publicly announced policy of targeting money supply growth. So where did the Bank go wrong?

First, Courchene argues that the application of gradualism was mistimed. It was too slow in the initial stages of inflation (1975-78) and

recently has been far too restrictive. Second, the Bank has shifted from an interest rate based monetary policy to an objective of stabilizing exchange rates. Third, the specific definition of money and its control has been faulty. And finally, government policy in general has not complemented the fight against inflation.

A detailed examination is provided of recent monetary control experience and Courchene concludes with a number of observations on the future course of monetary policy in Canada. In particular Courchene argues that the Canadian economy was ill-prepared to deal with the wild interest rate gyrations of the late seventies and early eighties. Second, while monetary policy may be necessary and sufficient to defeat inflation, the cost to the real side of the economy (employment and output) will be very large unless fiscal policies are implemented to lend credibility to the anti-inflation fight. Third, the exercise will always lose credibility with the public unless the overall fiscal stance of the government is consistent with a tight monetary policy designed to fight inflation. Monetary policy cannot be expected to lower inflationary expectations in an environment of lavish wage increases in the public sector, and price increases for government services. Fourth, without some form of indexation to protect vulnerable sectors from interest rate fluctuations (i.e. the homeowner and small businesses) the inequities will continue to cause serious political problems. Fifth, no matter what policy is selected, there will be considerable debate; the task of monetary policy is intrinsically difficult. Finally, with recently announced changes in overall monetary stance, considerable uncertainty exists on the appropriate policy rules.

While Courchene finds fault with the mechanics of monetary policy as implemented by the Bank of Canada and validated by government in general, John McCallum has more fundamental disagreements. McCallum finds little disagreement with respect to the basic theory, and argues that the source of the difference in their approaches lies equally with interpretation of the facts and differing values.

The specific empirical issues which, according to McCallum, separate him from Courchene, are primarily differences in the factors influencing the supply and demand for money, especially the non-monetary influences on demand as well as exogenous shocks such as oil prices. While agreement on the empirical evidence may appear to be possible, it is quite likely that ultimately the course of disagreement lies with what exactly constitutes acceptable evidence. According to McCallum, Courchene appears to rely somewhat on "beliefs" rather than specific econometric evidence. Some particular estimates are presented of the correlation between the prime measures of money and their leads and lags, with the conclusion that M2 is a rather poor indicator of the money supply. Additional econometric evidence leads McCallum to the conclusion that "M1 is an unsatisfactory target variable, while the relationship between M2 and GNP, apparently stable over the past ten years, seems quite impossible to predict for the future."

McCallum next addresses the question whether fiscal policy has properly supported overall anti-inflation objectives. There are two major distortions which must be corrected before it is possible to accurately assess the true stance of fiscal policy. First, government deficits

must be adjusted to reflect what the overall budget balance would have been during normal activity; this is commonly referred to as the full employment surplus or deficit. The second adjustment is to convert the level of the deficit/surplus into constant dollars. Once these two adjustments have been made, the average budget balance over the 1970-80 period is actually zero; according to this calculation, the federal government has balanced its books on average prior to 1980. When the 1980-81 period is considered, and when Canada was entering into the worst recession since the Great Depression, the cyclically adjusted real federal budget was in fact positive. That is, the federal budget was in surplus. If the government wished to pursue a long-run balanced budget consistent with maintaining the economy at its natural rate of unemployment, then the 1970-80 period witnessed essentially correct fiscal policy, while the recent period has been perverse. If the objective is restraint, then the 1970-80 period is a failure while recent history has been more successful. The differences between Courchene and McCallum, appear to turn upon this particular value judgment about the goal of fiscal policy.

On the supply of money, McCallum identifies two main issues - the degree to which an economy can absorb exogenous price shocks, and the downward rigidity of wages and prices in the face of declining resource utilization. A number of OECD countries are compared and classified into three broad groups based upon relative labour market "slack" and other measures of labour market performance. The results of these classifications is that those economies with centralized bargaining (where national groups bargain on behalf of entire industries) had much greater success in controlling inflation than those with local autonomy in wage negotiations.

McCallum then considers the problems of credibility effects and the influence of Canada's resource base upon the inflation experience of the last decade. The paper concludes with a review of past policies and some conjectures for future policy. In the last regard, the reimposition of wage and price controls is suggested. In the final analysis, McCallum argues for structural and institutional solutions to the combined problem of unemployment and inflation, as opposed to reliance on monetary and fiscal policies.

Following the main essays are comments provided by Bill White and Doug Peters which throw additional detail and analysis into the debate. In addition, there is a short "primer" on Monetarism by Norman Cameron, essentially designed to provide an overview of the main issues which have characterized the debate.

2
Recent Canadian Monetary Policy: 1975-81: Reflections of a Monetary Gradualist*

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2.1 INTRODUCTION

"Monetary policy was the disaster area of the second half of the 1970's."[1] "[The] ... monetarist experiment of the central bank and the federal government appears to have been a colossal blunder."[2] This view finds some support in academic circles and certainly attracts widespread sympathy from the community at large. The purpose of this paper is to evaluate recent Canadian monetary policy in the light of these assertions.

At the outset, some clarification of terminology is required. I want to avoid the use of the term "monetarism" in what follows. In the eyes of many Canadians, monetarism is now a synonym for any and all restrictive monetary policy whether this tight money arises from strict adherence to a monetary rule or whether it arises from an exchange rate stance. Moreover, in daily conversation monetarism has also come to be synonymous with the overall range of government policies associated with the neo-conservative ideology. The imprecision in the public's mind about just what constitutes "monetarism" is best handled, in my view, by not utilizing the term. I will, however, use the term "monetary gradualism" to describe the set of policies initiated by the Bank of Canada in the fall of 1975. And I will attempt to distinguish this policy stance from the more recent policy approach of the Bank of Canada which I shall designate as an exchange rate strategy. No doubt some readers will find this terminology equally confusing and/or unacceptable. So be it. The overall thrust of the paper should nonetheless be clear -- to evaluate the Bank of Canada's policies over the period since 1975.

The first part of the paper will focus on the conversion, in 1975, to monetary gradualism and what this entailed. Attention will then be directed to the issue of whether or not this was the appropriate policy stance. I will argue that it was. Having thus accepted monetary gradualism as being appropriate I shall then proceed to evaluate the Bank's policy performance. This will constitute the bulk of the analytical section of the paper.

With inflation rates still in the double-digit range and with the unemployment rate a post-depression high, it is clear that something went wrong on the policy front. How much blame can be placed on monetary gradualism? How much on the manner in which the Bank chose to implement the philosophy? How much of the problem ought to rest with other policy levers? How much can be attributed to the volatility of the world economy? These are the sorts of issues that will dominate the analysis. The paper concludes with some lessons that we have learned, or at least that I have learned from the monetary policy experience of the last few years.

2.2 THE ADVENT OF MONETARY GRADUALISM

2.2.1 The Underlying Philosophy

Beginning in the fall of 1975 the Bank of Canada embarked on a new policy thrust which has come to be referred to as the "Strategy of Monetary Gradualism". The rationale relating both to the adoption of, and the theoretical foundation for, this new approach can be summarized as follows[3]:

1. A recognition that inflation was the principal economic problem and that in order to bring inflation under control it was absolutely essential to control the rate of growth of monetary expansion. More importantly to reduce inflation, it is necessary to reduce the rate of monetary expansion.

2. A related recognition that over the previous few years the rate of money growth was excessive and that, as a result, the pace of wage and price inflation became correspondingly excessive.

3. Because these inflationary expectations were deep-rooted and unlikely to be unwound immediately, it would be inappropriate to bring the rate of money growth down in one fell swoop from the excessively high level in 1975 to the desired longer-run level. This would be the right medicine, but too strong a dosage, to use Governor Bouey's analogy. Therefore, it was felt that money supply growth should be lowered gradually but firmly. Once the private sector became convinced of the Bank's determination to follow through with this gradual deceleration of the pace of monetary expansion, this would serve to unwind expectations and at the same time allow for reasonable real income growth. It is this aspect of the Bank's approach to policy that gives rise to the name "monetary gradualism."

4. Economic theory suggests that one cannot exercise control over the rate of monetary growth and at the same time peg interest

rates at a given level. Interest rates must be left free to adjust in order for the money supply growth targets to be met. This was explicitly recognized by the Bank of Canada in 1975. "We cannot aim simultaneously at two targets with one gun."[4] And it was clear that the Bank's sights were riveted on the money supply.

5. Much the same applied to the exchange rate. Pegging the exchange rate in a small, open economy implies that the policy authorities must forfeit control over the rate of money growth. Since this would be completely inconsistent with the overall policy thrust, the Bank of Canada has to take a rather agnostic approach with respect to exchange rate movements in order to achieve its internal money growth target. This, too, was explicitly recognized by the Bank in 1975.

6. The Bank went much further into the realm of economic theory by asserting (correctly, in my opinion) that, over the longer term, high rates of money growth and, therefore, high rates of inflation cause interest rates to be high, and not the reverse. However, in the process of gaining control over the rate of money growth, interest rates would have to rise temporarily. Over time, as the impact of this lower money growth curtailed inflation, interest rates would fall to lower levels because the "inflation premium" embodied in nominal interest rates would fall correspondingly.

7. Finally, the philosophy behind monetary gradualism was to provide not only for a progressive lowering of money growth but also for more stability in these growth rates. This would serve to create a better planning framework for private sector decision-makers.

This summary is my interpretation of the salient features of the economic rationale underpinning the Bank's adoption of monetary gradualism as an approach to charting policy. The purpose of the policy was to reduce inflation. In turn, low and stable rates of price increase were deemed to be a necessary prerequisite for achieving an even more important goal -- namely, an economy that performs effectively in terms of generating high employment and rising real income.

2.2.2 Making Gradualism Operational

Adopting an underlying stance for the conduct of monetary policy is only the first step in an overall design and implementation strategy. The second step is to make the philosophy operational, and this embodies a broad range of rather critical decisions. The purpose of this section is to detail the manner in which the Bank chose to implement monetary gradualism. Once again, it is convenient to proceed in summary form:

1. The monetary aggregate that the Bank chose to control was M1 - namely, currency outside banks plus chartered bank demand deposits.

2. M1 was to be controlled via alterations in short-term interest rates. For this control procedure to function effectively, there must be a rather tight and negative statistical relationship between short-term interest rates, on the one hand, and the public's demand for M1 balances, on the other hand. Accordingly, the Bank has devoted a great deal of time and effort to estimating an empirical relationship linking the demand for money to variables such as GNP and short-term interest rates -- that is, to estimating a demand-for-money function. In response to higher interest rates the public will demand a smaller quantity of M1 balances. The coefficient relating to interest rates in the demand-for-money equation provides the Bank with a quantitative estimate of this negative relationship.

3. Note that the use of interest rates as a control mechanism implies that the Bank is controlling M1 by attempting to influence the public's demand for these balances. It is not controlling money by focusing on the quantity of cash reserves made available to the banking system. Indeed, it is probably correct to assert that the Bank is freely accommodating the chartered banks' demand for reserves. In other words, the Bank is controlling money by attempting to influence the demand side rather than the supply side of the market for M1 balances

4. Target rates of M1 growth are to be enunciated. These target ranges are to decrease gradually over time. Initially the target range was set with 10% growth as the lower bound and 15% growth as the upper bound. In 1976 the growth bounds were lowered to 8% and 12%, respectively. Currently they stand at 4% and 8%. The range is chosen so as to put continued downward pressure on wage and price expectations while at the same time allowing for acceptable levels of real growth. To see how this works, let us present a simplification of the mechanics that the Bank would go through. Suppose that the "acceptable" level of real growth over the next year is 4% and that the Bank is willing to accommodate an inflation rate of 6%. If the real income elasticity of the demand for real M1 balances is .75, this implies a real M1 growth rate for the year of 3%. To this must be added the 6% inflation growth, so that the overall nominal M1 growth rate is 9%. (This assumes that the demand for nominal balances is homogeneous of degree one with respect to prices. This is a standard assumption that follows from the postulates of economic rationality, and it has received considerable empirical support). With M1 and income -- Y -- plugged into the demand function, the equation is then used to solve for the level of the short-term interest rate that is consistent with the assumptions relating to income and M1. The Bank then implements this interest rate.

5. If M1 then exhibits a higher rate of growth than desired, and particularly if money growth is above the target range, the response will be to raise interest rates in order to curtail the rate of money growth, and vice versa if the existing rate of M1 growth is falling below the target range.

6. There is one important exception to this operating procedure that the Bank appears to be observing. If the rate of money growth overshoots (undershoots) the target range solely because of an upward (downward) shift in the demand-for-money function, then no corrective action need to be taken by the Bank of Canada. This is so because, in the case of a downward shift, for example, a smaller level of M1 balances will now support a given level of GNP. If the Bank were then to reduce interest rates in an attempt to nudge M1 back up into the target range, the result would be an excessive M1 growth rate. The correct Bank response in this situation would be a reduction in the target range. One example of this was the 1975 postal strike which drove M1 balances well above the upper bound of the target range. The Bank took no action to prevent this, since experience with previous postal strikes indicated that they resulted in a temporary increase in the public's demand for M1 balances.

7. This implies, therefore, that pursuing a monetary growth rule is not identical to setting the money supply on "automatic pilot", so to speak. The Bank must be ever-vigilant to ensure that the underlying parameters in the demand-for-money function have not altered.

8. Finally, it is important to note that this control procedure is not necessarily inconsistent with the theoretical proposition that the Bank of Canada cannot at the same time control both interest rates and the money supply. At each point in time the Bank is, in effect, setting interest rates. Therefore, at each point in time the rate of money growth is determined by the public's demand for it -- not by the Bank of Canada. However, because the Bank monitors the money growth rate at frequent intervals and readjusts its interest rate setting accordingly, over the longer term, interest rates are indeed endogenous and the money supply is ultimately under Bank of Canada control. Nonetheless, as will be noted below, this may result in larger swings in M1 growth compared with a situation where the Bank acted to control M1 directly by actively managing the reserve base and allowing interest rates free reign to find market clearing levels consistent with the desired money growth.

This then is my interpretation of the Bank's policy thrust and its implementation procedures associated with the strategy of monetary gradualism.

2.3 HAS MONETARY GRADUALISM FAILED?

Seven years have now passed. The monetary targets have been successively lowered over the years. M1 is currently running at a level that is beneath the 4 - 8% target range. Thus it can be argued that this part of the Bank's policy has been implemented effectively. However, inflation is still in double digits (although it has decelerated markedly in recent months), nominal interest rates are still high (although they too have dropped drastically), and unemployment is close to being double the 1975 rate. Something clearly went very wrong or so it would appear. On the surface the obvious answer is that monetary gradualism has been a failure both at a theoretical and practical level. The remainder of the paper is addressed in one way or another to this issue. At the more general level, the analysis will focus on the adequacy of the Bank's overall policies and within this framework attention will also be directed toward an evaluation of the Bank's performance with respect to the announced strategy of monetary gradualism. To anticipate the analysis somewhat, I will single out three areas where the Bank of Canada's policy fell short of the mark over the post-1975 period and one more general area where overall Canadian policy worked against the success of a strategy to unwind inflation:

1. Monetary policy, as implemented by the Bank of Canada, was for the first several years much too gradual and over the last year or so much too restrictive.

2. The Bank undermined its own monetary gradualist approach by elevating exchange rate considerations to the level of a policy goal. An explicit adoption of an exchange rate target for monetary policy can be a rational approach, but efforts in this direction beginning in the 1980's (and perhaps as early as 1978) were scuttled by the on-going policies on the fiscal side.

3. The Bank's definition of money and its control mechanism have hampered its performance.

4. The other government policy levers have failed to provide a meaningful support role in the Bank's anti-inflation fight.

It can be argued that the role of government should be taken as exogenous to the conduct of monetary policy and that the Bank of Canada's activities should be evaluated within this given framework. In what follows, I reject this frame of reference. One of the principal conclusions of the paper is that the government actions on a variety of fronts were very detrimental to the fight against inflation. Indeed, any attempt to provide an overall assessment of the Bank's recent performance might better be viewed against the backdrop of what the current state of inflation and inflationary expectations would be if Bank of Canada policy were conducted in a manner that had accommodated the on-going fiscal stance.

Before embarking in more detail on this evaluation it is necessary to address a prior challenge by the critics of monetary gradualism, namely that not only has gradualism failed but (as well) it was inappropriate in the 1975 environment as well. To this issue I now turn.

2.4 WAS MONETARY GRADUALISM APPROPRIATE IN 1975?[5]

As I read the critics[6] of the Bank's gradualism stance their argument is that the move toward more restrictive monetary policy generated, by 1976 hitherto unprecedented levels of Canadian rates of interest relative to those south of the border. This had the effect of artificially maintaining our dollar at an unrealistically high level which in turn a) delayed the recovery in Canada's competitive position vis-a-vis the U.S.A., b) contributed to a worsening of the current account of the balance of payments and c) contributed in increasing the federal deficit as revenue growth fell in the face of high unemployment and interest rates. More fundamentally, the critics challenge the Bank's view that easy money in the post-float period served to trigger the mid-1970's double digit inflation. Rather:

> the rise in inflation (in the first half of the 1970's) should be ascribed ... to a series of misfortunes on the supply side superimposed on a long term trend towards higher prices of basic resource goods. In the absence of these supply factors, there is no reason to believe that the expansion of the early 1970's would have led the world into double-digit inflation[7].

Having thus questioned the monetary underpinnings of the inflation the authors go on to assert that, when it comes to fighting inflation, monetary policy probably does not have a comparative advantage over fiscal policy since high interest rates discourage investment thereby curtailing growth and productivity which may over the longer term aggrevate inflation[8].

I have a very different interpretation of the first half of the 1970's than do these authors. However, one has to grant that many of the observations they make are true. For example, the move to monetary gradualism in 1975 did serve to establish the Canadian dollar at a level above that which would have prevailed if the on-going policy of monetary ease had continued. Moreover, the presence of supply shocks in the resource and agriculture sectors does pose more difficult problems for policy makers in an economy which is small, open, and resource based (such as Canada) than in a large and relatively closed economy (such as the U.S.). The fact that these external price shocks also redistribute income between the center and the west of this country complicates further the policy response[9]: to aim for zero inflation in this environment is to argue for declines in prices elsewhere in the system to offset the resource price increases. Thus, some monetary accommodation was probably in order, but not to the extent where the Bank generated rapidly falling and negative real interest rates over 1973 and 1974.

Now that I have begun to challenge the critics of monetary gradualism, it is appropriate to do so in a more structured manner. First of all, I think that one can make an excellent case that world inflation expectations triggered these resource price increases so that they were not independent of the global inflation. Nonetheless from the standpoint of a small open economy they probably can be so viewed. But to argue that double digit inflation was a direct result of these exogenous shocks is to argue that it is those countries which absorbed fully these price shocks (e.g., the German, Swiss and Japanese) that should be the high inflation countries and not Canada, where domestic energy prices were only half the world level. Yet the opposite occurred, indicating that resource shocks need not dominate the picture as far as domestic inflation is concerned.

This does not imply that resource shocks played no role in the early 1970's inflation. They did generate substantial relative price changes within Canada. But what converted these relative price movements into generalized inflation was the expansionary monetary stance followed by the Bank. From the floating of the dollar in the second quarter of 1970 until the imposition of controls in the fall of 1975, rates of M1 and M2 growth were consistently in the 'teens -- indeed M2 growth rates never fell below 10% for these 22 quarters and for most of the period averaged above 15%. Corresponding to these high rates of money growth was a dramatic fall in real interest rates, measured as the prime rate less the rate of increase in the CPI -- 4.2% at the end of 1970; 3.1% for 1971; .1% for 1974 and -.5% for 1975. Were one to utilize industry selling prices rather than the CPI to calculate real interest rates the measure for 1974 would be close to -10%, since industry selling prices increased by 20% and the prime rate moved between 9 and 11%.

In such an environment it is not surprising Canada was able to record some real income growth over 1974 and 1975 while on average the rest of the industrialized world experienced declines in real output. Corresponding to this monetary expansion was an equally inappropriate set of signals emanating from the fiscal side. Euphoria might be too strong a word but there was a prevailing optimism that the rising world price of energy would place Canada in a privileged economic position vis-a-vis her trading partners both in terms of access to supply and in terms of a competitive advantage arising from the low domestic price. Coincident with all of this was the decision by Ottawa to index the tax and transfer system and to argue for the indexation of wages generally, which conveyed the notion (mistaken in my opinion) that the energy price-increase was just another price change that ought to be indexed fully. This was the beginning of the succession of on-going policies on the fiscal front that encouraged Canadians to harbour an unrealistic set of expectations relating to what they could extract from the system. Buoyed by the very substantial real income growth over 1972 and 1973 (due in part to the increase in our terms of trade) and encouraged by the poor timing of the self-imposed wage hike for MP's, compensation demand spiralled upward -- 7.8% in 1971 to 10.9% in 1973 to 19.2% in early 1975. By mid-1975 there appeared to be a tapering off of private sector wage settlements but this was more than offset by large non-commercial-sector demands, including those of many high-profile public sector un-

ions. It is against this backdrop that one has to evaluate whether or not a move toward monetary restraint was appropriate in 1975.

Indeed, monetary restraint was called for much earlier than 1975. Excessive monetary expansion and negative interest rates were serving to maintain and heighten these inflationary expectations. Somewhere, somehow, the inflation spiral had to be broken. This was the central message of the Governor's Saskatoon speech in September of 1975. Noting the wage and salary settlements were running at or near 20% over 1975 he observed:

> It appears that for the most part employers have been passing these increases on to consumers in the form of sharply higher prices, and that all concerned act on the assumption that they will continue to be able to do so.
>
> If one reflects on this situation in the light of the present levels of unemployment and unused productive capacity, one cannot help but wonder what is going on here. In our economic system the basic control over the level of prices is and always has been the willingness of the market to pay them. It is obvious that improved productivity can offset very little of the cost of current wage and salary increases since the long-term average increase in output per worker in this country is only 2 1/2 percent per annum. In many cases, in fact, those involved in both the private and public sectors seem to be incurring costs at rates that foreshadow an accelerating increase in inflation. How is that expected to work? Are fiscal and monetary policies being counted on to be sufficiently expansionary to accommodate an accelerating increase in costs and prices? Is the central bank expected to create enough money to finance whatever rate of inflation emerges?"[10]

The advent of monetary gradualism represents a determined effort by the Bank to ensure that this situation would not be permitted to continue. I argued for such an initiative at the time and hindsight has not altered my view.

Yet the critics of the move to monetary gradualism point out that monetary policy became too tight too quickly, as evidenced by the roughly four percentage point differential that arose in 1976 between short term rates in Canada and the U.S. However, it is critically important to recognize fully the precise implications of what they are saying. It is true that Canadian short-term rates rose relative to U.S. short rates over 1975 and 1976. But this was due principally to the fact that U.S. rates tumbled and not because Canadian rates increased. This is evident from Table 1. Canadian treasury bill rates did in fact rise by a percentage point or so compared to their levels at the end of 1974, but 90-day commercial paper rates in Canada actually fell over the '74-'76 period. The interest rate differential was, therefore, generated principally by the substantial decrease in U.S. short-term rates.

