

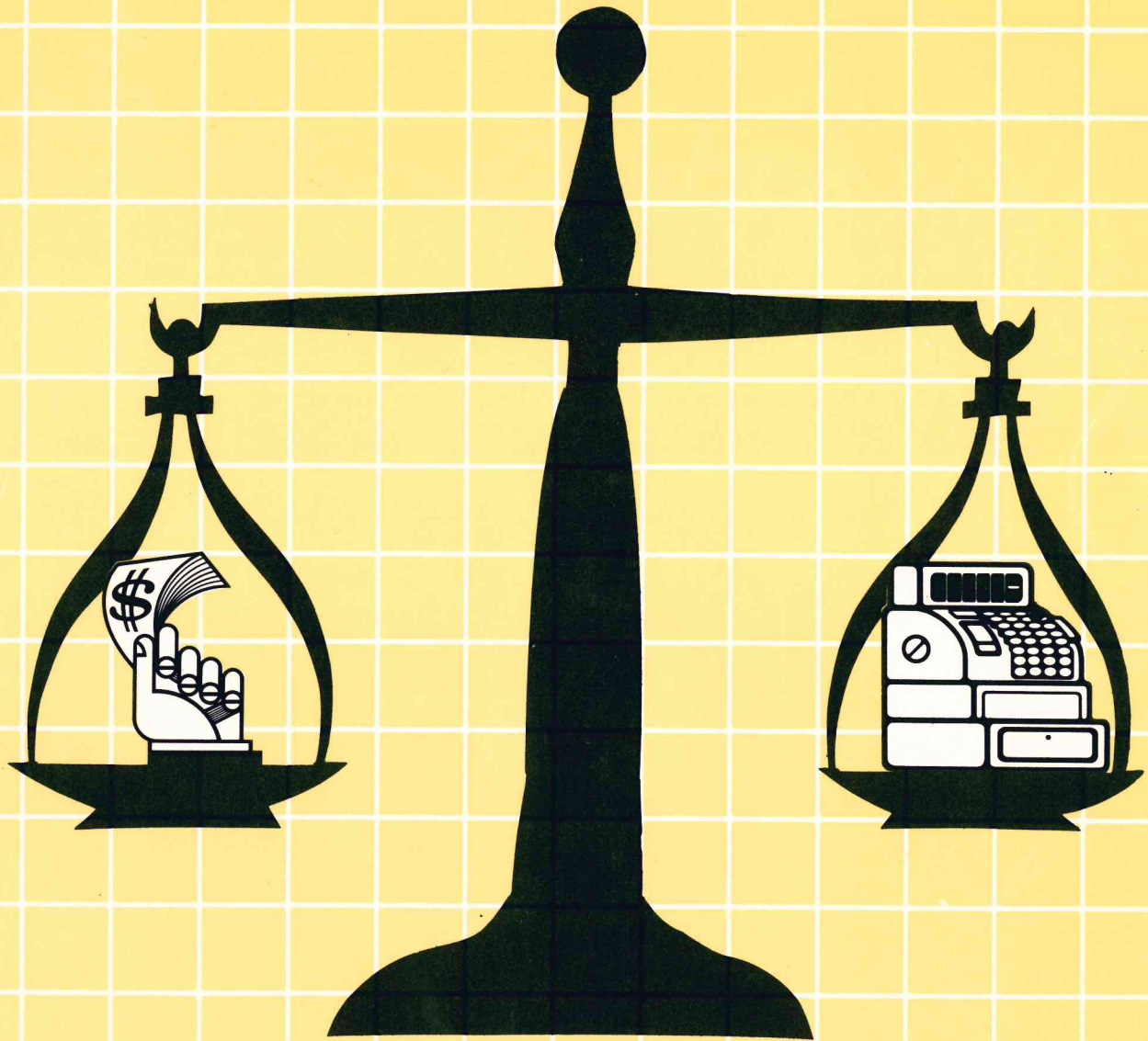


THE UNIVERSITY OF MANITOBA  
FACULTY OF ARTS

**Institute for Social &  
Economic Research**



# **Wage and Price Control**



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**ISER Monograph Series /4**

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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# Wage and Price Control

Edited by G. Mason

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# 1

## Introduction and Overview

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In October, 1975, the Federal Government announced a comprehensive program of wage and price controls, also known as incomes policies. This program was to last for three years, and contained specific regulation of incomes, prices and profits. The initial coverage of the program comprised firms with more than 500 employees, construction firms with more than 20 employees, federal government departments and affiliated agencies and corporations and finally, professionals.

Over the three year period wage earners were permitted basic wage increases of 8%, 6% and 4% respectively which reflected the anticipated rates of inflation during 1975 - 78. In addition, a national productivity factor reflected the average growth in productivity over the previous twenty years, while the experience factor was introduced explicitly to allow employees to catch-up if their wages had fallen behind because of the timing of collective agreements. Those wage earners whose hourly pay was less than \$3.50 were exempt from the program while high income earners had their annual pay increase capped at \$2400.00.