To argue against the emergence of the interest rate differential is, therefore, to argue that Canadian interest rates should have followed

TABLE 1

U.S. and Canadian Short-Term Rates
End of Year

	Treasury Bill Rates		90-Day Paper Rates	
	Canada	U.S.	Canada	U.S.
1974	7.12	7.34	10.25	9.60
1975	8.64	5.34	9.34	5.78
1976	8.14	4.41	8.16	4.75

Source: Bank of Canada Review (April, 1977), Table 20.

the downward movement in U.S. rates. In turn this would have required an even more expansionary monetary policy than that which characterized the '72-'74 period and it would have generated an even larger negative real interest rate. The two countries were in a very different phase of the cycle. The American economy had just been put through the recession wringer and the nightly news stories of lineups at gas pumps brought the reality of the energy crisis home to the average citizen. Not so in Canada. Fueled by easy money and rising expectations we were saddled with wage demands in mid-1975 that exceeded 20% per annum. To gear monetary policy so as to replicate the dramatic fall in U.S. interest rates would, in my opinion, have been the worst possible monetary scenario. Moreover, any interest rate comparison between Canada and the U.S. ought to be carried out in terms of real rates, not nominal ones. Over 1975 and 1976 the U.S. inflation rate was considerably below that in Canada so that a higher nominal rate in Canada does not imply a tighter monetary policy.

There is, of course, some truth to the claim that this interest rate differential led to the temporary appreciation of the Canadian dollar. Part of this appeared to represent what I can only describe as peculiar behaviour on the part of foreign investors, i.e., a "parity" syndrome that a dollar is a dollar regardless of national origin. Any longer term perspective would have pointed in the direction of a falling not a rising Canadian dollar. For example, from a position in 1969 where unit labour costs in Canada and the U.S. (both expressed in U.S. dollars) were arbitrarily set equal to 100, by 1975 the Canadian index exceeded the American one by 25%. On this score the Canadian dollar was clearly overvalued by 1973, let alone 1975.

The major factor in the appreciation of the dollar in 1976 was that net long-term capital inflows mushroomed from roughly 1 1/4 billion in 1974 to 10.8 billion in 1976. However, it is important to note that

much of this was issued in foreign pay so that (much to their regret), Canadian borrowers, not foreign lenders, absorbed any exchange rate risk. Finally, it is not obvious that anything short of incredibly easy monetary policy could have paved the way for a fall in Canadian rates. Domestic lenders would simply not be willing to part with an additional $9 1/2 billion of savings (assuming that these long-term inflows were to be financed domestically) at rates less than the on-going inflation especially if it were perceived that monetary policy was accommodating the underlying inflationary expectations in the economy.

This has been a rather lengthy analysis of the pre-1975 period and the Bank's decision to opt for monetary gradualism. However, it merits considerable attention because of the conflicting views of what it was that exactly ailed the economy over this period and what constituted the appropriate prescription. I have argued that the Bank's conversion to monetary gradualism was the appropriate policy stance in 1975. This argument is essential to the remainder of the paper, because, contrary to most of the critics of the Bank of Canada, I shall put forth the proposition that the post-1975 problems with monetary gradualism related primarily to the fact that the implementation of the policy at least until 1980 erred more on the side of monetary ease than monetary restraint.

2.5 EVALUATING MONETARY GRADUALISM: 1975 - 80

In my view the Bank's policy of monetary gradualism fell on bad times largely because the policy stance lost credibility with Canadians. For those among us who do not accept the premise that monetary gradualism was appropriate in the first instance, this is obviously a rather empty claim. However, as noted above, I endorsed the principles underlying gradualism so that the issue at hand becomes one of isolating those elements, endogenous or otherwise, that lead to its partial undoing. The four areas where policy implementation fell short of the mark have already been highlighted and I want now to deal briefly with each in turn.

2.6 MONETARY GRADUALISM WAS TOO GRADUAL

Far from being a policy that was too restrictive, monetary gradualism turned out to be too gradual and the rate of money growth was not reduced with anywhere near the discipline required in order to unwind inflationary expectations. The episode that stands out most clearly in this regard is the period mid-1977 to mid-1978. This was the time-frame in which the Bank of Canada alerted Canadians there may have been a permanent downward shift in the demand for M1 balances (Estimates of this downward shift run anywhere from 3 to 6 percent. A recent unofficial estimate from a central banker appears to put it at the top of this range) [11]. With M1 running for several months below the lower bound of the target range, the Bank hinted that the correct response might be a once-and-for-all lowering of the base level of M1 for anchoring the target range. Instead, however, the Bank generated a series of interest rate decreases until M1 not only came back in target but hit the upper

bound of the target range. Corroborating this policy of monetary ease was the fact that over this period the real rate of interest became negative once again. There is precious little hope of unwinding inflationary expectations in an environment where the annual CPI increase exceeds the prime lending rate! This is questionable policy at best of times but to generate negative interest rates during a period of controls, which were specifically devised as a crutch to enable expectations to be unwound more quickly, surely is the height of folly. On several occasions recently the Bank of Canada has admitted that policy erred on the side of monetary ease during this period[12].

Between 1978 and 1980 it is somewhat more difficult to make a case that monetary policy continued to be too gradual. However, one piece of evidence on this score relates to the fact that, corrected for interest rate variations, the rate of M1 growth over the five-year period 1975:II to 1980:II was consistent with providing monetary stimulus at an annual rate of 12%. This was the effective midpoint of the original target range and, thus, can hardly be labeled as restrictive particularly since one also has to take into account the many technological innovations that undoubtedly have increased M1 velocity beyond that occasioned by rising interest rates.

Even though money growth remained within target the variations in this money growth were anything but conducive to having agents revising their expectations downward. In each of the four years 1977 to 1980 there was a marked and rather prolonged acceleration in M1 growth. For example, the 1980 expansion lasted five months and embodied a 26% annual rate of growth over this period. This is a veritable monetary explosion and it is bound to have a marked impact on citizens' expectations of future inflation. On this issue I obviously disagree with the Bank when it argues that what is important is not the pattern of growth over shorter time (e.g. a four to six month period) but rather the longer term monetary trends. Perhaps this might be the case if Canadians have full confidence in the commitment and the resolve of their policy makers to wrestle inflation to the ground?[13] As will be pointed out below, however, the fiscal arm of overall policy does not even have faith in the Bank's policy so it is little wonder that private sector agents are sceptical. This being the case, volatility does matter, even over the shorter term. A market participant living through a five-month period where money is growing at 26% per annum and not knowing whether or not the expansion will continue would be unwise not to incorporate this information in the formation of inflationary expectations.

It might be argued that since M1 has remained essentially in target, any rapid escalations in money growth must have been offset by equivalent decelerations in monetary growth so that the net effect on expectations of these movements should be nil. I think that the answer here is 'no'. In a period of high and/or rising inflationary expectations it is much easier to ratchet these expectations upward yet another notch than it is to unwind them. This is particularly the case since the periods of declining money growth were typically associated with supporting the value of the dollar so that the potential impact on inflationary expectations of these decelerations was considerably muted. Overall, then, the recurring pattern in each of the four years 1977 to 1980 where the

economy was put through the interest rate wringer only to be followed by periods of rapid monetary growth was not, in my opinion, conducive to unwinding expectations even if, on average, M1 remained in the announced target ranges.

A further aspect of the argument that monetary policy erred on the side of ease relates to the behaviour of the broader aggregates. Charts of the monetary base and for M2 (defined here as currency outside banks plus all Canadian dollar chartered bank deposits) indicate rising rates of growth roughly coincident with the upswing of inflation over 1978-80. This represents a serious problem because in many quarters M1 is believed to be too narrow an aggregate and, correspondingly, expectations of future inflation are based on the movements of these broader aggregates. If a large part of the role of monetary gradualism is to influence expectations and if the general public is split between favouring narrow aggregates and favouring broader ones then this divergence poses a very critical obstacle for the success of the policy.

In short, over the period 1975-80, the Bank did not pursue monetary gradualism with anything like the discipline that was needed to unwind the entrenched expectations. The reader is asked to note the precise meaning of this statement. It is not that the Bank was profligate in printing money. Far from it. It did reduce the targets and M1 growth with them. But the offsets, whether in the form of downward M1 demand shifts or external shocks or whatever, were such as to undermine the desired degree of restraint. Yet, sooner or later the policy would begin to bite, and bite hard. As I noted in my C. D. Howe study it can be argued that meaningful monetary gradualism over 1975-80 was not really attempted. In its place Canada would, I argued, see monetary abruptness or the cold turkey approach to policy over 1981 and 1982 if the Bank of Canada adhered to its targets[14]. The fact that the targets were abandoned over 1981 and M1 was forced well below the lower bound served to make monetary policy even more restrictive, as will be highlighted later in the paper.

2.7 ELEVATING EXCHANGE RATES TO THE LEVEL OF A POLICY GOAL

Beginning in 1978 the Bank of Canada began to place more and more emphasis on generating an "acceptable" level for the exchange rate and, therefore, for domestic interest rates, and correspondingly less emphasis on money growth per se. From the point of view of the underpinnings of the strategy of monetary gradualism this was a surprising development since only three years before the Bank explicitly proclaimed that movements in rates of interest and rates of exchange would have to be free to find their market levels consistent with the pursuit of monetary targetting. From a doctrinal standpoint one can argue that this move effectively spelled the end of monetary gradualism. If one is evaluating the Bank's track record during this period, an emphasis on the exchange rate is just another policy to throw into the hopper. However, if one is evaluating the performance of monetary gradualism this switch in emphasis is quite significant since, despite what the Bank may now claim to the contrary, an exchange rate focus is, in my opinion inconsistent with the strategy of gradualism[15].

Dealing with this latter point first, the Bank's rationalization of Bank Rate changes in terms of exchange rate considerations dealt a severe blow to monetary gradualism. Prior to 1978, even if monetary policy was not as tight as it should have been, the Bank had the confidence of Canadians in its endeavors. Financial analysts were providing valuable assistance to the Bank by preparing for their clients charts of money growth relative to target. There was a genuine belief across large segments of the Canadian population that the Bank would stick closely to its money growth commitment and that inflation could be licked. However, once the Bank began to focus on the exchange rate, this asset was eroded substantially. Analysts quickly and correctly realized that fixing the exchange rate meant that what was occurring in the U.S. was more important to predicting the future of Canadian monetary events than what was happening within Canada. The "made in Canada" concept of monetary policy, so well established in 1975, was now seriously questioned and it is a large part of the reason why the policy of monetary gradualism lost much of its credibility.

Relatedly, gearing interest rate changes to exchange rate considerations tended necessarily to politicize both interest rates and exchange rates, thereby making the implementation of gradualism more difficult. This was true both in a practical sense because these variables now became the focus of policy and became much more sensitive politically to any changes in their levels and in a theoretical sense because the public's focus is diverted away from money growth and riveted instead on interest and exchange rates.

In terms of overall policy, it is easy to make a case for an exchange rate approach to monetary policy. If the behaviour of the world economy is likely to be more stable than one's own economy or if the needed internal monetary discipline can be more easily exerted from the external sector via a fixed exchange rate, then an exchange rate focus is probably desirable. However, 1978 was not a particularly good year for Canadians to tie their fortunes to the American economy. Annual inflation rates in the U.S. went from 7.7% in 1978 to 11.3% in 1979 to 13.5% in 1980 -- hardly the time frame to be pursuing an exchange rate strategy and importing U.S. inflation.

It also seems to me that the highly volatile movements in domestic interest rates and money growth over the 1978-80 period can be laid at the feet of this increasing exchange rate concern. It is certainly the case that the three rapid-fire interest rate increases (late 1978 - early 1979, late 1979 - early 1980, late 1980 - spring 1981) were rationalized largely if not exclusively in terms of propping up the value of the Canadian dollar. But preceding each of these interest-rate spikes was a period over which the money supply was allowed to grow very rapidly. More importantly, each of these episodes of rapid money growth was initiated when the exchange value of the Canadian dollar was strengthening. Thus the Bank was operating on both sides of the exchange rate -- raising interest rates when there was downward pressure on the dollar and flooding the system with money when the exchange rate was under upward pressure. These wild swings in Canadian rates of interest and money growth (which mirrored the patterns south of the border because of the Bank's exchange rate stance) have quite correctly been singled out by

the Bank's critics as very inappropriate policy. The point I am making is that these swings ought to be linked more to the Bank's concern over exchange rates than to anything that would be inherent in a consistent policy of monetary gradualism.

As a final comment, it is important to point out that the Bank's initial move toward placing more emphasis on the exchange rate was probably related to the measurement problems that were besetting M1 over the 1977-78 period, particularly the downward demand shift highlighted earlier. In a word, the movements in M1 were not providing the Bank with a reliable policy gauge. If one assumes a) that the Bank recognized, by 1978, that its policy was erring on the side of monetary ease and b) that the Bank had not regained sufficient confidence in interpreting the patterns in M1, then the policy of raising interest rates to keep the dollar from falling can be viewed as an attempt by the Bank to ensure that its policies embodied more restraint than was hitherto the case. It is hard to fault the Bank for this move given that it made the earlier mistake, alluded to above, of not lowering the target range for M1. Whatever the initial rationale, once the Bank persisted with this stance it inherited the costs. Now that I have broached the problems associated with the definition of money, it is convenient to focus on them in more detail.

2.8 THE CONTROL AND DEFINITION OF MONEY

2.8.1 Defining Money

The third general area where I believe that the Bank's performance has been less than adequate relates to the definition of money and its method of control. Dealing first with the former, I think that it is fair to say that no definition of money is likely to hold for all time and all places. There will always be a margin of substitutability between those assets that fall within the purview of the definition and those which fall outside. However, this problem appears to be particularly severe for M1. The definition of the narrow aggregate in Canada is considerably smaller (as a proportion of GNP, for example) than that in the U.S. In addition, several important financial innovations influenced the degree of confidence one can place in the movement of M1 over this period:

1. the move by the chartered banks toward eliminating "compensating balances" as payments for services rendered and the resulting tendency to marginal-price banking services. This reduces the demand for M1.

2. the move by chartered banks, following developments in the U.S., toward managing the corporate cash of their larger customers. This could take the form of clearing all non-interest-bearing deposits into interest-bearing ones on a nightly basis.

3. the tendency, as interest rates rise, for corporations to pay more attention to their cash flow, including the hiring of professionals to manage their cash. Once in place, these systems are not likely to be scrapped as interest rates fall back. What this implies is that there may well be an asymetrical relationship between the demand for M1 and interest rates, e.g. as interest rates rise corporations will institute cash economizing procedures which will remain in place when rates fall back.

4. technical innovations such as the Bank of Montreal provided for Sun Life whereby the company has the ability to switch deposits instantaneously among its various accounts.

5. financial innovations such as the T.D.'s new "all-in-one" account which allows full chequing privileges if a minimum balance is met but which is not included in the definition of M1.

6. measurement error associated with the rash of new chartered banks which was so problematical that the Bank suspended the publishing of seasonally adjusted M1 for several months earlier this year.

In principle these problems are not insurmountable if the problem arises from a mis-specification of M1 -- the equation for the demand for M1 could be respecified or re-estimated to take account of the modifications in M1. In practise, however, the story is quite different. It is incredibly difficult to isolate, with any degree of precision and within the required time frame, the many sorts of factors that are influencing the public's demand for M1 balances. Moreover, if the basic structure of the relationship has been altered, some time must pass before enough evidence can accumulate in order to model the structural shifts. In response to some of these same concerns the U.S. has redefined its monetary aggregates. One new aggregate that was introduced is M1B, defined to include currency and demand deposits plus all interest-bearing chequable deposits at all deposit-taking institutions, including negotiable orders of withdraw (NOW) accounts and automatic transfer services (ATS). The Bank has not as yet followed suit although on many recent occasions the Governor has alerted Canadians to the many defects that are associated with the present M1 measure.

As noted earlier this is contributing to the erosion of confidence of Canadians in the policy of monetary gradualism. It is not uncommon to find analysts asserting that M1 is a progressively problematic monetary variable[16]. In early 1981 the Bank reduced the M1 target range to its current 4 - 8% range. This should have made headlines across the country because it implied a more restrictive money growth policy than we have ever had. Even if money grew at the top of the range, the growth in nominal income that it would permit was not sufficient to accommodate on-going current inflation rate, let alone any real growth. Yet this announcement attracted but scant attention from the financial press. Either they are a woefully inadequate lot or they simply do not believe that M1 is the most appropriate definition of money. Or perhaps they do not believe that the Bank can keep its 4 - 8% targets. Or perhaps they

perceive monetary policy as being dominated by what happens in the United States. Whatever the case, the Bank is in difficult straits if its most significant target range reduction to date is effectively ignored by the financial community. And part of the problem lies with its definition of money.

I believe that the definition of the preferred monetary aggregate must be broadened. However, I also believe that the Governor is correct when he points out that a very broad definition (e.g. including currency and all Canadian dollar chartered-bank deposits) also suffers from serious measurement problems. One impact of the current inflation has been to wipe out much of the longer term debt markets, a good deal of which now goes through the banks. Thus movements in a very broad measure could also be misleading because they would incorporate pure intermediation shifts. Nonetheless, the definition of M1 should be extended to include chartered bank deposits that are close substitutes for M1, such as all deposits that are chequable (unless the strict notice provision is adhered to), deposits that can be transferred automatically into demand deposits and, on the corporate side, deposits that are temporary interest-bearing repositories for chequing accounts. This should solve two of the more serious problems currently besetting M1, namely the tendency for financial innovation to undermine the meaning that can be attached to movements in the aggregate and the perception on the part of the public that the current aggregate is too narrow.

2.8.2 Controlling Money

Turning now to the monetary control mechanism, the Bank of Canada has opted to control its chosen aggregate indirectly (by manipulating interest rates and operating on the demand side of the market for money) rather than by a more direct mechanism (by operating on the reserve base of the banking system). For an interest-rate control mechanism to work efficiently it is essential that the monetary aggregate be very interest sensitive. In turn this means that the Bank will prefer the narrow aggregates since it is only these that have a stable, statistically significant, and negative relationship to the general level of short-term interest rates. Indeed, I have long argued that it is the Bank's determination to pursue an interest-rate control mechanism that leads it to prefer M1.

There are problems associated with this method of control. First of all, it is going to become more difficult, if it has not already become so, to pursue interest-rate control. Basically, movements in short-term interest rates increase the opportunity cost of M1 balances because these balances bear no interest. But this is changing. Banks are now competing aggressively for the large blocks of demand deposits, even to the point of offering interest payments. Although these rates are below market levels, if they move in lock-step with short rates then increases in short rates will no longer increase the opportunity cost of holding demand deposits and the effectiveness of interest-rate control will be severely circumscribed. I see this as further evidence in favour of moving toward base control.

At the philosophical level, interest rate control has impeded the public's understanding of the thrust of monetary gradualism. Almost by definition, interest rates tend to be politicized since the Bank's role is to set these rates periodically. When the Bank goes the next step, as it did in 1978, and begins to justify interest rate changes in terms of their impact on the exchange rate this also politicizes the exchange rate. This focuses the public's attention on precisely the wrong variables, since it is the money supply and not rates of interest or rates of exchange that the Bank wants to control. In contrast, reserve control of the money supply places emphasis on the rate of money growth -- precisely where it belongs if one is following a strategy of monetary gradualism since interest rates and exchange rates must be the by-product of market forces. In a very real sense the medium is the message. The Bank would have generated far greater public understanding for its policies had it adopted reserve control.

2.8.3 Overall Government Policy Did Not Join the Inflation Battle

The final problem associated with the strategy of gradualism, and probably the most critical of the four, is related to the role in the fight against inflation played by the range of other government policy levers. In the course of addressing a recent Ontario Economic Council conference, U.S. professor Barry Bosworth resurrected a theme that crops up frequently in the context of dealing with inflation:

> Inflation has often been described as anywhere and everywhere a monetary phenomenon. Furthermore, because the supply of money is controlled by governments, inflation can also be described as anywhere and everywhere a political phenomenon[17].

Bosworth goes on to argue that, in the context of a market economy, a solution to inflation requires a

> long-term commitment by government to refuse to accommodate inflation through increases in the supply of money. The unemployment costs of such a policy will remain high only until the participants in the market realize that the government means it. The problem is seen as making the government's policy credible, thus reducing expectations of inflation[18].

This support from overall government policy is particularly important for the strategy of monetary gradualism since by its very nature gradualism does not attack inflation by forcing an immediate and severe contraction on the economy. Thus it leaves itself open to influences, exogenous and otherwise, that may push inflationary expectations upward. In turn this means that gradualism is likely to be far more successful if the full array of government policy lends support to the Bank's inflation fight. The government in its official pronouncements always highlights inflation as public enemy number one. But there is precious little evidence over 1975-80 that Ottawa translated this general concern

about inflation to the level of meaningful policy action. Indeed the opposite is the case. Until very recently monetary policy was the only anti-inflation game in town.

Unfortunately, from the vantage point of combating inflation, the government has on occasion after occasion undermined the Bank's efforts. I will offer only two examples here. First, consider Canada's policy with respect to the price of energy. The roughly tenfold increase in world energy prices is a relative price shock that really cannot be indexed fully. Canada's decision to attempt to isolate itself from this price shock and the resulting energy measures that followed in the wake of this decision must qualify as one of the most serious economic policy blunders in the post-war era. The implications of this decision are felt and will continue to be felt cross a broad spectrum of financial and economic fronts. For present purposes, interest centres only on the manner in which this domestic pricing policy impinges on the success of the strategy of monetary gradualism. In this regard three implications immediately come to mind:

1. the policy of pegging the domestic energy price well below the world price and allowing it to inch up slowly over time tends to generate a set of quite inappropriate expectations with respect to the economic implications of the underlying shock. It tends to mask the fact that this is a relative price change that of necessity must reduce real incomes of consumers everywhere particularly since it is one of the major causes for the levelling off of productivity in the western world. More importantly, the stepwise increases in the domestic price of energy lend themselves to full indexing, especially since no effective statement out of Ottawa has argued to the contrary.

2. It is extremely difficult to have a major impact on inflationary expectations when one and all realize that energy prices will be rising over the foreseeable future. Against this backdrop, monetary policy clearly has an uphill battle.

3. More recently, with the global decline in the real price of energy those countries which incorporated the world price find themselves in a position where they can make a real dent on inflation and on inflationary expectations. Virtually alone among our trading partners, Canada is in the opposite situation: domestic energy prices still have some way to go before they reach the world levels (or the NEP trigger level) so that they continue to be a major factor in fueling CPI increases and the expectation of continued inflation among the citizenry.

There should be no question in anyone's mind that our energy pricing policies has severely hampered and complicated the Bank's inflation fight and the success of the strategy of gradualism.

The other area where overall economic policy has been counterproductive from the standpoint of influencing private sector expectations in a manner consistent with the ongoing strategy of monetary gradualism re-

lates to the inconsistent projections for future inflation emanating from the fiscal and monetary authorities. The Bank's projections of future inflation are implicit from its target range. Even if M1 grew at or near the upper bound of the 4 - 8% target range, nominal income growth would be constrained to the range of 10% or so. Yet in the background projections for the medium term, published in connection with the fall, 1980 federal budget, the Department of Finance incorporated a nominal income growth rate of 14% for 1982 and a continuation of double-digit inflation. There is simply no way that this projection is consistent with the 4 - 8% target range unless interest rates skyrocket to increase velocity which will lower the boom on the real side of the economy. The reader will no doubt point out that this is exactly what has happened so that the government was clearly correct in its projections! But this misses the key issue at stake here, namely that the government has undermined the credibility of the Bank's policy. The budget represents an economic blueprint for the nation, particularly since the background papers present economic and financial projections for a five-year period. As such, it is an important planning document for private sector agents. Monetary gradualism is in for a rough period as long as these and similar government publications incorporate expectations with respect to future inflation that undermine what the Bank is attempting to accomplish. Who should the general public believe? -- the Bank or its Parliamentary master, the Department of Finance? Clearly, if the Department of Finance does not believe the Bank one can hardly expect individual Canadians to do so! And if Canadians persist in harbouring inflation expectations in double digits then it is obvious that a 4 - 8% target range <u>will</u> wreak havoc with the real side of the economy. This is part and parcel of the credibility problem with which the Bank is currently struggling.

Although I am getting ahead of myself a bit in terms of the time pattern of this analysis, it seems appropriate to say a word about the federal government's 6% and 5% guideline in this context. There can be all sorts of reasons for supporting or condemning this new federal initiative. However, in terms of the overall inflation fight it seems to me that the 6 and 5 program represents the first major federal initiative to come four-squares behind the on-going monetary policy -- it has initiated a wage and administered price policy that is finally consistent with the Bank's target range and as a result it will serve to enhance immeasurably the credibility of Canada's overall struggle against inflation. Such an initiative should have occurred much earlier.

2.8.4 <u>Recapitulation</u>: <u>1975 - 1980</u>

There are many ways to interpret the above analysis, most of which have some merit. At one extreme is the argument that the overall economic policy (of which the strategy of gradualism was an integral part) has been a dismal failure. This would probably follow from a straightforward comparison of major economic indicators in 1975 and 1980. One can put this into a clearer perspective by considering the policy from the vantage point of 1975. When Canada embarked on monetary gradualism it

was generally accepted that the Canadian dollar was overvalued. Most analysts would have put its purchasing-power-parity value in the neighbourhood of 90 cents. And almost everybody would have argued that, given a) the Bank's conversion to monetary gradualism, including the recognition that the on-going inflation was attributable to past monetary excess, b) the convenient crutch of controls under which the costs of disinflating could be minimized and c) Canada's advantage in the energy area relative to its competitors, the outlook was certainly for an exchange rate that would rise over time. Yet five years later the exchange rate was at or near 80 cents. It is hard to escape the conclusion that monetary policy must bear a substantial portion of the responsibility for this remarkable turnaround.

At the other end of the spectrum is the argument that monetary policy was basically on track. Rates of money income growth have come down since 1975. Sure, there were many areas where the policy was implemented in a less than satisfactory way (and the Bank itself would agree with this) but overall the data for 1980 reflect the fact that the policy was overtaken by a series of unexpected and unforeseen forces acting in the opposite direction. Some of these forces are easily identifiable -- the fact that at the outset of monetary gradualism the Canadian dollar was substantially overvalued and even if the depreciation was anticipated it still represented a major shock on the cost and inflation front that had to be absorbed; the doubling of U.S. inflation over the 1978-80 period, made worse by the fact that the dollar was depreciating during this time frame; the recent very erratic swings in U.S. monetary policy and particularly interest rates; the doubling of world energy prices in 1979-80; the severity of the world recession; and, as noted above, the lack of meaningful support in the inflation fight provided by the other branches of overall government policy. Two implications of this interpretation are:

1. in the light of external influences, the current economic situation with respect to inflation would be considerably more pessimistic had the Bank continued to act in its pre-1975 accommodating way towards inflation.

2. these offsets do not mean that the policy will not work or has not worked. Rather they mean that the series of setbacks have only delayed the full impact of the policy on the economy. Throughout the period monetary policy did become progressively more restrictive and this would become evident in 1981 and 1982. But even so considerable progress has still been made. "Private sector inflation" has indeed come down quite drastically whereas the performance on the front of administered prices (or "public sector inflation") has been the main problem as far as prices are concerned[19]. This reiterates the earlier concern that the process of eradicating inflation will be very difficult and costly if the rest of the government remains part of the problem rather than part of the solution.

There also is what might be referred to as an intermediate view. It relates not as much to what the Bank of Canada did or did not do or whether or not the external forces dominated the internal policy but rather that those of us who argued for monetary gradualism were overly-optimistic in terms of its curative powers. We readily acknowledged that in the time-frame of the 1930's an increase in nominal income would be reflected principally in an increase in real output with little impact on inflation because of agents' firmly held expectations in that environment that prices would remain stationary. We did not (or at least I did not) recognize that the reciprocal relationship would adhere in today's environment. With expectations of inflation firmly entrenched, the impact of a decline in nominal income would in the shorter run be reflected in a decline in real income with little initial budging of the rate of inflation. Of course it is still possible within this framework to argue that the fault lay with other factors (e.g., the lack of overall policy credibility) but the fact remains that I underestimated the inertial properties of firmly rooted inflationary expectations.

This point is brought out very clearly in a recent article by my colleague David Laidler[20]. He notes that the expectations of most observers in 1975 were that under a policy of monetary gradualism, the Canadian economy would undergo some real-side slack but that the effect of a steadily decreasing money supply would be matched by a steady reduction in the rate of inflation over time. This did not occur and Laidler notes that one should not have expected it since the "correct prediction [of the impact of gradualism] is that ... the economy will <u>on average</u> fall, but 'on average' is not the same as 'persistently' or 'steadily'."[21] These observations derive from a theoretical and empirical modelling exercise the results of which, even for a closed economy, are that a "gradualist policy ought not to be expected to result in a steady reduction in the inflation rate, but rather in the inflation rate following a cyclical path about a slowly declining average rate."[22]

Once one introduces the reality of an <u>open</u> economy, further complications arise, especially when one realizes that "there is no reason to suppose that, while a particular small open economy is experimenting with gradualism, the rest of the world will obligingly remain in long run equilibrium."[23] And, as noted above, it is abundantly clear that the U.S. -- let alone the OPEC cartel -- has not remained tranquil.

On balance, therefore, it is difficult to come down with full confidence on any particular side of this whole issue of the role of monetary policy. My own conclusion is that monetary policy over 1975-80 did fall considerably short of its potential. In particular it exacted much higher costs from the economy in terms of lost output and unemployment than needed to be the case. The Bank has to shoulder the responsibility for much of this because of the manner in which it opted to implement its chosen policy. But the government, for its failure to come four square behind the inflation fight, cannot get off scott free. However, in my view there is nothing in the analysis that suggests that there was anything inherently inappropriate with the underlying strategy (as distinct from the implementation!) of monetary gradualism.

2.9 MONETARY POLICY IN 1981

Monetary policy from early 1981 onward represents a rather critical break from monetary gradualism. One glance at Figure 1 will confirm this. From a level of over $26 billion in mid-1981 M1 plummets to $24 billion in the fourth quarter of the year. On a seasonally adjusted basis this represents a decrease of 28% at annual rates over the four month period[24]. Never before has the money supply registered such a decline in so short a period. Associated with this abrupt downturn in money growth was an equally dramatic surge in interest rates -- 90-day corporate paper pierced 22% and the 90-day treasury bill rate hit 21%. Even if the money supply had remained in the target range the thrust of monetary policy would have been very restrictive. As noted in the previous section this is because the 4 - 8% target range announced in early 1981 would not even accommodate the rate of on-going inflation let alone any real income growth. But the Bank went way beyond this and ushered in the tightest period of monetary policy in our history which in turn sent real interest rates soaring into double digits. Monetary abruptness not monetary gradualism became the order of the day. Why and with what consequences? These are the issues I intend to address in this section.

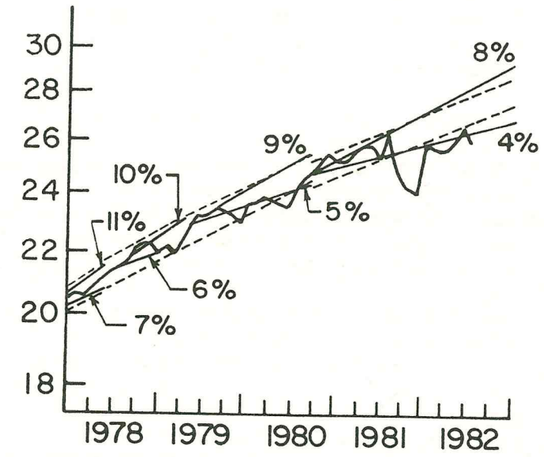
2.10 UTILIZING THE EXCHANGE RATE TO IMPORT EXTERNAL DISCIPLINE

My interpretation of what transpired in this period, particularly over the last half of 1981 was that the exchange rate became the principal target of monetary policy. Unlike the 1978-80 era where monetary policy was geared to exchange rate considerations, within the degree of flexibility allowed by the target range, the 1981 experience reveals that the Bank disregarded entirely any concerns relating to the rate of money growth. Corresponding to this was a quite different rationale in the latter period for focusing on the exchange rate. Specifically, maintaining the value of the exchange rate became a device for running very restrictive monetary policy with the purpose of importing into Canada some badly needed discipline on the wage and price fronts.

To see this it is instructive to resurrect some of the arguments made by the Bank in connection with its 1978-80 exchange rate focus. A depreciation in the exchange rate would stimulate the export side and with it output and employment. It would, however, also increase the costs of imports and, through them, increase the CPI which would then be reflected in wage contracts across the country thereby exacerbating inflation. This much is common knowledge. The Bank's rationale for concerning itself with the exchange rate went beyond this, however. In the 1978 Annual Report the argument seemed to center around the possibility of exchange rates overshooting the downside, i.e., the depreciation might go beyond the equilibrium rate and the lasting impact of such an overshoot would show up more in terms of price and wage increases than it would in export growth. The argument for this overshooting was grounded in the existing theoretical literature of the era and also in the more practical reality that a fall in the exchange rate might ini-

Figure 1

M1 AND TARGET GROWTH RATE
(Seasonably Adjusted)
(Billions of $)



Source: Bank of Canada Review (August, 1982) p.S2.

tially exacerbate the current account balance in an economy with much of its external debt denominated in foreign pay and with its payments under the oil import compensation program geared to the price of world oil (which would increase proportionally with the exchange rate decline). In the 1979 Annual Report the rationale for an exchange rate focus was slightly different. The concern now was that a significant number of the exporting sectors were already operating close to full capacity (would that this were true now!) so that the net result of a depreciation would be an increase in domestic inflation with little to show in the way of increased exports or employment.

No doubt these considerations were also present in 1981 (with the exception of the full capacity argument). But in my view there was another factor that played a more significant role. Reaganomics was beginning to take root in the U.S. Price inflation was decelerating. So was wage inflation. Canada was quickly finding itself offside vis-a-vis its major trading partner. Unit labour costs were rising at a much

faster pace in Canada than in the U.S. If this trend continued for any length of time the Canadian dollar would have to be devalued in order that we remain competitive. In turn this would only fuel the already high inflation expectations. Five years of Bank of Canada anti-inflation policy may have kept the rate of inflation from escalating well beyond the rate we actually experienced but for various reasons, some of which were elaborated above, it made precious little progress in unwinding these expectations to acceptable levels. Now with the apparent success of the Americans on the inflation front the situation in Canada became critical.

Canadians had, in some way or another, to get back on side vis-a-vis the U.S. on the inflation front. The discipline imposed on the Americans had to be transferred to Canada. The obvious way to accomplish this is to import this wage and price discipline by tying ourselves directly to the U.S. economy. In turn the mechanism for this is to tie our exchange rate to the U.S. rate. In my opinion this is the appropriate interpretation of monetary policy over 1981. We abandoned monetary gradualism! The level and growth of M1 was to be a by-product of the exchange rate strategy. So were interest rates. The dominating feature of monetary policy was to peg the exchange rate to ensure that Canadian rates of wage and price increases fell into line with U.S. rates and fell into line quickly.

However, the on-going march of economic events was again not very kind to the Bank's endeavours. First of all, U.S. interest rates once again ratcheted upward. Under an exchange-rate strategy the Bank had little choice but to follow suit in order to prevent the dollar from falling[25]. However, as the year progressed the Bank realized that maintaining a constant exchange rate required much higher levels of short term rates in Canada. For example, in December of 1980 the 30-day corporate paper rate was 18.33% in the U.S. and 18.35% in Canada with the value of the Canadian exchange rate averaging 83.77 U.S. cents. In August of 1981 the U.S. 30-day rate was 17.79%, the exchange rate averaged 83.14 U.S. cents but the 30-day rate on Canadian corporate paper had escalated to 22.50%[26]! And as a result of maintaining this near five-percentage-point differential, the level of M1 plummetted to a value later in the year roughly equal to its level some 18 months earlier. The severity of the economic slump in 1982 is a direct consequence of this overkill on the monetary front.

Why was such an exorbitant premium on Canadian interest rates required to keep the dollar in the 83 cent range? The answer to this question is regrettably all too familiar -- monetary and fiscal policy were once again working at cross purposes, but this time with a vengeance. As a result of the National Energy Program, introduced in the 1980 fall budget, both foreign and domestic capital was pulling out of Canada. Part of this was a result of Canadian takeovers in the energy sector. Part also was due to the fact that the series of measures ushered in by the NEP was souring the domestic entrepreneurial climate. As a consequence direct investment recorded a net outflow of more than $10 billion of net outflows falling under the category "net errors and omissions" (again between two or three times anything in recent history) which in the view of many analysts also incorporates further significant capital outflows.

Given the Bank's commitment to the exchange rate, in the face of such downward pressure on the Canadian dollar it was necessary to raise Canadian short-term rates to record heights in order to attract sufficient short-term capital inflows to maintain the value of the exchange rate. Net short term capital inflows over 1981 soared to $14 billion, some $8 billion higher than the previous high (in 1979)[27].

In a recent study the Bank of Montreal attempted to quantify the impact of the NEP on the exchange rate. Its findings included:

1. takeover-induced flows appear to have weakened the dollar by 1 1/2 U.S. cents from October, 1980 to June, 1981;

2. a further downward adjustment in the exchange rate of up to 1 1/4 U.S. cents[is predicted as a result of] the interest payments required to service the debt arising from these takeovers;

3. if net capital outflows resulting from takeovers persist at the rate of $1.6 billion per quarter, the dollar will eventually stabilize about 5 cents U.S. below the level it would attain in the absence of takeover activity;

4. the increase in short-term interest rates, relative to U.S. interest rates, required to offset the decline of 1 1/2 U.S. cents in the exchange rate, attributable to the increase in the net capital outflows of funds at the time the transactions occurred, is 130 basis points[28].

In my opinion neither the Bank of Canada's exchange rate fixation nor the NEP was an appropriate policy. But even those with different views on this would surely agree that to run them simultaneously is and was a recipe for disaster. Many Canadian individuals and firms simply could not cope with interest rates in the 20% range. The domestic recession can be attributed in large measure to the world recession but it has been made significantly more severe because of the unprecedented monetary squeeze as reflected both in the behaviour of interest rates and the money supply.

Yet despite this monetary crunch, which was far more severe in Canada than it was in the United States, it has been the Americans who succeeded initially in shaking up their supply side and generating substantial gains on the side of both wages and prices. Why? Again, I think the answer lies in the nature of the overall policy support that was lent to monetary policy in the two countries. It seems to me that American citizens recognized fully the nature of the game being played. High interest rates were viewed by the majority of Americans as the cutting edge in the fight against inflation. Rates of interest would come down only when inflation rates came down, not before. This policy was enforced by the ongoing thrust and frequent policy pronouncements of the Reagan Administration, including a set of guidelines for federal civil service wage increases and the harsh treatment of the air-traffic controllers. In short, the overall policy to overturn inflation was perceived to be both credible and decisive[29]. As I read the Canadian situation, this

was simply not the case here. High interest rates tended to be viewed as a temporary aberration that had to be tolerated until the U.S. set its house in order. We suffered the same real side costs (even greater because our credit crunch was more severe) with little to show in the way of unwinding inflationary expectations because, once again, the Bank of Canada was left in the unenviable position of being the only player in the anti-inflationary game.

The situation has changed somewhat in 1982. Perhaps because of the further decline in investor confidence following the November 1981 budget the Bank finally gave up on its exchange rate fight and the dollar promptly began its fall to 78 cents. Private sector wages have fallen quite drastically, largely, however, as a result of (rather than in anticipation of) the depressed economic situation. And, finally, the Federal government has embarked on its 6 and 5% policy which, as noted above, represents the first significant move in the direction of lending credence to the on-going policy of the Bank. Interesting as these more recent developments may be they will not be subject to detailed investigation since the present analysis terminates with 1981.

2.11 CONCLUSION: LESSONS FROM 1975-81

It is probably too early to say that we have broken the back of the inflationary spiral. But the cost of the attempt has been excessively high. With this in mind what follows are a few generalizations relating to the conduct of policy over the 1975-81 period. They are personal reflections, as it were, and therefore may or may not be shared by the reader.

First of all, the Bank's policies have left a great deal to be desired. Monetary policy was too easy over the 1975-78 period, too erratic over the 1978-80 period and too restrictive over 1981. Much better in this latter period for the Bank to have stuck to its target range and to have taken some of the U.S. interest-rate rise in terms of an exchange rate fall. The Canadian economy was simply unprepared and unprotected against the domestic interest rate acceleration that ultimately ensued as a result of attempting to defend the dollar in the 83 cent range or thereabouts.

Secondly, while monetary policy may indeed be necessary and sufficient to wrestle inflation to the ground, this process will be extremely costly to the real side of the economy if the broad range of government policy levers does not go along and lend credibility to the whole exercise. In other words, a successful fight against inflation is one where the policy works on agents expectations of future inflation. To fail to work on the expectations front means that the economy must be put through a recession wringer in order to get the message of restraint across to agents.

Thirdly, and relatedly, the fiscal stance of the government was such that it ran counter to the on-going monetary thrust thereby preventing any significant impact on peoples' expectations and requiring a much more severe downturn in order to begin the process of eradicating inflation and acclimatizing the citizenry to lower rates of increase of wages

and prices. Since monetary restraint is geared to influence private markets it is essential to ensure that the non-commercial sector, whether it be in the area of administered prices or public sector wage scales, not be emanating signals that are at cross-purposes with the stance of monetary policy. As noted earlier, if the federal government is not seen to be supportive of on-going monetary policy one can hardly expect private sector agents to modify their expectations in line with the signals being generated on the monetary front.

Fourth, it is all too easy to forget that whatever the stance of monetary policy would have been over these years the task of our central bankers would have been challenging indeed. The external shocks to the system (OPEC, the severity of the world recession) were both unforeseen and difficult to digest. This is especially the case with respect to the tremendous volatility exhibited by U.S. interest rate over the recent period. Earlier I argued that it would have been preferable over 1981 to hold to the monetary targets and to take some of the U.S. interest rate spike in the form of an exchange rate depreciation rather than to resort to rates of interest in the 20% range. Nonetheless, there would have been some negative fallout associated with this policy as well.

Fifth, these interest rate movements have convinced me that there is a pressing need in this country to index the tax system for the inflation component of investment and business income. Without such protection the costs of the violent interest rate swings are not only excessive but as well destructive of both efficiency and equity. The equity issue arises because the burden of fighting inflation with high interest rates falls disproportionately on the shoulders of some sectors -- those such as homeowners and small business, for whom the tax system provides little or no shelter against these high interest rates. Former Finance Minister MacEachen's proposals along these lines in his June, 1981, budget are, in my opinion, not adequate in their existing form but the underlying principles are correct and worth implementing in a more generalized fashion[30].

Two final comments are in order. First, even with the advantage of hindsight there will be much disagreement about what the stance of monetary policy should have been over this period. This highlights the intrinsically difficult task that the Bank is charged with -- to conduct policy in an environment fraught with uncertainty and open to the shocks of a volatile world economy.

The last observation is quite different in nature. Not only is it the case that the government has provided little support to the Bank, but it also seems to me that the Bank has on many occasions been bailing out overall government policy. For example, one can view the exchange rate targetting of 1981 as a valiant attempt by the Bank to prevent the exchange rate collapse following from the NEP. In effect the Government was trying to buy back much of the energy sector without having any money to do it with. For its part the Bank responded by sticking steadfastly to its position of defending the internal value of the dollar by offsetting any downward pressure on the external value of the dollar. Obviously the policies were diametrically opposed. As a result, however, the public's focus and anger was directed toward the higher inter-

est rates and not the fiscal stance. In other words the Bank has taken much of the flack for policy problems that have arisen from the other arms of overall policy. This does not excuse various aspects of the Bank's behaviour but it does serve to highlight the fact that monetary policy has borne an excessive amount of the recent policy debate in this country whereas in fact the source of the problem often originated elsewhere.

Since this paper was completed, the Governor has announced that the Bank of Canada is abandoning both M1 and the M1 target range. The problems associated with interpreting the movements in M1 in terms of the stance of monetary policy have become so great as to render monetary targetting quite meaningless. I have several observations on all this. First, I am not surprised that M1 has turned out to be unreliable. Second, in terms of the ongoing policy thrust this announcement does not usher in a major policy shift since, as outlined above, the Bank has not been paying much attention recently to the M1 target anyway. Of more importance is the impact that this announcement will have on citizens' views of the Bank's commitment to the inflation fight. What is the Bank going to replace targetting with? How will agents assess the present, let alone the future, stance of policy? I will delve into these and related issues in my forthcoming C.D. Howe monetary policy update. No doubt they will also attract the attention of other analysts.

Notes

* Part of the analysis in the paper is adopted, often verbatim, from my recent book, Money, Inflation and the Bank of Canada, Volume II, Montreal: C.D. Howe Research Institute, 1981. Comments on an earlier draft by my Queen's colleagues Rick Harris, Richard Lipsey and Doug Purvis are gratefully acknowledged as is the assistance I received from Kevin Dowd of Western. However, responsibility for the views expressed here rests with me.

[1] Clarence L. Barber and McCallum, John C.P., Unemployment and Inflation: The Canadian Experience. Canadian Institute for Economic Policy, Toronto: James Lorimer and Company, 1980, p. 128.