Prices and profits were to be controlled by "taxing" excess revenue. Prices were required to be set so that such excess revenues were not generated; in the event that revenues above guidelines (base year) were received, prices would have to be lowered in the next fiscal year, or through the provision of customer rebates or remittances to government. A special program of price and profit monitoring was initiated to ensure compliance.

Throughout the program several amendments were introduced. In the first year, key companies in the anti-inflation fight and employees which bargained in groups were added to the program coverage. In the second year the minimum exempt wage was raised to \$3.75 per hour. The daily price monitoring was dropped and in its stead a profit margin test introduced. Also, firms which could demonstrate a poor performance in the base year could use sales performances in previous years when calculating excess revenues. In the third year the national productivity and experience factor were replaced by a basic guideline of 6%.



The wage and price control era has generated great controversy in Canadian economic policy. Furthermore, the persistence of inflation, and the concern with which many view the current recovery, in particular the doubts about whether inflation has indeed been leached out of the economy, prompt many to argue that a comprehensive incomes policy is still needed.

In this collection of essays, John Vanderkamp begins by assessing the basic macroeconomic issues underlying wage and price controls. Using a simple six equation quantitative model, he analyzes wage and price controls under a variety of environments. This model includes equations for wage and price adjustments, an inflation expectations function, and relationships between unemployment and output. A number of illustrative policy simulations are conducted, ranging from a "cold shower" monetary policy to a gradualist approach.

The time path of wages, prices and output variables are tracked for several periods. Wage and price controls are imposed onto the model and the results compared under these alternative monetary scenarios. Vanderkamp is able to arrive at some broad generalizations. First, any wage and price control program must be carefully integrated into an overall policy, especially monetary policy framework. Second, the imposition of a wage and price control program in the context of autonomous price behaviour (i.e. external shocks) is a method for sharing the adjustment costs associated with the anti-inflation program. The wage and price control program represents a method for effecting real wage reduction for many compared with unemployment for a few.

Vanderkamp then considers in greater detail the role of incomes policies in allowing the economy to absorb autonomous price increases. This problem is quite important, especially if future supply constraints produce price shocks as the recent oil price inflation. The Canadian economy appears to have little resilience to such transitory price events. Two sources of price shock are considered - international commodity price movements and excess demand provoked by government spending. His conclusion, after similar simulations as reported above, is that a wage and price control program does permit the economy to absorb these price shocks without the damaging unemployment effects commonly observed. Combined with a restrictive monetary policy, the effect is even greater.

In concluding the essay, Vanderkamp notes that the model employed is quite simple while the real world is considerably more complex. The real world lags in demand and supply relations imply that the conclusions of the simple model need amendment. In particular, the unemployment consequences of "cold shower" monetary policies are probably more significant than demonstrated by the models. None the less, he concludes that wage and price controls can provide the basis for a more equitable sharing of autonomous price shocks to the economy and offer a method for creating a more resilient economy.

The paper presented by Allan Maslove, adopts a different approach. His concern is much more with the microeconomic and institutional foundations of wage and price controls. The recent growth in the number of economists who are prepared to consider the imposition of incomes policies is attributed to three developments, namely; the failure of conventional stabilization policies to cope with inflation; the increase of

apparently institutional reasons for wage and price inflexibility; and finally increased sophistication in the actual mechanics which are open to government to control wages and prices.

His first task in the paper is to create a set of evaluation criteria whereby alternative income policies may be judged. These include:

1. Rigidities - Overall prices should be controlled but not at the expense of flexibility in particular prices;
2. Causal Control is desirable in that an incomes policy should be able to address some of the expectational bases and causes of inflation.
3. Equity - Obviously controls programs should be fair, and so perceived by all sectors of society;
4. Feasibility and Saleability - Relatively simple control programs are capable of relatively easy implementation.
5. Administrative Discretion
6. Cost

Maslove then turns his attention to four basic models of incomes policies. First, are the wage and price rules, as exemplified by the anti-inflation policy enacted in Canada in the mid-seventies. The most serious problem with these forms of control is that they are extremely rigid, and do not allow for individual price movements. The allocation of resources is seriously impaired. Simple rules do have the potential for being reasonably fair provided that there is flexibility in the program as problems are identified, and careful attention paid to the initial design. Second, a rules type control program can be adjusted through administrative discretion, and this can compensate for rigidities normally associated with fixed programs. As administrative discretion increases, the cost of the program rises rapidly as individual groups negotiate with the central agency.

Third, are tax based incomes policies (TIP). The key to this group of controls is that they all use the income and corporate tax system to effect wage and price discipline. TIP programs may be penalty type in which those whose wages or prices rose above the guidelines would be taxed, while a reward program grants tax benefits to those whose incomes had been lower than the guidelines. It is quite likely that a penalty TIP would face extreme union opposition. The inherent difficulties in controlling prices would also be present in the TIP type of incomes policies programs.