[2] Peters, Douglas D. and Donner, Arthur W., "Monetarism: A Costly Experiment", in Canadian Public Policy/ Analyse de Politiques VII, Special Supplement (April, 1981) p. 238. This statement is based on these authors' recent book, The Monetarist Counter-Revolution: A Critique of Canadian Monetary Policy 1975-79. Toronto: James Lorimer and Company, 1979.

[3] This section, and the one that follows, are taken from Thomas J. Courchene, Money, Inflation and the Bank of Canada, Volume II: An Analysis of Monetary Gradualism 1975-80. Montreal: C.D. Howe Research Institute, 1981, Chapter 2.

[4] R.W. Lawson, Senior Deputy Governor, "Remarks to the Montreal Society of Financial Analysts", March 31, 1976, reprinted in the Bank of Canada Review, April 1976, p. 21.

[5] What follows is a summary of Part III of Money, Inflation and the Bank of Canada; Volume II.

[6] I am referring here principally to Barber and McCallum, op cit., and Donner and Peters, op cit., although several others could be included in the group as well.

[7] Barber and McCallum, op cit., p. 49.

[8] Ibid., p. 129.

[9] I readily admit that in my discussion of the period (Money, Inflation and the Bank of Canada: An Analysis of Canadian Monetary Policy from 1970 to Early 1975, Montreal: C. D. Howe Research Institute, 1976) I did not place sufficient emphasis on these supply shocks, particularly as they were reflected in Canada's terms of trade and, hence, real income growth. In my view, however, this would strengthen not weaken the implications that I drew about monetary policy, i.e., that it was far too expansionary.

[10] Bouey, Governor Gerald K., "Remarks to the 46th Annual Meeting of

the Canadian Chamber of Commerce", Saskatoon, September 22, 1975, reprinted in the Bank of Canada Review October, 1975, pp. 27-28. Emphasis has been added.

[11] See G. G. Thiessen, Adviser, Bank of Canada, "The Canadian Experience with Monetary Targetting", paper presented to the International Conference on Monetary Targetting at the Federal Reserve Bank of New York, May 2 - 5, 1982.

[12] As the Governor stated at a Meeting of Federal and Provincial Ministers of Finance in December of 1980 (represented in the Bank of Canada Review, January, 1981, p.17).

> I believe that we could have made more progress against inflation, in spite of these upward pressures on the price level, if the monetary policy followed had been less gradual -- if the pace of monetary expansion had been brought down more promptly and steadily and if, to this end, interest rates had been allowed to rise faster and further at an earlier stage.

[13] In a recent article in the New York Times, the chief economist for the Bundesbank argued that the Bundesbank has considerably more scope for dealing flexibly with the money supply than the U.S. Federal Reserve has:

> The financial markets look intensely and continuously at every move the Fed makes. The concern of the Fed is to regain credibility. If the Fed acted to reduce interest rates, this could be interpreted as giving up its fight against inflation. But the Bundesbank has such prestige that we can let it overshoot its monetary target without upsetting the markets.

The thrust of this point will be reiterated later when dealing with expectations. Adapted from Leonard Silk, "How Germans Handle Rates", The New York Times, May 25, 1982, p. 30

[14] Courchene, op cit., p. 206.

[15] One aspect of the Bank's argument might be as follows. At any point in time the selection of a given money growth rate implies a particular interest rate setting and a particular exchange rate. This being the case, the Bank could achieve its money target by keeping the exchange rate on the implied path. This is true under conditions of perfect certainty. In an uncertain world, if the Bank pegs the exchange rate to the path anticipated by its money growth rule, then any unanticipated shocks (the number of which seem to be legion) will knock the money supply off target particularly since at a fixed exchange rate the money supply becomes perfectly elastic, i.e., demand determined. In my opinion this approach boils down to a policy of fine tuning. To be consistent with monetary gradualism it would require that the Bank acquire a degree of information and foresight with respect to a range of economic variables that, frankly, neither the Bank nor anyone possesses.

At a more practical level the Bank could argue that an exchange rate focus might minimize the recognition and implementation lags associated with its interest-rate control mechanism. The scenario might go as follows. Suppose the exchange rate were allowed to depreciate. As a result nominal income would grow as a result both of the depreciation-stimulated increase in output and of the increase in prices occasioned by the rise in import prices. This will lead to an increase in the demand for money which would reveal itself in a more rapid rate of M1 growth. Given its operating guidelines, the Bank would then react by increasing interest rates to curtail money growth. These events could take considerable time. Why not short-circuit the process and raise interest rates immediately in response to the incipient decline in the exchange rate, thereby eliminating any tendency for the money supply to rise? This, too, is related more to fine tuning than to monetary targetting. The appropriate modification to any recognition lag associated with an interest-rate control mechanism is to control the money supply directly, via base control, thereby nipping in the bud any tendency for the money supply to rise.

The point of this lengthy footnote is not to argue that an exchange rate focus need be inappropriate. Rather it is that such a stance is not likely to be consistent with a policy of monetary gradualism.

[16] "Economists Call M1 Policies Ineffective", Globe and Mail Report on Business, January 27, 1981.

[17] Bosworth, Barry P., "Stagflation and Relative Wage Rates", in Ontario Economic Council, Policies for Stagflation: Focus on Supply Vol. 1., Toronto: Ontario Economic Council, 1981, p. 31.

[18] Ibid. pp. 32-33. Emphasis added.

[19] This view has received support from a recently leaked and presumably forthcoming publication from Statistics Canada.

[20] Laidler, D.E.W., "Inflation and Unemployment in an Open Economy: 'A Monetarist View'", Canadian Public Policy/Analyse de Politiques, Vol. 7, Supplement, April, 1981, pp. 179-88.

[21] Ibid., pp. 184-5.

[22] Ibid., p. 185.

[23] Ibid., p. 185.

[24] Some analysts would suggest that a value for M1 well beneath the target range is appropriate, given the various downward shifts in the money demand function. This argument has merit if one interprets it as implying that from 1977 onward the path of M1 should have remained below the actual path (i.e., the target range should

have been lowered vertically in 1977). The fact that the money demand function has shifted downward is not a rationale for the dramatic decline in M1 in 1981.

[25] Except for a dip in July the exchange rate remained in the 83-85 cent range through 1981.

[26] The data are from Tables 20 and 65 of the Bank of Canada Review, August, 1982.

[27] The 1979 figure was, in turn, some $5 billion above any previous year. Data for these balance of payments flows were taken from Tables 68 and 71 of Bank of Canada Review, August 1982.

[28] Bank of Montreal, Canadian Corporate Takeovers: Some Economic Impacts, Montreal, 1981, pp. 40-41.

[29] This does not imply that the Americans are necessarily satisfied with their current economic strategy -- only that at its inception it was perceived by them as a policy backed fully by the commitment of the Federal Reserve and the Administration.

[30] For an elaboration of this view, see Ontario Economic Council, Inflation and the Taxation of Personal Investment Income: An Ontario Economic Council Position Paper on the Canadian 1982 Reform Proposals (Toronto: OEC) 1982.

3
Comments on: Recent Canadian Monetary Policy: 1975-81: Reflections of a Monetary Gradualist*

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My comments will be directed at the Courchene paper. What I like most about Professor Courchene's paper is that our views on monetary gradualism between 1975 and 1980 are not very far apart. To paraphrase Professor Courchene, monetary gradualism was the right policy for this period but the structure of the Canadian economy was such that gradualism was not allowed to work. My own view on this same period is that the structure of the economy was such during the period that monetary gradualism was bound to fail; and therefore, it was the wrong policy and a "colossal blunder". Thus, you can see that from different points of view we come to the same conclusion: the failure of monetary gradualism was inevitable. Possibly Professor Courchene's perspective is that of the theoretician and the academic economist. He seems to say that "yes, the theory should work but it didn't because of the stupid structure of the economy". My perspective is that of the more practical applied economist in business that says "well there was the structure of the economy, and it was stupid to put such a policy into practice that obviously wouldn't work". As I said we are almost in agreement.

In considering the paper as a whole, it seems to me that Courchene does not make a case that monetary gradualism was the appropriate policy to follow given prevailing and expected conditions in the mid-1970's. His arguments could equally well be read as proving monetary gradualism could not work and therefore should not have been tried.

He does, however, explain in detail why monetary gradualism failed to work and, in so doing, raises questions about whether the policy was appropriate in the first place. (His main emphasis is on operational failures of the Bank of Canada and inconsistency in the overall policy framework in explaining why monetary gradualism failed).

He never comes to terms with the crucial problems of conducting Canadian monetary policy -- that is, the difficulties of establishing goals, targets and operational procedures, in an open economy which has highly developed links with a larger, dominant economy, the United States. The ability of a small open economy (Canada) to pursue an independent course

in monetary or other economic policy areas, for that matter, is constrained much more than for a larger less open economy (the United States or Japan for example). Courchene seems not to recognize the degree of difficulty Canada faces in pursuing an independent course from that of the United States. The problems for Canada get tougher and tougher as the United States and Canada move along divergent paths in terms of economic conditions and policies. When the two economies are out of sync, pursuing a "made in Canada" monetary policy seems to exacerbate problems in Canada.

Courchene does make the case that at no time since 1976 have Canadian fiscal and other economic policies been consistent with the policy of monetary gradualism. In all of the years since 1976, there have been significant conflicts. Indeed, he cites the case of the period from mid-77 to mid-78. During that period the Bank of Canada acted to lower interest rates, resulting in negative real rates, in order to bring M1 growth back up into target range at a time when wage controls were in effect to lower inflation and inflationary expectations. The demand for M1 balances had shifted downward calling for a resetting of targets but instead the Bank eased up on money supply growth - in effect negating its attack on inflation. Thus, during the AIB period, the Bank of Canada seemed to be out of touch and not supportive of the anti-inflation program.

The Courchene paper suffers from a curious myopia in its failure to recognize the rising unemployment and lack of economic growth that has occurred during the period of monetary gradualism. In ten of the twelve years prior to 1974, the real GNP growth rate was above 5.2 percent, and in two years, 1967 and 1971, real GNP growth was 3.3 and 2.5 percent respectively. In the eight years since 1974 there has been only one year, 1976, during which the growth rate of GNP would be considered higher than the rate normally experienced during a recession. From the vantage point of 1982, it is easy to forget that in 1976 real growth rates of five to seven percent were expected in years of economic recovery. The case for unemployment statistics is similar in that Canadian unemployment in recent periods had never exceeded 6.2 percent and had been at a low of 5.3 percent in 1974 and only 3.4 percent in 1966. Considering such rates, the move in the unemployment rate to over seven percent in 1976 and over eight percent in 1977 and 8.4 percent in 1978 must be considered disastrous. With both slow growth and high unemployment the correct central bank move would have been to ease monetary policy. They did not ease but rather pursued monetary gradualism and thus unemployment rose. Courchene says the policy was too easy! Would he really wish higher unemployment and slower growth?

Later in his paper, Courchene does acknowledge that he and others "over-estimated the inertial properties of firmly rooted inflationary expectations". This means that while a policy of gradualism is likely to have some downward impact on nominal income which will be reflected in real income, there is likely to be "little initial budge" in the rate of inflation. The likelihood of a steady reduction of inflation over time is, indeed, diminished in a small open economy, if external factors are increasing inflationary pressures. The above statement again raises questions about the appropriateness of monetary gradualism in a country such as Canada.

What is an appropriate policy stance for Canada? I remember Bank of Canada Governor Rasimisky saying that the objective for Canada's policy should be to do a little better than the United States in reaching economic policy goals.

Perhaps, exchange rate targetting combined with complementary economic policies (particularly some form of incomes policy) and some effort to pursue domestic economic policies complementary to those in the U.S. (when the U.S. is following rational policies) would be more effective in attacking inflation, keeping unemployment low and achieving better economic growth. It would have been interesting if Courchene had examined such an option for the period 1975 to 1980. For the later period after 1981, Courchene acknowledges that the Bank of Canada seems to have already moved to exchange rate targetting. The Governor of the Bank of Canada in The 1982 Per Jacobsson Lecture during the I.M.F. meetings in Toronto mentioned the option of exchange rate targetting:

> I should perhaps note in passing that for some countries, especially smaller ones, the option of operating monetary policy to stabilize the exchange rate, whether a bilateral or trade-weighted exchange rate, rather than the growth of the money supply, can be quite attractive. Such a policy guide in effect transfers much of the responsibility for the basic direction of monetary policy to a country or group of countries that are of great economic importance to the country in question and whose actions will in any case have to be accommodated by smaller countries somehow. Such a policy, if adhered to, ensures pretty much the same inflation performance over time as the country or countries with which the exchange-rate link has been established. In principle this could be better or worse than would have been achieved under some kind of purely domestic regime; in practice, exchange rate targetting makes more sense the less scope there is to realize good monetary management by focussing mainly on internal financial developments[1].

Perhaps, with the U.S. inflation rate at half that of Canada's and unemployment also lower, the option seems superficially attractive. Courchene disagrees saying Canada has maintained too strict a monetary discipline with M1 well below target. If, as most monetarists do believe that greater M1 growth will encourage higher inflation, then he seems to wish more inflation on Canada at a time when inflation is at historic highs. If he is saying that the very slow M1 growth has affected real economic activity, that is causing the decline in GNP and high unemployment then he is denying the basic tenet of his monetarist tradition! His advocacy of wage and price controls or an incomes policy is the next logical step.

Now I would like to comment a little more critically on particular aspects of Professor Courchene's paper. In the early part of the paper Professor Courchene describes the underlying philosophy of the Bank of Canada and states that he agrees with that philosophy. In that philosophy there is a peculiar belief in the symmetry of monetary policy. By

that I mean that monetary policy that is excessively easy can certainly cause inflation, and monetary policy that is excessively tight can cure inflation. It is in the second part of that statement where I would part company with the Central Bank and Professor Courchene. The problem of curing inflation cannot be merely putting the cause of inflation into reverse gear. Excessive money supply growth can certainly cause inflation but tight money in and of itself was not the correct measure for the entrenched inflation that Canada experienced in the latter half of the 1970's and early 1980's. Indeed some 20 pages later Professor Courchene does make some marginal recognition of this point. For example, he states that "in a period of high and/or rising inflationary expectations it is much easier to ratchet these expectations upward yet another notch than it is to unwind them". In his conclusions, Professor Courchene also seems to waffle a bit in that he concedes that almost all other areas of Federal government economic policy were non-supportive to the task of monetary policy of curing inflation. If other policies were needed to support anti-inflation measures (and they were certainly there during the Anti-Inflation Board era) then the policy of monetary gradualism was bound to fail without their help. Here is further evidence that monetary gradualism was not the correct policy for Canada.

A second point relates to the Bank of Canada's and Professor Courchene's philosophy that inflation is the cause of high interest rates and not the reverse. He says that "in the process of gaining control over the rate of money growth interest rates would have to rise temporarily". Once the impact of lower money growth had curtailed inflation "interest rates would fall to lower levels because the "inflation premium" embodied in nominal interest rates would fall correspondingly". What has happened in Canada over this period of particularly high and volatile interest rates is that the inflation premium has, to some extent, been either augmented or replaced by a risk premium. That risk premium is a function of two factors. The first is the volatility of the rate of return on any financial asset and certainly anybody trading bonds over the past few years has felt that volatility. And second, the risk of default on bonds from private corporations rose during this period of severe recession. Thus, when money supply is restricted and high interest rates result, the following period will not have as low interest rates as the previous period because the period of high interest rates will have increased that risk premium, increased the volatility of the return on financial assets and increased the risk of default. Thus, when tight monetary policy is used to fight inflation future periods will see higher interest rates. These high rates will form part of business costs, raising the total cost of capital and thus resulting in further cost push inflation. The magnitude of such cost push may not be large when compared to the push from wages but could indeed be significant.

My third point relates to the control mechanism and operating procedures for monetary policy. Courchene is critical of the operating procedures of the Central Bank and has suggested the Central Bank should control monetary aggregates through reserve control rather than by influencing interest rates. As part of this section, Courchene is also critical of the money supply definition and suggests a somewhat broader

definition. These two items are not separate problems. If the definition of money supply were to be expanded significantly to include all chequable deposits at all deposit taking institutions, then all those institutions should also be required to carry reserve balances. But the reservable balances should only be those that are within the definition of money supply or else any reserve controlling system would not necessarily operate effectively. To move to a reserve controlling system the actual operations of the Central Bank would have to change dramatically. Included in those changes would be, as I said earlier, reserve requirements for all money supply defined balances and only those balances. Secondly, elimination of the lagged reserves and replacement by a reserve that would be required to be held within that particular period i.e. coincident reserve averaging. And thirdly, some method of getting at reserve balances daily which would mean a market for reserve funds in Canada similar to the market for Fed Funds in the United States. Without considering the politics of these changes (e.g. the requirement for reserves from provincially chartered institutions), would they indeed be worth it? I think not.

There would seem to me to be very little improvement in monetary control from such changes. Further, the Bank of Canada at the present time is quite capable to running a monetary policy that affects the levels of economic activity in this country. Given the present severe recession, and a recession only a year or so ago, one certainly should not doubt the effectiveness of the Bank of Canada's policy in restricting the real growth of the economy. I would question, <u>whether</u> the policies have as much impact on inflation, which is another point -- and a matter which would not be improved by any operating procedure I know.

Finally, I would like to repeat two quotes from Professor Courchene's paper. The first concerns monetary policy in the late 1970's is, "something clearly went wrong" and with that I thoroughly agree. And the second is the final sentence in his paper which states "monetary policy has borne an excessive amount of the recent policy debate in this country whereas in fact the source of the problem often originated elsewhere". And with that I also agree. The pages between these quotes seem to me to cast more doubt on the effectiveness of monetary gradualism than to support that policy as the appropriate one for Canada in the post 1975 period.

[1] Gerald Bouey "Monetary Policy - Finding a Place to Stand". The 1982 Per Jacobsson Lecture delivered during the I.M.F. annual meeting, Toronto, Canada, September 5, 1982.

4
A Critical Review of Monetarism in Canada

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4.1 INTRODUCTION

In this paper, I take advantage of the fact that I am speaking opposite Tom Courchene, who has sometimes been portrayed as sitting at the opposite end of the Keynesian-Monetarist spectrum from Clarence Barber and myself (hereafter BM). In particular, I will try to find the reasons why our conclusions and policy recommendations seem to be so different: what are these differences, and how much are they due to differences in theory, how much to differences in empirical estimates, and how much to differences in philosophy, values, or ideology. If it is possible to dissect our points of view in this fashion, it may also become possible to devise tests of empirical differences and to leave the reader to combine the evidence with his or her own tastes and preferences. Strange as it may seem, I do not think there is any significant difference between us in terms of basic theory: rather the sources of our disagreements seem to be an approximately equal blend of differences in interpretation of the evidence and differences in value judgement, where the latter no doubt have some influence on the former.

The first part of the paper provides a brief sketch of a theoretical framework which appears broad enough to include both Courchene and BM. Not unusually, the framework includes a demand curve and supply curve, and the issues that appear to divide us are considered under these two headings. Demand issues include the choice of the appropriate monetary aggregate (M1 versus M2) and fiscal policy, while supply issues include institutional factors, the role of "credibility," and Canada-U.S. differences in recent inflation performance. In the light of this analysis, the last part of the paper provides a very quick review of the past and a discussion of policy for the future.

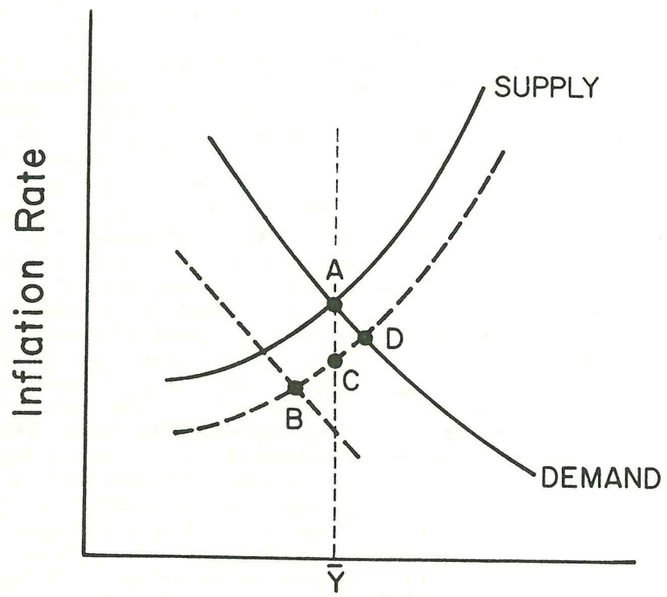
4.2 A COMMON ANALYTICAL FRAMEWORK

The following framework would, I think, be acceptable to a spectrum of macroeconomists sufficiently broad to include both Courchene and myself. Figure 1 depicts aggregate supply and demand curves in a diagram that measures the inflation rate on the vertical axis and the level of output or real GNP on the horizontal axis. The position of the demand curve will depend on a number of variables, including the rate of growth of the money supply, changes in the expected inflation rate, and changes in fiscal and foreign variables. The position of the supply curve depends on the expected inflation rate, the rates of increase of wages and prices fixed by contracts in earlier periods, and price shock terms such as changes in real energy prices. Also the imposition of wage and price controls could initially result in a downward shift in the supply curve. Changes in any of these variables will result in shifts in supply and demand curves in the short run, and the amount of the shifts may depend on expectations regarding the policy regime. However, in the long run, and abstracting from economic growth, the demand and supply curves will intersect at the full employment or "natural" level of output ($\overline{Y}$) and at an inflation rate that is equal to the rate of growth of the money supply.

Within this common framework, it is possible to attribute differences between Courchene and BM to: (i) differences in estimates of the relative importance or reliability of the various factors affecting the supply and demand curves; and (ii) differences in tastes, methodology, or ideology. On the first point, Courchene believes that a steady reduction in the growth of an appropriately defined monetary aggregate will produce a steady downward movement of the demand curve. Expected inflation will adjust downwards simultaneously, especially as people become convinced that the authorities will adhere to their announced monetary policy. Thus, the supply curve will lag only slightly behind the demand curve as both move vertically downwards. BM, on the other hand, would question these judgments and attach a greater importance to non-monetary factors influencing the demand curve, as well as to price shocks and inflation inertia. Consequently, they would favour more direct means of shifting the supply curve in conjunction with measures to shift down the demand curve. They believe that the Courchene policy would result in very high unemployment during a long process of adjustment. On the question of tastes, as compared with BM, Courchene is inclined to attach greater weight to the costs of inflation as compared with the costs of unemployment, he dislikes interventionist policies and has more faith in the market mechanism, he focuses more on demand than supply and more on the money market than the labour market, and he distrusts evidence based on econometrics.

Without concerning ourselves too much with the differences in taste, it should be possible to reach some conclusions regarding the first set of issues on the basis of empirical evidence. However, this may not be possible if we cannot agree on what constitutes acceptable evidence. Courchene distrusts econometric evidence because, as argued by Robert Lucas, parameters estimated over a period of "permissive" monetary policy are bound to be different from the parameters during a period of

Figure 1



"non-permissive" monetary policy. While this is certainly a valid point, it raises the question of just what event Courchene would accept as inconsistent with his point of view. Having discounted econometric evidence, he seems to turn frequently to unsubstantiated "beliefs." For example, in 1975, he "believed" that short run adjustments are completed within a year, so that the authorities are "well advised" to treat the Phillips curve as vertical "for any planning horizon that is longer than one year" (p. 28). It seems, however, that the one year has now become three to five, for in 1981, he thinks that it is "unrealistic... if more than three to five years - say the duration of a business cycle - were needed to establish the credibility of a truly consistent policy." (p. 291). In neither case was there any kind of evidence advanced in support of the beliefs. In the following pages I try to steer a middle path between a blind adherence to econometric evidence that may change with the policy environment and a retreat from any kind of evidence to assertion and beliefs.

4.3 DEMAND ISSUES

4.3.1 Monetary Policy

If monetary policy is measured by the rate of growth of narrowly defined money, then it is clear that the Bank of Canada has delivered on its promise of declining rates of growth of the money supply. The target growth rates for M1 have been reduced from 10 to 15 percent to 5 to 9 percent, and M1 has never exceeded its upper limit except during postal strikes. On the other hand, M1 has been substantially below its lower limit in 1976 and again in 1981-82. Further, as compared with the pre-monetarist days the growth rate of M1 has been very stable (Fortin (1979)), although certainly not stable enough to please the monetarists. Nevertheless, the growth rate of nominal GNP has not declined in line with the growth rate of M1, and since 1978 the rate of inflation has increased. Key issues, then, are whether or not M1 is the appropriate definition of money and, if so, why the growth of nominal GNP has moved upwards at the same time as M1 growth has been moving downwards.

According to Courchene (1981, p. 169), the "ultimate policy goal is to exert some control over the rate of growth of nominal income and, hence, inflation," and to this end "the preferred definition of money should be the one that best predicts the time path of future levels or rates of growth of nominal GNP..." (emphasis in the original). He argues, however, that the available evidence on this issue (to which no reference is given) "does not provide a clear-cut case for favouring M1 over a broader monetary aggregate." Yet back-of-the-envelope calculations for the past decade provide a rather strong case for M1 over M2. This can be seen from the following coefficients of variation (R^2) between the annual growth rates of nominal GNP over the period 1971-80 and the annual growth rates of M1 and M2 (data are from Department of Finance, Economic Review, April 1982, Reference Tables 3 and 87):

Definition of money	Money lagged one year	Contemporaneous	Money leading one year
M1	.62	.00	.03
M2	.00	.23	.35

This simple exercise would seem to provide rather strong grounds for rejecting M2 according to Courchene's own criterion. Furthermore, as several authors have noted, M2 may give misleading signals because changes in the savings rate or the share of savings that pass through the banks may result in large changes in M2. Nowhere has this problem been more evident than in the United Kingdom, where, according to Buiter and Miller (1981), M3 has been "perversely endogenous."[1]

The ability of M1 to predict nominal GNP growth improves rather dramatically if one allows for the influence of interest rates on velocity (i.e. on the ratio of nominal GNP to the money supply). One would expect people to economize on their holdings of M1 relative to their incomes when nominal interest rates rise. This implies that for given money supply growth, nominal GNP growth will depend positively on the

change in interest rates. Regressions for the ten year period 1972-81, using annual data, give the following results:

$$(1)\quad \Delta Y_t = \underset{(4.1)}{\Delta m_{t-1} + 2.9} \qquad R^2 = .53 \quad DW = 0.96$$

$$(2)\quad \Delta Y_t = \underset{(3.9)\ (9.0)}{\Delta m_{t-1} + 1.15 + 1.65\ \Delta i} \qquad R^2 = .96 \quad DW = 2.12$$

where Y is the growth rate of nominal GNP, Δm is the growth rate of M1, Δi is the average change in the treasury bill rate over the past two years [i.e. $\Delta i = 1/2\ [i_t - i_{t-1}) + (i_{t-1} - i_{t-2}] = 1/2\ (i_t - i_{t-2})$], and the figures in brackets are t-statistics. The data and results are given in Table 1. Using equation (2) to predict one year ahead to 1982, the predicted growth rate of nominal GNP is 6.6 percent, which may turn out to be quite close. On the other hand, the relationship falls apart if it is used to "backcast" for years prior to 1972.

It is clear from the table that the high degree of slippage between lagged money growth and GNP growth over the past four years has been due to: (i) very large increases in nominal interest rates; and (ii) the strong response of velocity to these increases. On average, for given money growth, rising interest rates added an estimated 3.5 percentage points to GNP growth in each of the four years 1979-82. The sources of this slippage have been all the factors contributing to rising interest rates for a given money supply growth. Such factors include the food and energy price shocks of the period, the failure of wage and price inflation to decline in step with declining money growth, and, at least in 1979, the increase in aggregate demand arising from a mini-resource boom and the current and lagged effects of a relatively strong U.S. economy. Interest rates would also have increased less if fiscal policy had been more restrictive, a point which will be taken up shortly.

Furthermore, despite the fact that $R^2 = .96$, equation (2) would seem to be of dubious value in terms of future forecasting ability. A key question is whether the very large reduction in the demand for M1 and resulting increase in velocity, which was apparently caused by rising nominal interest rates, will reverse itself as interest rates fall. If this is the case, then falling interest rates will be accompanied by nominal GNP growth substantially below money growth, just as the opposite has been the case during the period of rising interest rates. If this were the case but the authorities nevertheless persisted with low rates of monetary expansion, the GNP growth rate consistent with lower interest rates could easily be a negative number. For example, if the equation continued to hold, the 1983 GNP growth consistent with a 9 percent interest rate in 1983 and 5 percent money growth in 1982 would be -1.0 percent. On the other hand, if the reduction in demand for M1 turned out to be completely non-reversible, the consistent GNP growth

would be 6.2 percent rather than -1.0 percent[2]. While it is unlikely that either of these polar cases would turn out to be true, it seems impossible to know where within this large range the truth would lie.

TABLE 1

Sources of Growth of Nominal GNP, 1972-1981

	Growth of nominal GNP due to:					
	Lagged Money Plus Constant ($1.2 + \Delta m_{t-1}$)	Change In Interest Rate ($1.65\ \Delta i$)	Error	Total	M1 Growth Rate (Δm)	Change In Interest Rate (Δi)
1972	13.9	-2.0	- .5	11.4	14.3	-1.2
1973	15.5	1.6	.3	17.4	14.5	1.0
1974	15.7	3.4	.3	19.4	9.3	2.1
1975	10.5	1.6	0	12.1	13.8	1.0
1976	15.0	.9	- .4	15.5	8.0	.6
1977	9.2	- .2	.3	9.3	8.4	- .1
1978	9.6	- .2	.9	10.3	10.0	- .1
1979	11.2	3.6	-1.1	13.7	6.9	2.2
1980	8.1	3.2	- .7	10.6	6.3	2.0
1981	7.5	4.9	.9	13.3	3.0	3.0
Out-of-sample						
1982	4.2	2.4	..	6.6	..	1.5

Note: Data on Money supply rates relate to averages for the year.

Sources: Department of Finance, Economic Review, April 1982
OECD, Historical Statistics 1960-1980, 1982

In summary, then, our evidence suggests that M1 is an unsatisfactory target variable, while the relation between M2 and GNP, while apparently stable over the past ten years, seems quite impossible to predict for the future. Under these circumstances, it seems that narrow bands for money supply targets make little sense however money is defined, and the only alternative is an eclectic and flexible approach based on all available information and indicators, including money supplies, real and nominal interest rates, the exchange rate, and information regarding institutional developments in the financial sector and conditions in interest sensitive sectors of the economy. Under these conditions, the most important choice is probably between relatively stable real interest rates and a less stable exchange rate, or vice-versa[3].

1.3.2 Fiscal Policy

Turning now to fiscal policy, it has been seen that a tighter fiscal policy accompanied by the rates of money growth that actually prevailed would have resulted in lower interest rates and lower rates of growth of nominal GNP. Alternatively, the same rates of growth of nominal GNP could have been achieved by a different fiscal monetary mix. In asking whether or not a different mix would have been better, a prior question is to ask what in fact has been the stance of fiscal policy. On this point, it is important to adjust recorded values of government deficits for two kinds of distortions. First, we wish to obtain an estimate of the deficit that would prevail at "normal" levels of economic activity, eliminating the effects of the business cycle on tax revenues and payments of unemployment insurance. Second, we wish to eliminate the distortions arising from the inclusion of the inflation premium component of interest payments in recorded government deficits. The rationales for both of these adjustments are well known and generally accepted, although Courchene erroneously questions the principle of the second adjustment[4]. Estimates of both of these adjustments have been made by the Department of Finance for the period 1970-80 and published in the Economic Review of April 1981 (pp. 87, 175). The results of these adjustments, which are discussed in more detail in Kennedy and McCallum (1982), are set out in Table 2[5].

If we look first at the position of the federal government alone, it can be seen after correcting for both inflation and the business cycle the average federal government deficit was zero over the period 1970-80. Furthermore, federal fiscal policy up to 1980 has been counter-cyclical: on average the adjusted budget surplus (B3) increased by one percentage point of GNP in response to a one percentage point increase in employment growth. In particular, the adjusted federal budget balance increased substantially during the resource boom years 1973-74 and 1979, while it moved sharply into deficit in the weak years 1975 and 1977-78. A final point to note is that the adjusted federal budget was balanced in 1980. Thus, over the decade to 1980, the adjusted deficit was balanced on average and at the end of the decade, and it was strongly counter-cyclical. If we include all levels of government, including the Canada/Quebec Pension Plans, the average adjusted budget balance was a surplus of 1.7 percent of GNP over the period 1970-80. It can be seen from the table that fiscal policy by the non-federal government sector was on average slightly counter-cyclical, but much less so than federal fiscal policy. The era of counter-cyclical policy came to an end in 1981 when the cyclically adjusted federal balance shifted into surplus by an amount equal to some $5 billion or 1.4 percent of GNP. This shift occurred as the Canadian economy entered its worst recession since the thirties, and since it seems that the projected increase in the unadjusted federal deficit in 1982 is the result of the recession and lower oil prices, there appears to have been no relaxation of federal fiscal policy in 1982. Indeed, as suggested in Kennedy and McCallum (1982), Canada's fiscal policy at the present time is probably tighter than that of any other major country, with the possible exception of the United Kingdom.

TABLE 2

Fiscal Policy Indicators

		Federal Government	All Levels of Government
Budget Balance as Percent of GNP, Average 1970-80*			
(i) B1		-1.7	-0.9
(ii) B2		-1.5	-0.5
(iii) B3		0.0	+1.7
Relation Between Employment and Change In Budget Balance 1971-80**			
(i) B2	β	.53 (2.2)	.63 (2.0)
	R^2	.38	.34
(ii) B3	β	.98 (3.4)	1.36 (3.6)
	R^2	.59	.61

Notes: * B1 is actual budget balance, B2 is cyclically adusted budget balance, and B3 is budget balance adjusted for cycle and inflation.

** Based on equation $\Delta B = \alpha + \beta \Delta N$, where ΔB is the change from the previous year in the budget balance as a percent of GNP and ΔN is the percentage change in total employment. Figures in brackets are t-statistics.

Source: Department of Finance, Economic Review, April, 1981, and Kennedy and McCallum (1982).

An assessment of this record depends entirely on what one treats as the objectives of fiscal policy. If the purpose is to help to stabilize the economy at its full or natural unemployment rate while maintaining a balanced budget in the longer run, then fiscal policy between 1971 and 1980 should be awarded high marks, while fiscal policy in 1981-82 should be judged a failure. If, on the other hand, the purpose after 1975 was

to exercise fiscal restraint, then 1977-78 should be regarded as a failure and 1979-81 as a period of success. The choice between these two sets of criteria depends essentially on whether one is in favour of a policy of reducing inflation by shifting down the demand curve in advance of the supply curve, or at least without any assurance that the supply curve will shift down in line with the demand curve. In other words, the assessment depends on whether one is in favour of a policy of reducing inflation through the deliberate creation of high unemployment, or at least through the acceptance of a high probability that the policy will result in high unemployment. The differences between evaluations of fiscal policy by Courchene and BM seem to depend entirely on this point. Thus, given the stance of monetary policy, BM (1980, Ch. 2) commented favourably on federal fiscal policy in the years up to 1980, while Courchene's assessment was negative, at least up to 1978. It seems probable that both sides would favour a change in the fiscal-monetary mix in the direction of tighter fiscal policy and easier monetary policy, but they differ on the appropriate degree of tightness of fiscal/monetary policy as a whole. This latter difference itself depends on differences on the supply side, a topic to which we now turn.

1.4 SUPPLY ISSUES[6]

Two of the central issues in macroeconomics today are: (i) the degree to which unavoidable price shocks result in upward pressures on domestic money wages and prices, and hence upward shifts in the aggregate supply curve of Figure 1; and (ii) the extent of downward inflexibility of wages and prices and hence of the supply curve in the face of restrictive demand policies. On both of these issues, one group would emphasize the central importance of a credible policy of monetary non-accommodation, while a second group would attach an important weight to institutional or structural factors. In large measure the differences between the two groups are a question of degree, but there are nevertheless important differences in degree and important differences in the implications for policy. The first two parts of this section deal with the issues of institutions and "credibility", while the third part addresses the question of why the United States appears to have had more downwardly mobile wage and price inflation than Canada.

1.4.1 The Role of Wage Bargaining Institutions and "Social Consensus"

When the Bank of Canada announces that it will accommodate wage increases of only x percent, no one in the private sector is in a position to give an effective response. Every union and company knows that its own acquiescence to wage and price restraint will have no significant effect on aggregate inflation and that if others do not also acquiesce then the workers will suffer a reduction in their real and relative wages. Furthermore, since everyone knows that many of the wages that will prevail in the next year or two have already been set by contract, it is clear that a substantial fraction of the population will not respond to central bank announcements even if all those setting new contracts do respond. Therefore, under North American style wage bargaining, no one will want to be the first to accede to "restraint". The situation is quite different under a system of centralized or synchronized wage contracts. If all wage contracts are settled at the same time of year, then it may be possible to achieve a simultaneous de-escalation of wage and price inflation without distortions of real and relative wages. This is not to say that such a simultaneous de-escalation is easily achieved, but it is at least within the realm of possibility.

Eighteen countries are classified according to their wage bargaining arrangements in Table 3. The first four columns, taken from Crouch (1981), may be explained briefly. Centralized unions are said to exist where "either union confederations dominate collective bargaining or in which there is evidence of tight national coordination". The second column indicates the level of development of autonomous shop-floor bargaining, while employer coordination (column 3) exists when "employers are prepared to hand over many of their bargaining rights to a central confederation or a small number of industry-level associations, and when confederations have some sanctions to ensure that individual firms do not 'break rank'". The fourth column relates to effective works councils or "institutions of concertation", and the ambiguous cases under this heading are "countries which have elaborate formal provisions for works councils, but in which observers seem to agree that the institutions are hollow and meaningless". The fifth column indicates each country's composite position, where two points are given for each "yes", one point for each question mark, and no points for each "no". Finally, for reasons that will be discussed shortly, the final column gives each country's long run strike rate, defined as the average number of working days lost per thousand employees outside agriculture over the post-war period (1950-1978).

Essentially, then, we have five centralized/corporatist countries (Group I) and eight decentralized/non-corporatist countries (Group II). The three countries in Group III are semi-centralized/semi-corporatist, lying somewhere between Groups I and II. It is important to emphasize that this classification relates to the extent of private sector centralization, or the extent to which individual unions and companies have delegated power to their central representatives. Thus, Australia and France, for example, are classified as decentralized despite the fact that the government of Australia operates a highly centralized system of wage arbitration while the government of France is certainly centralized and may also be regarded as dirigiste. Japan and Switzerland are both highly corporatist in the sense of corporate paternalism, although not in the sense of centralization. These two countries have been listed separately on the grounds that corporate paternalism may be viewed as a logically distinct form of organization.

If centralized or synchronized bargaining plays an important role, we would expect Group I countries to perform better than Group II countries when faced with either a major price shock or the need to reduce an ongoing inflation rate. Group IV might also be expected to perform relatively well, partly because Japan has synchronized (but not centralized) wage bargaining, partly because the Swiss system is fairly centralized,

TABLE 3

Strike Rates and Industrial Relations Characteristics in Eighteen Countries.

	Centralized Unions	Low Shop Floor Autonomy	Employer Coordination	Works Councils	Composite	Strike Rate* 1950-78
Group I						
Norway	Yes	Yes	Yes	Yes	8	89
Sweden	Yes	Yes	Yes	Yes	8	39
Germany	Yes	Yes	Yes	Yes	8	38
Austria	Yes	Yes	Yes	Yes	8	30
Netherlands	Yes	Yes	Yes	Yes	8	24
					8	44
Group II						
Italy	No	No	No	?	1	873
Canada	No	No	No	No	0	566
United States	No	No	No	No	0	499
Ireland	?	No	No	No	1	494
United Kingdom	?	No	No	No	1	244
Australia	No	No	No	No	0	338
France	No	?	No	?	2	226
New Zealand	?	No	No	No	1	203
					0.8	430
Group III						
Finland	?	No	Yes	?	4	627
Belgium	?	?	No	?	3	235
Denmark	Yes	No	Yes	Yes	6	158
					4.3	340
Group IV						
Japan	No	?	No	Yes	3	151
Switzerland	?	?	Yes	Yes	6	3

* Strike rate is defined as working days lost per thousand employed outside agriculture.

Sources: Columns 1 to 4, Crouch (1981)
Column 5, See text.
Column 6, Yearbooks of International Labour Organization

and partly because workers might be expected to be particularly responsive to corporate wishes under the paternalistic/lifetime employment systems prevailing in these two countries. "Performance" must include at least two dimensions: inflation and unemployment. More specifically, one may advance the hypothesis that following the major shocks of 1973-1974, Group I countries would face either a relatively small increase in inflation or a relatively small amount of labour market "slack" or some combination of the two.

A major difficulty is to construct an indicator of labour market slack that is comparable across countries. For lack of a better alternative, the average labour market slack in 1974-80 was defined as the difference between the average unemployment rate in 1974-80 and the average unemployment rate in 1967-73. The latter measure is used as a proxy for the base or "natural" unemployment rate. For fourteen countries it was possible to use standardized unemployment rates, while the unemployment data for two countries (Denmark and Ireland) are based on national definitions. Two countries, Switzerland and New Zealand, were excluded because no unemployment series could be found (also Switzerland is a difficult case because of the very large reduction in the number of guest workers). On the basis of the limited evidence available, it would appear that demographic and unemployment insurance factors have not been such as to bias this measure in the direction of either Group I or Group II (see McCallum (1982)).

The results of this test are illustrated in Figure 2, which plots each country's labour slack variable on the horizontal axis and each country's increase in inflation between a base period (1971-73) and the post-OPEC period (1974-80) on the vertical axis[7]. A glance at the chart makes clear that Groups I and IV have out-performed Groups II and III by a very large and statistically significant margin. Within each of the two major groups there is evidence of an inflation-unemployment trade-off; but in comparing the two groups as a whole, on average Groups II and III had five points of extra inflation or some four extra points on their unemployment rates or some combination of the two. Notably poor performers, even by Group II/III standards, were Britain and Italy, while a notably good performer even by Group I/IV standards was Austria. All other countries, including Canada, were close to the regression lines drawn in the diagram. As discussed in McCallum (1982), these results appear to be robust in the face of change in the exact time periods used in the definitions. Also, it was found that: (i) productivity growth in 1974-80 was higher for Group I than for Group II; and (ii) the reduction in the average share of profits in manufacturing value added between 1967-73 and 1974-80 was less for Group I than for Group II. It cannot be argued, therefore, that the good inflation performance of Group I in relation to Group II has generally been at the expense of a larger squeeze in profits. Finally, while it is still too early to come to any strong conclusions on this point, it appears that the relative performance levels of the different groups in the aftermath of OPEC II are following a similar pattern to experience in the aftermath of OPEC I.

Two further points may be raised about these results. The first has to do with whether the relationship depicted in Figure 2 would be stable

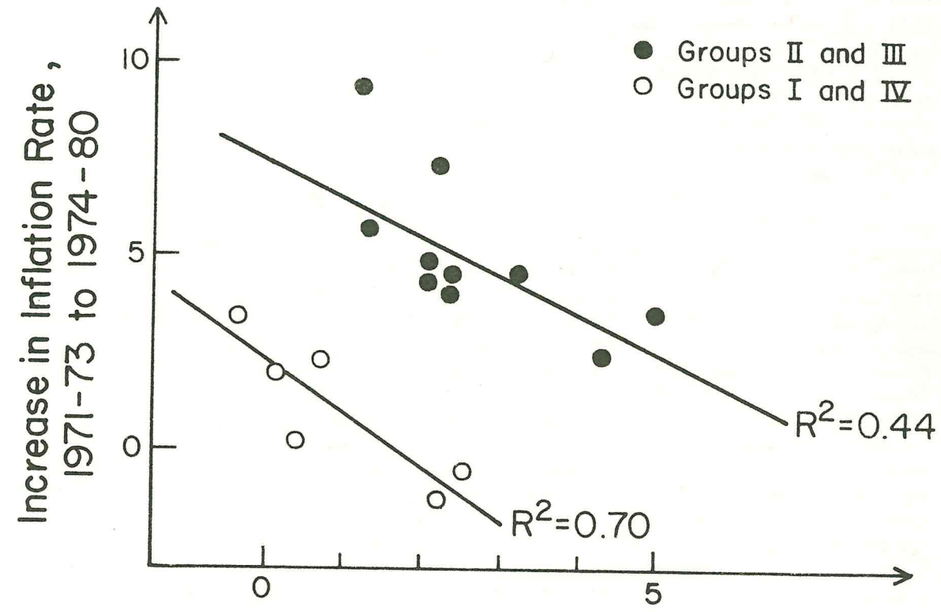
in the face of a change in policy regime. This issue relates to credibility effects which are discussed in the next section. The second point relates to the exportability of the institutions that seem to have worked so well for Groups I and IV, and this raises the additional question of why, if these institutions produce such good results, they have not already been established in the Anglo/Latin countries of Group II. Without trying to delve too deeply into complex social and historical comparisons, it should nevertheless be emphasized that strong constraints on local autonomy over wage setting are an absolutely necessary condition for the viability of centralized bargaining systems. If, for example, a nation-wide wage agreement were negotiated in Canada but without any constraints on local bargaining, there seems no reason to suppose that such an agreement would have any effect on final outcomes. In one way or another, local wage bargaining autonomy has been limited significantly in all Group I countries. Also to be noted is that the existence of centralized or synchronized wage bargaining is closely correlated with low strike levels and effective institutions of labour-management cooperation. While one can debate endlessly on which of these items is cause and which is effect, it seems more accurate to say that all of them are due to factors that may, for lack of a better term, be called the degree of social consensus. Thus, the results just presented reinforce the treatment given in BM(1982).

Since Canada is not about to abandon local wage bargaining autonomy or move to a system of corporate paternalism, the prospects for direct importation of such systems are remote. It may be that stagflation is the price we will have to pay for our preference for decentralized industrial version of Group I/IV systems that may be workable in a Canadian setting. It is argued in McCallum (1982) that this last possibility is not as utopian as it might at first appear.

4.4.2 Credibility Effects

There is no disagreement on the point that a very large recession will result in lower wage and price inflation. Rather the point at issue is whether wages and prices will become much more downwardly flexible once people come to believe that the monetary authorities will stick to their policy of restraint even in the face of very large increases in unemployment. This question may be examined both at a theoretical level and on the basis of empirical evidence. Let us suppose first that everyone is fully convinced that the authorities will follow through with their announced policy of monetary restraint. This knowledge may induce a greater downward wage flexibility if: (i) people become convinced that others will also accept lower wage and price increases, and therefore the expected inflation rate declines; or (ii) to the extent that others are not expected to exercise restraint, people may believe that there will be a recession and for that reason they may accept lower wage increases. If everyone behaved according to (ii) and accepted lower wage increases in the belief that there would be a recession, then the extent of the recession would thereby be reduced, and the employment costs of reducing inflation would also be less as a result of credibility.

Figure 2



* Proxied by average unemployment rate 1974-80 minus average unemployment rate 1967-73.

While there seems little doubt that these considerations will have some effect, their importance may be rather limited for a number of reasons. First, to the extent that many wages and prices are pre-set by contract, there will remain an element of inertia and the effect of policy credibility on expected inflation will be correspondingly reduced. Second, firms and workers may believe that the tight monetary policy will not induce a major recession because substitutes will be found for the monetary aggregate subject to control, and therefore that much of the effect of tight money will be offset by an increase in velocity.

Third, firms and workers may not pay a great deal of attention to monetary policy announcements in forming their inflation expectations and settling their wage contracts. Fourth, even if a recession is expected, some industries may not be very sensitive to moderate recessions. Fifth, even if people are convinced that the loss of jobs resulting from non-compliance with wage restraint will be significant, they may nevertheless opt for that increase. Much of the loss of jobs may be offset by retirements, many workers may be protected by seniority provisions, and perhaps people may expect government assistance in the form of subsidies or tariffs if conditions became too bad. Firms may also be willing to concede a large wage increase in the interests of labour peace and morale, especially if the degree of competition is relatively low.

Thus, while credibility might be expected to play some role, the importance of the effect would seem to be an empirical question. Furthermore, since the amount of credibility is not something that can be measured directly, it is difficult to conduct empirical tests of its importance. Nevertheless, some evidence on the question may be obtained by comparing the current recession (1981-82) with the recession of the mid-seventies. It is generally agreed that monetary policy in most countries has been much less accommodating at the time of OPEC II than it was at the time of OPEC I. Far more governments today base their monetary policy on growth rates of monetary aggregates than was the case in the early seventies, and certainly governments in recent years have shown a much greater tolerance for high real and nominal interest rates and high unemployment rates than was the case in the early and middle seventies. If credibility effects play an important role, one might therefore expect to find that the 1981-82 recession was more "efficient" than the 1974-75 recession, where a recession may be defined as efficient if it achieves a large reduction in inflation for a given degree of unemployment or "slack". While it is too early to answer this question with certainty, the evidence available as of the fall of 1982 is not very encouraging.

1. In terms of OECD countries as a whole, it can be seen from Table 4 that the inflation rate fell from a peak of 11.7 percent in 1974 to 7.9 percent in 1976. The corresponding figures for 1980 and 1982 (estimated) are 11.5 percent and 8.0 percent. In return for approximately equal reductions in inflation, the table indicates that both the level and increase in unemployment were substantially larger in the early eighties than in the mid-seventies. On the other hand, it can be seen that wage inflation was better contained in the more recent period, and is expected to be less than 10 percent in 1982.

2. The most extreme case of determined monetarism is probably the United Kingdom. The OECD expects the British inflation rate (as measured by the GNP deflator) to be 8 1/2 percent in 1982, while hourly wage rates in manufacturing are expected to rise by 10 percent in the same year. This seems to be interpreted as a success for the government's policies. Yet even the most unreconstructed of British Keynesians would probably have readily conceded in 1979 that three years of double digit unemployment rates would have a substantial depressing effect on inflation. Furthermore, British wage inflation has been very volatile in the past, falling from 30% in 1975 to 5% in 1977 and then increasing to 18 percent in the following year. There remains considerable doubt as to whether or not inflation will reaccelerate as and when the economy eventually recovers.

TABLE 4

Inflation and Unemployment in OECD Countries, 1970-1982

	Inflation Rate*	Unemployment Rate**	Wage Inflation***
1970	5.8	3.3	..
1971	6.0	3.8	..
1972	5.6	3.9	..
1973	7.7	3.6	13.1
1974	11.7	3.9	16.2
1975	11.1	5.5	16.8
1976	7.9	5.6	13.0
1977	8.0	5.6	11.4
1978	8.2	5.6	11.5
1979	9.4	5.5	11.3
1980	11.5	6.2	12.6
1981	8.9	7.2	10.1
1982e	8.0	8.5	8.8

* GNP deflator
** National definitions
*** Hourly earnings in manufacturing

Source: OECD, Historical Statistics 1960-1980, Paris, 1982.
OECD, Economic Outlook, Paris, July, 1982.

3. Probably the United States is the country where the strongest case can be made for the importance of credibility effects. However, in terms of price inflation, the evidence to date seems to point to a worse performance in the early eighties than in the mid-seventies, as the peak-to-trough reduction in inflation was slightly greater in the mid-seventies than in the early eighties. As measured by the GNP deflator, the U.S. inflation rate fell from 9.3 percent in 1975 to 5.2 percent in 1976, as compared with an expected reduction from 9.2 percent in 1981 to 6 percent in 1982. This was so despite the fact that the unemployment rate in the more recent period has been higher than in the earlier period. These figures must be treated as tentative since the 1982 data are estimates only, but they certainly do not indicate any significant improvement in terms of the inflation reduction associated with any given unemployment situation. On the other hand, there has been a greater reduction in wage inflation in the early eighties than was the case in the earlier period. As measured by hourly earnings in manufacturing, wage inflation in the United States is expected to fall from 9.2 percent in 1981 to 6.5 percent in 1982, as compared with a decline of just under one percentage point in the mid-seventies.

To conclude, as of the fall of 1982, there seems to be little evidence that credibility effects have yet provided any additional downward flexibility to inflation rates. Indeed, inflation appears to have been less responsible to economic slack in 1981-82 than it was in 1975-76. However, there is some evidence pointing to greater downward flexibility of wage inflation in the United States, although it is difficult to distinguish the effects coming from macro-policy credibility as opposed to effects coming from the greater severity of the current recession and very weak conditions in certain industries such as automobiles and trucking. It is true that these weak conditions in particular industries are in part the result of government policies, such as the deregulation of trucking and perhaps a reduced willingness on the part of the U.S. government to protect particular industries from foreign competition. However, policies of this kind, while they may have played an important role, are not related to macro-credibility, but rather come under the heading of "policies to increase competition", and it is nothing new to say that such policies may increase wage-price flexibility in the affected industries.

4.4.3 Canada's Resource-Based Economy

It could be argued that the much lower inflation rate in the United States than in Canada has been partly the result of a greater degree of policy credibility in the U.S. Before discussing this issue further, it is important to set out a few facts. Wage inflation in the United States has been much more stable than wage inflation in Canada. Between 1972 and 1975 Canadian wage inflation (as measured by hourly earnings in manufacturing) rose from 7.9 percent to 15.8 percent, and between 1978 and 1981 it rose from 7.2 percent to 12.1 percent. In contrast U.S. wage inflation between 1972 and 1981 was never below 7.0 percent and never above 9.2 percent. As compared with Canadian increases over the periods just mentioned of 7.9 and 4.9 percentage points, the corresponding U.S. figures were 2.0 and 0.6 percentage points[8]. Essentially, then, the price shocks of the seventies were incorporated only very partially into U.S. wage inflation as compared with Canadian wage inflation. This meant that one-time upward shocks to the price level were incorporated more permanently into inflation in Canada than in the United States. Consequently, in the years immediately following such shocks price inflation returned quite quickly to close to its pre-shock level in the United States but not in Canada. These statements receive strong confirmation in similar price equations that were estimated for the two countries (McCallum (1982a)): the results indicate that some three-quarters of the effects of food and energy price shocks were permanently incorporated into the Canadian inflation rate, as compared with only one-third for the United States.

Thus, when comparing Canadian and American inflation experience, the key question to ask is why Canadian wage inflation rose by so much more in response to the shocks of 1973-74 and 1979-81 than did U.S. wage inflation. When the issue is posed in this fashion, it becomes clear that the differences between the inflation process in the two countries predates Reaganomics and is therefore not likely to depend on credibility effects coming from such sources as the firing of air traffic controllers. If it comes to pass that U.S. wage inflation declines by a great deal more than Canadian wage inflation in 1982, then a Reagan-based explanation may be in order, but at the time of writing it is not clear whether or not this will be the case. It is still possible that one source of the difference between the two countries was a more credible non-accommodating monetary policy in the United States throughout the seventies, but while this may well have been a factor in the first half of the decade, it appears that Canadian monetary policy was tighter than that of the U.S. in the latter part of the seventies (e.g. Fortin (1982a)).

A major difference between Canada and the United States is that we are a resource-based economy, and it is possible that this factor accounts for much of the difference in inflation performance. Manufactured goods make up some two-thirds of our imports but only one-third of our exports, whereas Americans are large net exporters of manufactured goods. Consequently, when world prices of basic commodities rose dramatically in the early seventies, Canada was a net gainer while the U.S. was a net loser. Between 1972 and 1974 Canada's terms of trade (the ratio of export prices to import prices) increased by 15 percent while the U.S. terms of trade declined by 13 percent over the same period.

An immediate impact of large increases in world commodity prices is to raise resource sector profits dramatically. Firms in forestry, mining, and other primary industries immediately receive the benefits of the higher prices while their costs are not affected right away. However, workers in those industries will naturally want their share of the good times, and they will be in a strong bargaining position since the companies will be able to afford large wage increases and they will want

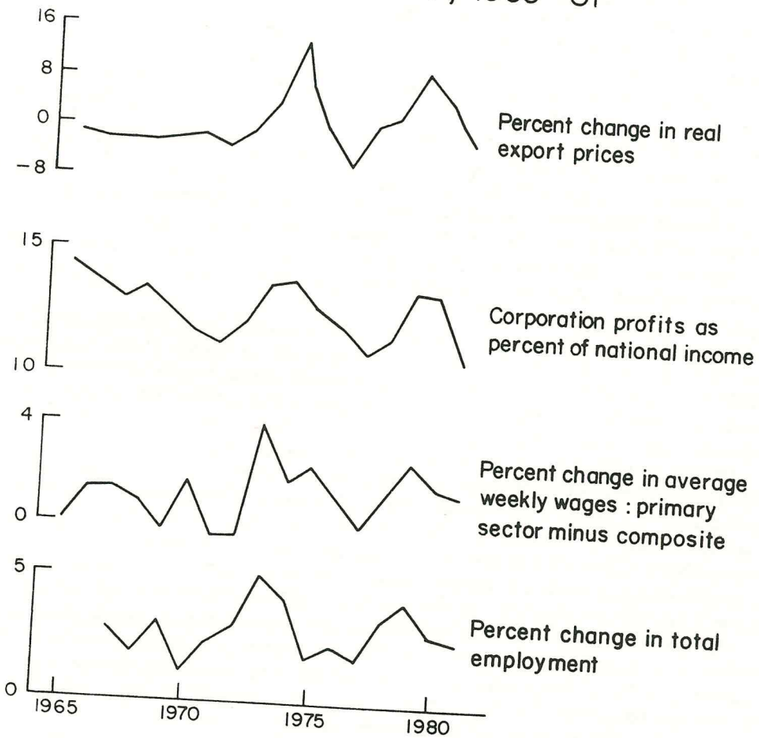
to avoid a strike at a time of high prices. Thus, resource sector workers may be expected to receive large wage increases which may then spread to other sectors of the economy. Furthermore, boom periods in agriculture, mining, oil and forestry have multiplier effects on demand conditions in the rest of the economy, leading to falling unemployment and further inflationary pressures. This is especially true of western Canada, but Ontario and Quebec also have substantial resource sectors, and much of the additional demand from western Canada is met by firms located in central Canada.

Figure 3 provides evidence that is consistent with this view. The top part of the chart plots the percentage change in the relative price of Canadian exports (the percent change in export prices minus the percent change of the price deflator for total GNP). Both world commodity prices and Canadian export prices were extremely stable for the two decades following the end of the Korean War in the early fifties. Both series then increased very sharply in 1973-74 and again, but less dramatically, in 1979. It can be seen from the chart that these were also periods when the share of corporate profits in national income increased very substantially. Furthermore, in both 1973 and 1979 average weekly wages and salaries rose by substantially more for the primary sector (forestry and mining) than for the industrial composite as a whole. While this evidence does not in itself tell us how much of an impact came from this source, it is certainly highly suggestive, as well as consistent with econometric estimates pointing to a positive relation between wage inflation and changes in the terms of trade (e.g. Helliwell (1982)).

It might also be noted that the highest growth rates of total employment were recorded in the three years of rapidly rising export prices: 1973, 5.0 percent; 1974, 4.2 percent; and 1979, 4.0 percent (see chart). This is consistent with earlier results (BM (1980)) showing a strong negative relation between the terms of trade and the unemployment rate. Another link between resource booms and inflation relates to the construction industry. It was widely believed, for example, that the very large wage settlement reached with the St. Lawrence Seaway construction workers in 1966 set the tone for the subsequent increase in wage settlements in the rest of the economy. Wage increases in construction have in general been extremely volatile, and this has been partly the result of the boom-and-bust characteristics of a resource-based economy. Finally, and more generally, it is possible that the real income expectations of Canadians have been higher (and less downwardly mobile) than those of Americans partly because of a belief that our resources will become increasingly valuable in a world that is likely to confront increasing shortages of natural resources as growing population and demand continue to press against the world's finite stocks of natural resources. In brief, then, Canada's position as a resource-based economy may be a major factor explaining why the price shocks of the seventies had stronger and more persistent effects on Canadian inflation than on American inflation.

The fundamental source of increased instability of Canadian export prices has been increased instability of world commodity prices, and as such, the problem is largely beyond Canada's control. However, the following kinds of policies may help to reduce this source of instability: less resistance by the Bank of Canada to exchange rate changes at times of major changes in world commodity prices, policies to make resource-related taxes and royalties more sensitive to world prices so as to reduce profit instability, and possibly the encouragement of profit-sharing arrangements in resource-based industries. These possibilities we discussed in more detail in McCallum (1982).

Figure 3
INDICATORS RELATING TO CANADA'S RESOURCE-BASED ECONOMY, 1965-81



Source : Economic Review, April 1982.

4.5 POLICY CONSIDERATIONS

4.5.1 Policies of the Past

Two issues of the past will be considered briefly: the role of monetary policy in the two major accelerations of inflation that Canada and the world have experienced over the past decade and the role of Canada's wage and price controls of 1975-78. There is no disagreement on the point that the inflation increases of 1972-74 and 1978-81 could only be sustained if monetary policy accommodated them (hence the irrelevance of the point made by Wirick (1980) that in comparing his conveniently chosen periods 1961-70 and 1971-75, the fact that money growth was higher in the latter period meant that inflation was bound to be higher). Rather the more interesting question is whether the events that initiated these jumps in inflation were mainly demand shifts or supply shifts. The view that monetary discipline will be sufficient to prevent outbreaks of inflation in the future would be strengthened if it could be shown that the outbreaks of the past resulted from a lack of monetary discipline rather than from unavoidable supply shocks that may well happen again.

In the case of the early seventies it does not seem possible to reject either a money-dominated hypothesis or a view that the crop failures and energy shock of the time played a major role. True, econometric models tend to assign a large weight to supply factors, but it could be argued that this result is built into such models in advance, and it is often argued as well that much of the commodity price explosion of the early seventies was due to the prior monetary explosion. On the other hand, it does seem possible to reject a demand-dominated explanation of the rise in world inflation in 1979-80. The OECD Economic Outlook of July 1982 contains a striking chart showing a steady, albeit very gradual, decline in money supply growth (M2) from mid-1976 onwards. The chart applies to the seven major OECD countries taken as a whole. Thus, for this group of countries, monetary non-accommodation was unable to prevent a five point jump in the consumer price inflation rate over two years. This fact may also provide indirect evidence regarding the early seventies, for if inflation rose in 1979-80 despite gently declining rates of monetary expansion, why would it not also have increased in the face of the greater shocks of 1973-74 even if monetary policy in that period had been correspondingly non-accommodating? In a Canadian context the increase in M1 growth in 1978 may be blamed for a part of the increase in the growth rate of nominal GNP (see Table 1), but the impact from this source would have been less than two percentage points out of a total of more than four, and possibly much less if one allows for the offsetting effect coming from the higher interest rates that would have accompanied a tighter monetary policy in the short run.

Turning now to Canada's Anti-Inflation Board, it is possible that there is little substantive disagreement between Courchene (1981, pp. 115-17) and BM. Many studies have shown that the AIB resulted in a substantial downward shift of the short run supply curve or Phillips curve, and several studies (e.g. Riddell (1982)) have also reported the absence of any bubble effect following the removal of controls. No one,

to my knowledge, has found a positive bubble effect. Furthermore, it seems possible to reject the hypothesis that the downward supply curve shift of 1975-78 resulted from changing expectations arising from the new monetary policy: this unexplained shift ended with the AIB in 1978, while it is generally agreed that monetary policy was tighter in 1979-81 than in 1976-78. With regard to controls, Courchene (1981, p. 282) argues that "to have continued with the pre-1975 rates of monetary expansion during the controls period would have led to an incredible explosion of wages after controls were removed". Certainly it is difficult to imagine anyone who would disagree with that statement. Of course, it is necessary to engineer a downward shift in the demand curve consistent with that of the supply curve. The criticism made by BM (1980) of monetary policy in 1976 is that this downward shift was overdone, resulting in unnecessarily high levels of unemployment in 1977 and 1978 (8.1 and 8.4 percent respectively). In terms of Figure 1, if point A is the pre-controls position BM criticized the Bank of Canada for taking us to point B rather than C, while Courchene seems to imagine that we were in favour of point D.

1.5.2 Policies for the Future

In terms of immediate policy, BM (1982, Ch. 6) have set out a detailed proposal based on a three year program of wage and price controls, lower interest rates, and moderate fiscal stimulus. This proposal is certainly consistent with our "common framework", given that the Canadian economy is starting with an unemployment rate of some 12 percent. The object would be to shift down the supply curve by means of the controls program, while conducting monetary-fiscal policy in such a way as to help bring down the unemployment rate. More expansionary monetary-fiscal policy is in no way inconsistent with the inflation objective, given that controls are in place and given that the probability of an overheated economy in the next two or three years would seem to be extremely remote.

In order both to generate support for a controls program and to avoid unnecessary unemployment, the government could introduce the controls program and announce a substantial reduction in the Bank of Canada's interest rate at the same time. With a Canada-U.S. short term interest rate differential of more than five percent, with M1 well below its target range, and with the current dismal economic outlook, there would be "room" for a large reduction in interest rates. While there would certainly be some negative effect on the exchange rate in the short run, this would be: (a) good for exports and employment; (b) partly or wholly offset in terms of the short run effect on inflation by the lower interest rates (see Cameron (1982)); (c) not permitted to feed into domestic costs because of the controls program; and (d) reversed in the longer run as the controls program gained credibility in financial markets. Taken as a package, this would seem to be both politically popular and economically sensible. According to a recent Gallup poll, a substantial majority of Canadians, and even a majority of union house-

holds, favours the extension of the present controls to the private sector[9].

Apart from the fiscal stimulus, this proposal may even be consistent with Courchene's analysis, since he has acknowledged that controls may play a useful role and one would think that a "monetary gradualist" would be prepared to allow some relaxation of monetary policy at the present time. Perhaps he will argue that a relaxation of monetary policy would have a negative credibility effect; but, as Taylor (1982) points out, it would be a pity if good policies had to be abandoned for this reason, and in any case the amount of credibility gained from adopting a policy that worked in the past (i.e. controls) may well outweigh the credibility lost from an apparent down-grading of a policy that has so obviously failed to achieve its objectives (i.e. the Bank of Canada's post-1975 monetarism).

Where, then, do the main differences between Courchene and BM lie? Apart from the issue of the appropriate monetary instrument, I think the main differences boil down to questions of faith and ideology. Those who emphasize the evils of government and the central role of credibility seem to imagine that once the government withdraws from the marketplace and once we have achieved this magical substance called credibility, then we may look forward to a new golden age of economic growth and price stability. Yet there would seem to be no precedent in time or space for such a belief. The post-war age of the mixed economy and Keynesian policies, even including the 1970's, has been one of unprecedented growth and stability compared with all pre-war decades of the twentieth century. Across countries, it has been seen that the best economic performers of the past decade have been Japan and the social democracies of Europe. As I read the evidence, longer run policies to deal with inflation and unemployment will have to involve structural and institutional changes within the context of a mixed economy. Attempts to roll back the clock to an imaginary age of unfettered markets are unlikely to do the job.

Notes

[1] According to the Bank of England, as cited by Buiter and Miller (1981, p. 349), the rapid growth of sterling M3 during a period of monetary restraint was due partly to an increase in the personal savings rate and partly to the fact that companies continued to be almost exclusively dependent for external finance on the banks. As the authors conclude, "The chosen broad money target, whose attainment was meant to lead inflation expectations downward and to reinforce the credibility of the government's policy, was perversely endogenous tending to rise as companies borrowed to stay in business."

[2] The average interest rate in 1981 was 17.7 percent. Thus, the figure of -1.0 percent is given by the formula 1.2 + 5 + 1.65 x .5 x (9 - 17.7). The figure of 6.2 percent is given by the first two terms of this expression.

[3] A case for stable real interest rates is advanced by Fortin (1982).

[4] Courchene (1981, p. 273), having accepted the point regarding the inflation adjustment, goes on to withdraw this acceptance when he writes: "After all, the observation that the 'true' value of the deficit is lower than the actual deficit does not diminish the fact that the actual deficit must in the final analysis be financed, with the resulting impact on interest rates and crowding out..." (emphasis in the original). As discussed in Kennedy and McCallum (1982), the latter part of this statement is incorrect unless one assumes that people are subject to money illusion.

[5] The inflation adjustments given in the April 1982 Economic Review were considerably lower than those of the April 1981 Economic Review. The more recent numbers could not be used because the series begins only in 1977. The rationale for the earlier figures is provided in the Economic Review of 1981, but no explanation is given for the more recent estimates.

[6] Much of the material in this section is discussed in greater detail in McCallum (1982).

[7] Inflation rates are based on consumer prices. The data are from OECD, Historical Statistics 1960-80, Paris, 1982.

[8] These figures are from OECD, ibid., and OECD, Economic Outlook, July 1982.

[9] According to a Gallup Poll reported in the Montreal Gazette of September 7, 1982, 63 percent of respondents favoured the extension of controls to the private sector. The corresponding figure for "union households" was 57 percent.

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5
Comments on: A Critical Review of Monetarism in Canada

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As agreed with Doug Peters, I will focus on John McCallum's paper while he (Doug) concentrates on Tom Courchene's. John McCallum does not in fact provide a critical review of monetarism in Canada - at least not in any systematic way. What he does do is discuss a veritable pot-pourri of issues which have to do with the application of macro-policy in general. This makes for interesting reading as one skips along, but it also exposes the author to accusations of a certain superficiality in his attempt to cover all the bases. While it might be judged ungallant, I hope that Professor McCallum will not mind my dwelling on the weaker aspects of his paper rather than its stronger points.

I would, however, like to begin on an entirely positive note by welcoming his stress on the desirability of certain structural reforms in the Canadian economy. We know that prices and wages in this country do not adjust as quickly as they might to shocks of various kinds. The upshot of this deficiency is a higher level of unemployment than would otherwise occur in the face of such shocks. Structural reforms encompassing regulated industries, marketing boards, wage bargaining procedures and a host of other areas would in this perspective seem most welcome. However, I am not inclined to underestimate the practical difficulties of effecting such reforms in a federal system such as our own.

5.1 A COMMON ANALYTICAL FRAMEWORK

In the first part of his paper Professor McCallum reminds us, using a diagram like the one made famous by Dornbusch and Fischer[1], that the economy has both a demand side and a supply side. While not strikingly original now, it should be noted that this fact was not given much emphasis in the academic literature of the late 1960s and early 1970s which recommended increased emphasis by policy makers on the control of monetary aggregates. At that time, the intellectual heritage was almost wholly orientated towards the problem of demand-side shocks and how pol-

icy-makers should respond to them. The well-known article by Poole[2], for example, argued that control over the money supply would provide an automatic contra-cyclical movement of interest rates in the face of unidentified shifts in the IS curve tending to push unemployment down (up) and inflation up (down). However, the policy relevance of Poole's conclusion is clearly diminished to the extent the economy is normally subjected to supply-side shocks as well, whose heritage is both increased inflation and unemployment over relatively long periods (if not "the long run"). In such a more complex world, policy recommendations are clearly rather harder to make and strict rules rather more open to question.

Having welcomed Professor McCallum's reminder that the supply-side matters, I must also welcome his acceptance in his text of the existence of a long-run non-accelerationist rate of unemployment (his "natural" level of output). Clearly if NAIRU did not exist, then the long-run Phillips curve would be alive and well, and policy designed to reduce inflation by squeezing demand would be questionable. Of course, it could be noted by way of counterargument to us both that such a long-run tradeoff does seem to exist in virtually all of the large econometric models of the Canadian economy. The only conclusion I would draw from this observation is that these models need to be respecified, with more attention being paid to their long-run properties.

5.2 DEMAND ISSUES

5.2.1 Monetary Policy

At the beginning of this section Professor McCallum identifies two key issues: (a) "whether or not M1 is the appropriate definition of money" and if so (b) "why the growth of nominal GNP has moved upward at the same time as M1 growth has been moving downwards".

With respect to the first issue, Professor McCallum does some very simple correlations designed to choose between M1 and M2 using the criterion of "forecasting ability for nominal GNE" suggested by Tom Courchene. As I argued in an article in the CJE late in 1979[3], I consider this to be a wholly inappropriate criterion for choice. The saving grace is that Professor McCallum does at least come to the same conclusion that I came to in that article. In my judgement M2 should be rejected as an intermediate target variable because (1) its demand function is far too complicated to be exploited by policy makers (as he notes in talking about changes in financial intermediation) and (2) because the very low interest elasticity of demand for such an aggregate almost guarantees large interest rate swings should an attempt be made to control such an aggregate.

With respect to the second issue, (if M is so low, how can Y be so high) Professor McCallum seems to contend that higher interest rates push up money velocity and therefore allow faster income growth in spite of monetary restraint. I must admit that I find this very hard to understand. The logic seems to suggest that any level of nominal income growth can be financed by a given level of money provided that interest

rates rise high enough. I would rather have thought that the higher interest rates would have the direct effect of slowing demand and nominal expenditures. There is something very wrong in this analysis, and I think it has to do with a confusion between reduced forms and structural equations. Certainly, the estimated equation (#2 on p.44) which purports to support Professor McCallum's proposition seems to me to be highly questionable since it is clearly neither a reduced form nor a structural equation. If it were a reduced form, I would expect to see either Y=f(i) or Y=f(M) but not both: thinking back to IS/LM, one of these financial variables must be endogenous and not exogenous. As for the good possibility that the estimated equation is really just a demand for money equation in disguise, then of course it cannot really tell us anything about the question at issue: and this is true even if the equation appears to have reasonably good statistical properties, in spite of having been estimated with the exogenous variable on the left-hand side.

5.2.2 Fiscal Policy

Professor McCallum tells us in this part of the paper that his estimate of the government deficit, measured on a Full-Employment-Surplus (FES) and inflation-adjusted basis, moved into surplus in 1981 and that this policy was "atypical" of the contra-cyclical policies followed through the 1970s. I would not wish to dispute his numbers, though I suggest it would be unwise (as Professor McCallum recognizes) to conclude that fiscal policy was therefore inappropriate in 1981.

First, the shift into surplus in 1981 was largely the product of higher energy prices and the taxes imposed in consequence. This can not be classified as "restrictive" unless one is also willing to classify the subsequent move of the FES into deficit (as oil prices have fallen) in 1982 as being "expansionary". Second, aside from the well-known measurement problems, there seem to me to be important conceptual difficulties with the use of numbers calculated on an FES basis. Suppose, for example, that the economy was expected (as the Economic Council and the Conference Board suggest) to take many years to get back to levels of potential output. During all those years the real stock of debt would be accumulating at a rapid rate, and particularly so if the real rate of interest were to be maintained at a high level throughout the period[4]. The implications of this needs to be thought out. The FES concept implicitly assumes there is nothing to worry about, yet I am not so sure. Third, there remains the question of the short-run response of the financial markets to large deficits and to stimulative fiscal policies. Should interest rates rise because of a fear that stimulus now will imply structural deficits later (which could conceivably be monetized) then fiscal multipliers might in fact be much smaller than is commonly thought.

5.3 SUPPLY ISSUES

In this section Professor McCallum tells us three things with which I am broadly if not entirely in agreement:

1. Countries with some form of centralized bargaining appear to be able to adjust better to supply shocks than countries where autonomous bargaining is the rule.

While I have some sympathy for this view, two counterpoints could be made. First, centralized bargaining provides scope for ill as well as good. There are a number of European countries (for example Belgium, the Netherlands, and Germany) where a plausible case could be made (see Sachs) [5]. that real wages are "too high" for full employment, and that this too is a by-product of highly centralized bargaining. This point can be made in another way by noting that a number of the countries which McCallum classifies as "bad performers" also happen to have centralized and/or synchronized methods of wage determination; Ireland, Finland and Denmark are cases in point. The second point is related but empirical. McCallum's group 1 countries look from his data (averages, 1974 to 1980) to have had relatively satisfactory performance, yet in some cases things have deteriorated rather substantially since then. The inflation rate in Sweden, for example, was 11.4 percent in 1977, fell and then bounced back up to 12 percent in 1981 (above the OECD average). In Norway inflation was 13.6 percent in 1981 and both countries have just devalued substantially. Gerard Caprio[6] goes so far as to argue that an important cause of Sweden's difficulties has been that "the interaction of this (solidaric) wage policy with stimulative aggregate demand policies led to an explosion of wages" which got the country into difficulties in 1974/75 and has recently done so again. As I said earlier, centralized power can be used for good or ill.

2. The short-run Phillips curve does not appear to be "steeper" in light of the authorities' stated determination to control money. "Credibility" has not been obtained.

It is hard to deny that the world is a long-way from "rational expectations". Yet I think there is currently more price adjustment taking place than meets the eye. In the U.S., for example, the unemployment rate began to rise sharply only in September of last year (1 year ago). Since then, the inflation rate (CPI) and the rate of growth of wages have fallen by more than half. In Canada the lag has been a little longer, but here too progress should not be underestimated. Average weekly earnings (AWE, large establishments) were still rising at over a 13 percent rate in 1982Q1 but in 1982Q2 this fell to 6.9 percent. The reduction in average hourly earnings, while smaller, is still substantial. The message seems to be that credibility is not gained simply by talking about monetary restraint but unfortunately only by actually implementing such a policy. If this is the case, we should see even more substantial effects on inflation in the near future than many now expect. Moreover, I would remind you that these gains will be permanent,

presuming the existence of a NAIRU, while the costs associated with unemployment (though very substantial) should prove to be only temporary.

3. Canada is a small-open economy whose prices tend to be much influenced by international developments.

This is certainly true; during the period 1975-81 Canada was hit successively with the inflationary impact of increased food prices (1976/77) a lower value for the Canadian dollar (1977/78), higher international export and import prices (1978/79) and higher energy prices (1980/81/82). Nor would I wish to dispute the policy conclusion Professor McCallum draws from this observation; namely, that there should be "less resistance by the Bank of Canada to exchange rate changes at times of major changes in world commodity prices." Indeed it was precisely in recognition of such international complications that the Bank moved to emphasize controlling monetary aggregates in 1975. The sustained improvement in Canada's terms of trade had led, as McCallum suggests, to large wage increases in the exposed (benefitting) sector which then spilled over into wages and prices elsewhere. The same phenomenon occurred in Sweden and was almost institutionalized by their centralized wage bargaining procedures. It was felt at the time in Canada that a better response to this kind of shock would have been control of the money supply, an associated increase in interest rates and the exchange rate, and a sharing of the benefits through lower import prices. So on this note at least, I can say that I have some sympathy with Professor McCallum's analysis.

5.4 A CONCLUDING COMMENT

I would like finally to state that I liked the tone of Brian Scarfe's paper this morning[7]. Optimal monetary policy is indeed hard to formulate and even harder to apply. In 1974 the Bank of Canada began to give greater consideration to control of the money supply as a longer-run guide for policy, partly in response to the perceived deficiencies of fine-tuning conducted with only short-run objectives in mind. Developments over the last few years have only served to underline the importance of considering both the shorter-run and the longer-run implications of a chosen stance for monetary policy. I know that this approach has been judged unsatisfactory by protagonists on either side of our position (say, John McCallum and Tom Courchene), but central bankers do tend to feel more at home in the middle of the road.

Notes

[1] Dornbusch, R. and Fischer, S., Macroeconomics McGraw-Hill Book Company, 1978.

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[3] White, W.R. Alternative Monetary Targets and Control Instruments in Canada: Criteria for Choice. Canadian Journal of Economics November, 1979, pp. 590 - 604.

[4] Sargent, T. and Wallace, N., Some Unpleasant Monetarist Arithmetic. Quarterly Review, Federal Reserve Bank of Minneapolis, Fall, 1981.

[5] Sachs, J.D., Wages, Profits and Macro-Economic Adjustment. A Comparative Study. Brookings Papers on Economic Activity 2, 1979, pp. 269-232.

[6] Caprio, G., The Swedish Economy in the 1970s: The Lessons of Accommodative Policies. International Finance Discussion Paper 205, BGFRS., 1982, pp. 1-36.

[7] Scarfe, Brian, "Monetary Policy and the Reflation Problem", Macroeconomics: Theory, Policy and Evidence. Institute for Social and Economic Research, University of Manitoba, 1983, pp. 72-100.

Appendix A
A Primer on Monetarism

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A.1 DEFINITIONS

Monetarism can be defined on three levels of increasing breadth: as a theory of the effects of monetary changes on the rest of the economy, as a set of policy prescriptions based on that theory, and as an ideology. Not all monetarists agree on the definition of monetarism at any of these three levels, but there is some consensus.

Monetarists believe unanimously that changes in the money supply have important effects on both real output and inflation in the short run, and on prices in the long run. (So do almost all other economists, for that matter). Higher monetary growth rates cause higher growth rates of nominal income. In the short run both output and price levels grow to increase nominal income, but in the long run only prices increase; real output actually falls. Some monetarists also believe that changes in government taxes and spending have only small effects on output and prices, and even that only in the short run, so that fiscal policy does not matter; this view is less widespread, however.

Monetarist policy prescriptions are almost invariably for steady growth of the money supply, however defined. Monetary policy should not be used actively to counter cyclical forces in the economy, but instead should be kept on a simple and stable course which is both obvious to other sectors of the economy, and also not easy for the central bank to vary undetected.

Monetarist ideology is generally anti-interventionist, relying upon market forces and the private sector. Monetarists generally believe that the private sector left to itself would be relatively stable, and that attempts by policymakers to be anticyclical will in fact aggravate cyclical fluctuations most of the time.

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A.2 ATTITUDES TO STABILIZATION POLICY

Monetarists generally view countercyclical stabilization policy as a myth. They argue that the lags in such policy (lags in implementing it, and then lags in the policy having effects on the economy) are both long and variable; good intentions therefore often turn out to stimulate the economy just at the time in the cycle at which the economy actually needs restraint rather than stimulus. In addition, the frequent shifts of policy which countercyclical policy involves keeps the public confused about future policy stances, and makes it more difficult for the public to plan its own financial future. Frequent policy changes (unless according to a known and fairly simple rule) also reduces the credibility of each policy stance, and thereby undermines its effectiveness.

A.3 MONETARY POLICY IMPACTS

Changes in the money supply cause increases in the level of aggregate demand for goods and services - both because of lower interest rates on financial assets, and possibly because of direct use of excess money balances to buy consumer goods. Higher aggregate demand causes higher output levels, with an accompanying increase in inflation which is determined in the short run by the slope of an economy's short run Phillips curve. Over time, the short run Phillips curve shifts as inflationary expectations are revised, and the higher aggregate demand comes to cause more inflation and less extra output growth. In the long run, the Phillips curve is vertical, and the only lasting legacy of faster monetary growth is faster inflation.

While faster money supply growth is pushing up inflation, it will also push up nominal interest rates, by roughly the amount of higher expected inflation. Real interest rates may be lowered by expansionary monetary policy, but nominal interest rates will soon start to rise again. The exchange rate (the foreign currency price of domestic currency) will also suffer with faster monetary growth, since some of the extra domestic money will just be sold for foreign assets; the sale will depress the exchange rate.

It is not clear just how long it takes to move from the short run to the long run, though monetarists tend to think of this as happening sooner than do non-monetarists. This is one of the least articulated facets of the monetarist debate, a source of great confusion in the past.

A.4 COSTS AND BENEFITS OF POLICY

The costs of unemployment are basically the costs of foregone output, that which could have been produced by the idle plant and workers. This cost is an annual cost, repeated for as long as the unemployment continues. The cost of inflation is the social cost of wealth transfers from creditors to debtors, the "shoe-leather" costs of extra trips to the bank to make do with smaller money balances (because it's opportunity cost, the rate of interest, is higher when price levels are rising), and the extra uncertainty attached to long term financial planning when the future buying power of current savings cannot be assured. Policy which causes substantial variations in interest rates or in exchange rates also increases future uncertainty and makes financial planning difficult for the members of society.

Other policies to influence inflation and unemployment (besides monetary policy) include fiscal policy and incomes policies (such as wage and price control schemes). The choice between them depends on assessment of the relative costs which would be incurred by each in achieving a satisfactory level of inflation and unemployment.

A.5 IMPLEMENTATION OF MONETARY POLICY

Monetary policy can be implemented in several ways, each with different "automatic" stabilizing properties. The choice between them is often a matter of dispute between monetarists and non-monetarists. The choices are a money supply strategy, a reserve base strategy, an interest rate strategy, and an exchange rate strategy.

1. Money Supply Strategies. Through open market operations the Bank of Canada can adjust the level of cash reserves of the banking system, and thereby influence interest rates in the money market, such that demand for some monetary aggregate such as M1 grows at a rate within some target band. Deviations of actual growth above the band will then be met, automatically, by higher interest rates; the higher interest rates will reduce the demand for M1 balances at each level of income, and also depress income levels (sooner or later). This strategy works best when the demand for M1 balances is tied firmly to the growth of nominal income, since then a steady growth of M1 demand will also mean steady growth of nominal income. Disturbances of money demand growth for other reasons will also trigger changes in interest rates, however, so the policy strategy can on occasion be destabilizing.

2. Reserve Base Strategy. The central bank could simply fix the growth of chartered bank cash reserves, and not concern itself with what growth of monetary aggregates this allowed. With this strategy, the central bank would also give up control of the interest rate. Disturbances to growth of aggregate demand would therefore automatically trigger stabilizing interest rate changes to counter the disturbance, as with the money supply rule. How-

ever, disturbances to either money demand or to the money supply multiplier relationship (e.g. changes in the public's desired currency:deposit ratio, or changes in desired deposit proportions) would also cause changes in interest rates with this strategy, which would cause extra disturbances in aggregate demand.

3. Interest Rate Strategy. The central bank can set the level of the interest rate to a desired level, and then adjust the level of chartered bank cash reserves as needed to keep that interest rate in money markets. With this strategy, disturbances in money supply and demand are not allowed to cause disturbances to aggregate demand by changing the interest rate. On the other hand, the interest rate is not allowed to adjust automatically to counter disturbances in aggregate demand.

4. Exchange Rate Strategy. This is the same as an interest rate strategy, except that the interest rate is adjusted as necessary to keep the exchange rate constant. Neither disturbances in money demand and supply, nor disturbances in the foreign exchange market are allowed to affect the exchange rate. On the other hand, neither the exchange rate nor the interest rate are allowed to offset demand disturbances automatically.

Which strategy is best depends on the relative frequency of the different kinds of disturbances, and on policymakers' aversion to different kinds of uncertainty. In theory, it is fairly easy to show that the optimal policy strategy is a complex combination of several of the "pure" strategies above, rather than any one of them. In practice, such a combination runs the risk of appearing hopelessly confusing to the public, and would thereby earn the condemnation of many monetarists.

Appendix B
Glossary

Adjusted Budget Balance- Adjusting of the deficit to account for cyclical fluctuations producing values for the deficit along trend of potential output. This calculation, an analagous one to inflation adjusting, attempts to produce a view of the budget, undisturbed by variations in the business cycle.

Backcasting- The simulation of a model backward in time beginning at the start of the period for which the model was estimated. This procedure is used to verify the parameters of the forecast model.

Fiscal Multiplier- The numerical coefficient showing how much is the change in income resulting from a change in government or tax expenditures.

Inflation Premium Component of Interest Rates- An observed interest rate contains three general components: the real rate of interest, the risk premium, and the inflation premium. The inflation premium compensates lenders for the expected effects of inflation on the real value of their financial assets.

Long Run Non-Accelerating Rate of Unemployment- The lowest unemployment rate which will not result in accelerating inflation, also referred to as the natural rate of unemployment.

M1- Currency outside banks plus demand deposits.

M2- Currency plus all chequable, notice and personal term deposits.

Monetary Gradualism- A monetary policy which enacts incremental changes in money supply growth towards a target rate.

Natural Rate of Unemployment- The rate of unemployment associated with the equilibrium real wage. In this model, all unemployment is voluntary. Also referred to as the non-accelerating inflation rate of unemployment.

Nominal Interest Rate- The observed interest rate (without adjusting for inflation).

Potential Output- The level of output associated with a positive level of unemployment computed to reflect only frictional and structural unemployment.

Rational Expectations- A class of models in which individuals understand the structure of the economy and fully anticipate the effects of changes in macroeconomic policy. In effect they are able to correctly guess the impact of announced changes in monetary and fiscal policy. Monetarists use this assumption to argue that the central bank cannot run an independent monetary policy.

Real Interest Rate- Observed interest rate minus the rate of increase of the price level (usually the gross national expenditure price deflator or the consumer price index).

Reduced Form Equation- Structural econometric models are composed of behavioural equations (eg. the consumption function) and identities (Y = C + I + G + (X - M)). Behavioural equations are composed of endogenous variables (effects) and exogenous variables (causes) on both sides of the equation. A reduced form equation is the result of a mathematical manipulation in which the endogenous variable is made a function of only a set of exogenous variables and a random error term.

Reserve Balances- The portion of demand deposit liabilities which chartered banks are required to hold on deposit with the central bank.

Structural Equation- An equation in an economic model which explains behaviour in terms of a set of exogenous variables (causes) and other endogenous variables. In the small system

$$C_t = a + bY_t + cI_t \quad \ldots 1$$
$$I_t = d + eY_{t-1} + fG_t \quad \ldots 2$$
$$Y_t = C_t + I_t + G_t \quad \ldots 3$$

there are two structural equations (1 and 2) and one identity (3). The variables C and I are endogenous, while Y_t, Y_{t-1}, and G are exogenous or predetermined variables.

Terms of Trade- Ratio of export prices to import prices.

Velocity of Money- The rate at which the stock of money is turning over per year to consummate income transactions.

Appendix C
Facts and Figures on the Monetary Experience of Canada since 1970

TABLE 1

OUTPUT AND PRICE INDICATORS

MONTH	GNP	REAL GNP	PERCENT CHANGE REAL GNP	PERCENT CHANGE GNP DEF	PERCENT CHANGE IN CPI	PERCENT CHANGE IMPORT PRICES	OUTPUT PER PERSON EMPLOYED
MAR70	19679	20526	.	.	.	.	2.61
JUN70	21221	21875	.	.	.	.	2.76
SEP70	22748	23582	.	.	.	.	2.96
DEC70	22037	22407	.	.	.	.	2.82
MAR71	20892	21428	4.4	2.9	1.9	-0.4	2.68
JUN71	23176	23178	6.0	3.5	2.4	0.7	2.87
SEP71	25563	25376	7.6	2.7	3.5	3.9	3.11
DEC71	24819	24468	9.2	3.5	5.0	3.0	2.96
MAR72	23470	22946	7.1	4.8	4.7	4.2	2.76
JUN72	25965	24907	7.5	4.2	4.1	2.9	2.99
SEP72	27999	26323	3.7	5.4	5.2	2.2	3.15
DEC72	27800	26072	6.6	5.6	5.1	3.4	3.07
MAR73	27070	24917	8.6	6.5	6.0	3.8	2.87
JUN73	29898	26581	6.7	8.6	8.1	7.1	3.01
SEP73	33371	28170	7.0	9.8	8.6	9.8	3.21
DEC73	33221	28144	7.9	11.6	9.1	10.7	3.15
MAR74	32433	26430	6.1	13.6	10.3	15.5	2.93
JUN74	35698	27831	4.7	15.6	11.4	18.3	3.06
SEP74	40799	28926	2.7	16.9	10.8	22.5	3.15
DEC74	38598	28491	1.2	15.0	12.5	25.8	3.08
MAR75	36359	26298	-0.5	13.0	11.3	22.6	2.86
JUN75	39496	27913	0.3	10.3	10.3	18.1	3.00
SEP75	45975	29760	2.9	9.7	10.6	12.5	3.18
DEC75	43513	29034	1.9	10.2	9.5	6.4	3.08
MAR76	42439	27783	5.6	9.8	9.0	2.7	2.93
JUN76	46762	29743	6.6	10.7	7.8	0.8	3.14
SEP76	52367	31449	5.7	9.0	6.5	-0.2	3.30
DEC76	49463	30274	4.3	8.7	5.8	1.2	3.19
MAR77	47308	28475	2.5	8.1	7.4	7.6	2.98
JUN77	50793	30079	1.1	7.1	7.8	10.7	3.12
SEP77	56729	32044	1.9	7.1	8.4	14.3	3.30

TABLE 1

OUTPUT AND PRICE INDICATORS

MONTH	GNP	REAL GNP	PERCENT CHANGE REAL GNP	PERCENT CHANGE GNP DEF	PERCENT CHANGE IN CPI	PERCENT CHANGE IMPORT PRICES	OUTPUT PER PERSON EMPLOYED
DEC77	54038	31164	2.9	6.0	9.5	16.5	3.20
MAR78	52017	29398	3.2	6.5	8.8	13.6	2.98
JUN78	56016	31070	3.3	6.1	9.2	12.3	3.12
SEP78	62764	33454	4.4	6.4	8.6	12.1	3.33
DEC78	59693	32269	3.5	6.9	8.4	14.6	3.17
MAR79	58375	30597	4.1	8.0	9.3	14.1	2.98
JUN79	63794	31975	2.9	10.0	8.9	11.8	3.10
SEP79	70902	34085	1.9	11.2	9.6	14.9	3.26
DEC79	68505	33193	2.9	11.8	9.8	14.5	3.14
MAR80	66464	30977	1.2	12.1	9.3	16.1	2.93
JUN80	70194	31823	-0.5	11.3	10.1	18.4	3.00
SEP80	78705	34030	-0.2	10.6	10.7	14.1	3.17
DEC80	76506	33637	1.3	10.3	11.2	11.8	3.11
MAR81	74869	31695	2.3	10.3	12.5	11.8	2.90
JUN81	79896	33452	5.1	9.1	12.8	12.2	3.04
SEP81	90735	35485	4.3	9.9	12.5	12.0	3.24
DEC81	85838	33908	0.8	11.1	12.1	8.4	3.13
MAR82	80771	30654	-3.3	11.2	11.6	5.0	2.86
JUN82	84072	31629	-5.4	10.8	11.2	3.5	2.99
SEP82	94543	33794	-4.8	10.3	10.4	3.9	3.23
DEC82	89539	31980	-5.7	10.4	.	3.8	3.07

PERCENT CHANGES ARE FROM ONE QUARTER TO SAME QUARTER LAST YEAR
GNP IS EXPRESSED IN MILLIONS OF DOLLARS

SOURCE:STATISTICS CANADA, CANSIM-UNIVERSITY BASE

TABLE 2

GENERAL ECONOMIC INDICATORS

	UNEM-PLOYMENT RATE	EXCHANGE RATE	PERCENT CHANGE IN M1	PERCENT CHANGE IN PRICE PER UNIT LABOR COST	PRIME RATE	PERCENT CHANGE IN WAGES	CAPACITY UTILIZATION RATE	REAL RETAIL TRADE
MAR70	5.9	1.07	.	-0.2	8.0	.	90.6	0
JUN70	6.0	1.04	.	-0.3	7.0	.	88.1	0
SEP70	4.9	1.02	.	-0.4	6.5	.	87.2	0
DEC70	6.1	1.02	.	-0.6	6.0	.	86.0	0
MAR71	7.0	1.01	8.9	-0.6	5.3	7.8	86.5	0
JUN71	6.0	1.02	13.9	-0.3	5.3	8.8	87.0	0
SEP71	5.2	1.01	16.5	0.1	5.3	6.8	88.7	0
DEC71	5.8	1.00	17.4	0.5	4.8	4.1	89.1	0
MAR72	6.8	1.00	14.2	0.5	4.8	2.6	88.5	7733892
JUN72	6.1	0.98	12.3	0.4	4.8	1.6	90.0	8210992
SEP72	5.5	0.98	13.6	0.2	4.8	2.8	90.4	8025027
DEC72	6.3	1.00	14.3	0.1	4.8	4.1	93.3	8292330
MAR73	6.2	1.00	14.8	0.3	4.8	3.8	95.8	8334071
JUN73	5.2	1.00	15.5	0.6	6.3	3.4	95.9	8438802
SEP73	4.9	1.01	14.1	1.0	7.3	1.6	95.9	8306721
DEC73	5.2	1.00	11.2	1.0	7.3	-0.6	96.7	8623084
MAR74	5.8	0.97	11.8	0.9	7.3	0.4	97.9	8790600
JUN74	4.8	0.97	10.8	0.9	8.8	0.8	95.9	8853185
SEP74	4.8	0.99	7.0	0.8	9.3	4.0	93.8	8997780
DEC74	5.8	0.99	6.2	0.3	8.8	3.9	91.1	8717851
MAR75	7.6	1.00	12.2	-0.3	8.3	5.9	86.3	8998867
JUN75	6.6	1.03	11.5	-0.7	8.3	7.0	84.7	9028520
SEP75	6.2	1.03	16.2	-0.8	9.0	6.0	84.7	9177630
DEC75	6.8	1.01	22.2	-0.6	9.0	5.8	84.7	9493710
MAR76	7.6	0.99	9.7	-0.4	9.5	6.5	85.7	9244995
JUN76	6.6	0.97	9.1	-0.3	9.5	6.8	87.6	9570091
SEP76	6.4	0.97	6.2	-0.2	9.5	5.3	87.2	9492543
DEC76	7.3	1.02	1.2	-0.2	8.5	6.6	86.2	9616158
MAR77	9.2	1.05	7.5	-0.1	8.0	3.5	86.9	9560525

TABLE 2

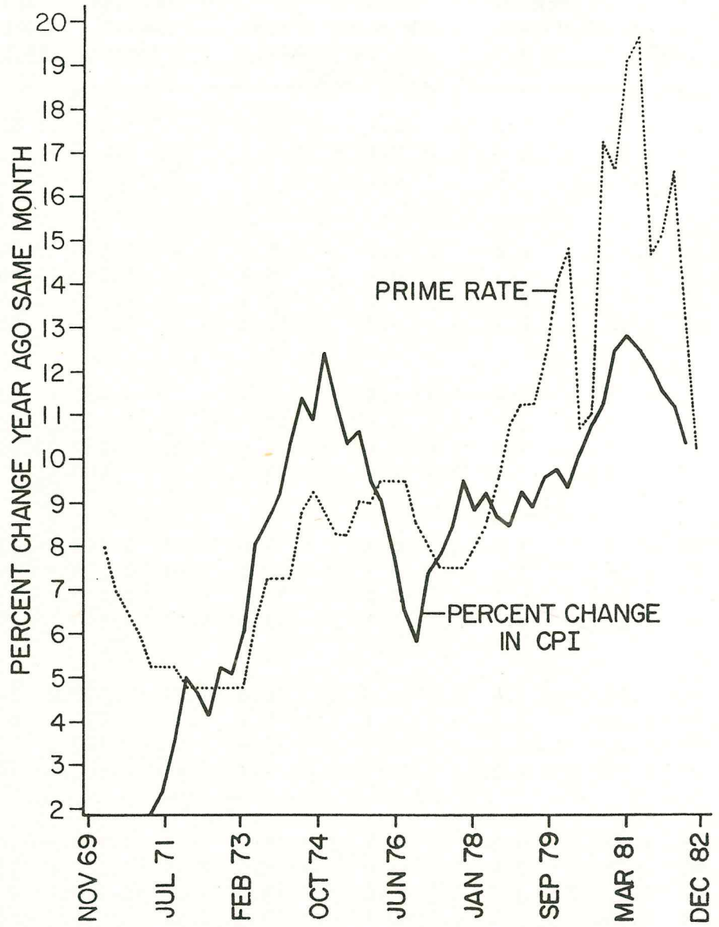
GENERAL ECONOMIC INDICATORS

	UNEM-PLOYMENT RATE	EXCHANGE RATE	PERCENT CHANGE IN M1	PERCENT CHANGE IN PRICE PER UNIT LABOR COST	PRIME RATE	PERCENT CHANGE IN WAGES	CAPACITY UTILIZATION RATE	REAL RETAIL TRADE
JUN77	7.5	1.06	9.2	0.1	7.5	3.3	86.3	9405964
SEP77	7.4	1.07	9.1	0.2	7.5	2.6	85.9	9455039
DEC77	8.3	1.10	12.0	0.2	7.5	-0.1	85.6	9528161
MAR78	9.7	1.13	8.8	0.2	8.0	-1.3	85.4	9592301
JUN78	8.0	1.12	9.1	0.4	8.5	-3.3	86.5	9723145
SEP78	7.7	1.17	10.6	0.6	9.5	-1.9	86.3	9867014
DEC78	7.9	1.18	8.3	0.7	10.8	-1.1	88.8	9803238
MAR79	8.9	1.17	6.6	0.8	11.3	-0.6	90.0	9953748
JUN79	7.0	1.17	9.1	0.8	11.3	0.0	89.7	10007018
SEP79	6.4	1.17	7.5	0.6	12.3	-0.2	90.2	10062658
DEC79	7.0	1.17	3.5	0.4	14.0	-1.4	88.4	9934646
MAR80	8.6	1.17	8.4	0.3	14.8	0.9	87.7	9847769
JUN80	7.5	1.15	1.5	0.2	10.7	0.2	84.2	9622656
SEP80	6.6	1.16	6.1	-0.0	11.0	0.2	83.6	9904386
DEC80	7.1	1.20	10.4	-0.1	17.3	1.3	84.8	9978388
MAR81	8.5	1.19	7.4	-0.0	16.6	-1.3	84.5	10111374
JUN81	7.0	1.20	7.7	0.1	19.1	0.6	86.1	9927646
SEP81	7.5	1.20	-0.6	0.1	19.6	0.2	83.0	9738560
DEC81	8.5	1.19	2.3	-0.1	14.7	0.5	78.8	9646740
MAR82	10.5	1.22	-0.3	-0.7	15.1	1.7	76.1	9327538
JUN82	10.7	1.28	2.4	-1.0	16.6	-0.2	73.5	9154679
SEP82	11.3	1.23	3.5	-0.6	13.2	-0.2	71.2	9143156
DEC82	12.7	1.24	3.8	-0.1	10.3	.	68.3	.

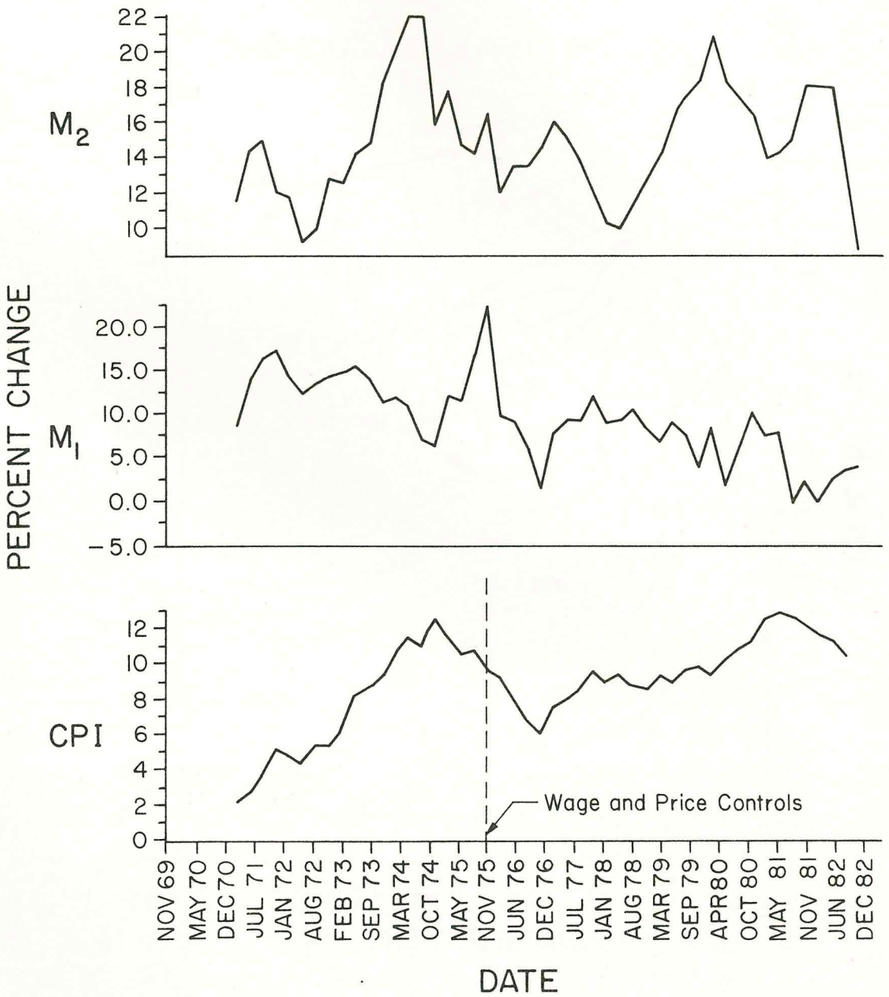
PERCENT CHANGES ARE FROM ONE QUARTER TO SAME QUARTER LAST YEAR
CHANGE IN WAGES IS AN UNWEIGHTED AVERAGE OF THE CHANGE IN HOURLY WAGES IN MINING, MANUFACTURING AND CONSTRUCTION

SOURCE:STATISTICS CANADA, CANSIM-UNIVERSITY BASE

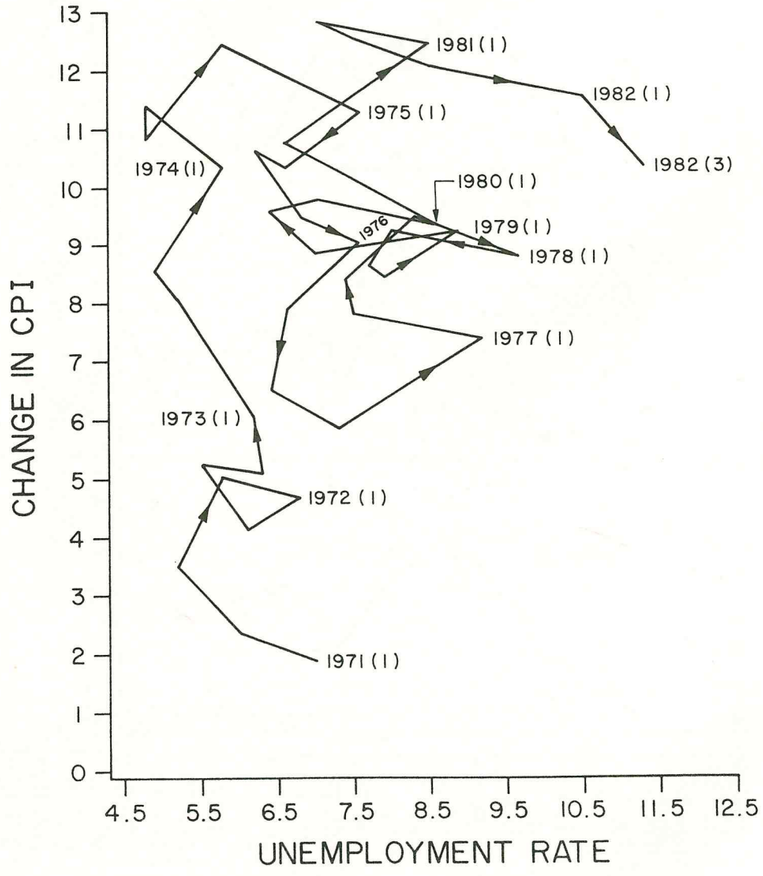
INTEREST RATES AND PRICES



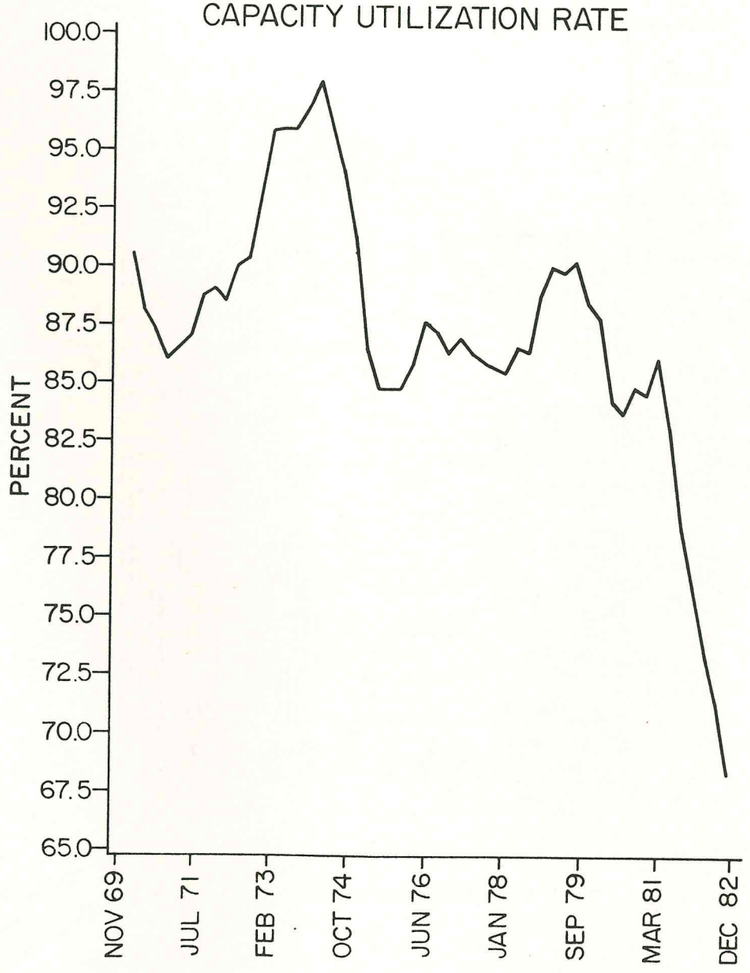
MONEY SUPPLY AND PRICES

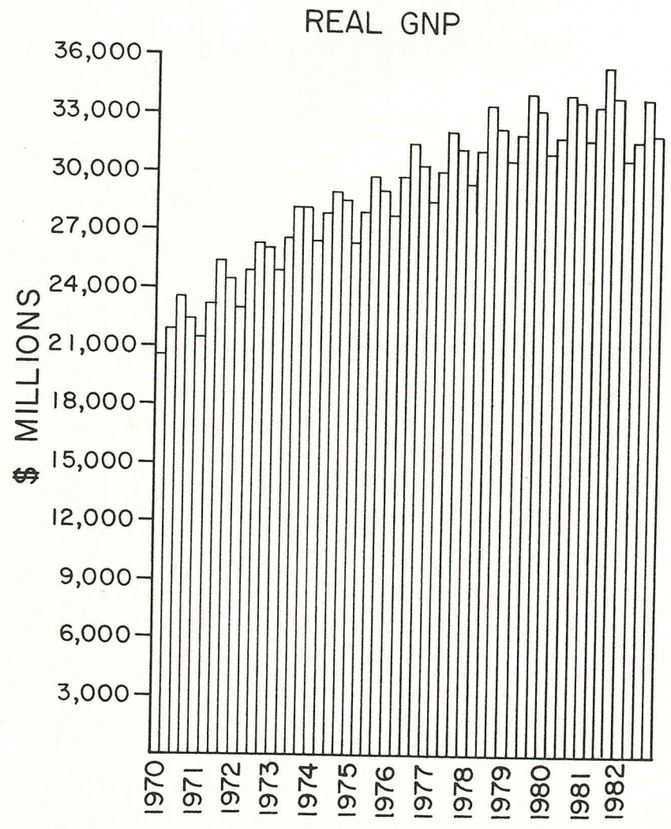


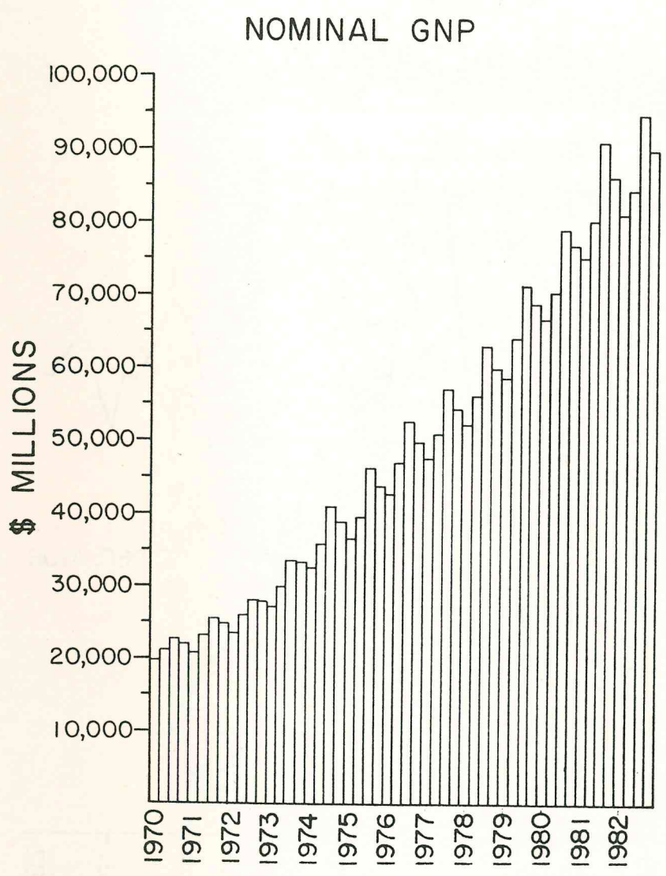
PHILLIPS CURVE RELATIONSHIP



CAPACITY UTILIZATION RATE




REAL GNP
$ MILLIONS
36,000
33,000
30,000
27,000
24,000
21,000
18,000
15,000
12,000
9,000
6,000
3,000
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982


NOMINAL GNP
$ MILLIONS
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982