With respect to the evaluation criteria, Maslove notes that TIP programs tend to be somewhat rigid. A reward TIP sidesteps the equity issue by providing an incentive for cooperation, and the administration is relatively easy. The major problem, especially with a reward TIP involving tax benefits, is the very high cost in terms of foregone government revenues.



The fourth and final plan considered in this paper is the Market Anti-Inflation Plan (MAP). This innovative scheme, the creation of Abba Lerner, involves the creation of a number of "inflation rights" which would be marketed. Firms would be given a number of MAP credits equal to some percentage (corresponding to the growth in national productivity) of net sales. Any firm whose net sales (wages plus profits) increased faster than the growth in real product for the country would then be forced to enter the market and buy MAP credits. The price of these credits would rise and fall according to demand.

The MAP program is essentially similar to anti-pollution programs which auction the right to pollute. The MAP program is relatively more effective against prices (as opposed to TIP which tends to concentrate upon wage control), and thus is a flexible approach to incomes policies. With respect to addressing the causes of inflation the MAP program is also relatively successful and it should not disturb the distribution of income.

The major concern with MAP is its feasibility, especially within the public sector. For Crown corporations there is no major problem, but for direct employees of government there are obvious problems. In addition, some question the ability of MAP to operate in the world of high and artful finance; many feel that creative accounting would be used to adjust net sales figures. Some object to MAP programs simply because its novelty may make it difficult to sell politically. Finally, Maslove argues that the program would be relatively low cost. In his conclusions, Maslove states that:

Income controls are instruments with political repercussions much more direct and visible than virtually any other instruments of economic management.

He cautions that the designers of control programs must account for these political effects as well as the economic factors influencing their implementation.

A series of comments are provided by Cy Gonick, who takes issue with both Vanderkamp and Maslove on the grounds that neither author recognizes the fundamental conflict inherent in a capitalist system. According to Gonick the fact that controls typically fall on working people is no accident, but rather part of a systematic design to subvert this group in gaining economic power.

## 2 Wage and Price Controls: Some Basic Macro Issues\*

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### 2.1 INTRODUCTION

There is a wide range of opinions about the effectiveness of wage and price controls in fighting inflation. At one extreme are those who hold that controls are our only salvation. A few people in this camp appear to believe that monetary policy is of no significance, but most are prepared to admit that monetary aggregates may affect output and employment, but are without any influence on the rate of inflation. The Phillips curve obviously does not feature in this view of the world. At the other extreme of the spectrum are those who argue that inflation is a purely monetary phenomenon and that only monetary policy can be used to reduce the rate of inflation. Wage and price controls are completely ineffective and at best serve as window dressing. Some people in this camp also dismiss the significance of the Phillips curve as the relationship which indicates the transition costs in lowering the inflation rate. They appeal to a version of the rational expectations argument that inflated expectations will quickly collapse if the monetary authorities only make people believe that they are serious about their business of eliminating inflation.

People in the broad centre of the spectrum share the view that wage and price controls may be effective in reducing inflation but they also assign a role to monetary (and fiscal) policy control. Within this broad view there are a number of variants. One version is that a control policy may well be effective but should not be implemented because its costs are too high. These costs would include administrative set-up, induced labour market inefficiencies, and also possibly the political costs of undermining citizens' loyalty. A mild variant of the "centre" view is that wage and price controls are effective in their own right, but monetary (and fiscal) authorities should avoid the temptation of engaging in expansionary policies while controls are in force.



In this paper I want to consider a particular middle-of-the-spectrum view, which may perhaps by now be seen as the conventional Canadian wisdom. In this view wage and price controls are effective in reducing inflation rates, provided the controls are carefully coordinated with a policy of monetary restraint, the combination being necessary to keep the output and employment costs of the total program to a minimum; careful coordination, which implies that the announced monetary and controls targets are duly aligned, may also contribute to greater credibility. I want to explore the analytical underpinnings of this conventional Canadian wisdom with the aid of a simple macro model. We want to search for policy implications and for empirical guides, and we are also interested in the question whether modifications to the model affect the conventional wisdom.

## 2.2 A SIMPLE MACRO MODEL

The strategy is to use a simple macro model of the economy to simulate a number of possible adjustment paths. The macro model is a quantitative version of a model which I have used before (Vanderkamp 1975). First we need an explanation of the various relationships involved which includes some references to the empirical literature. Then we shall look at the short and long run properties of such an economy before we consider how such an economy adjusts to different policy initiatives. The general spirit of the exercise is similar to that of a recent paper by Scarth on tax-based incomes policies (see Scarth 1982). The Appendix provides the technical details about the model.

### 2.2.1 Wage Adjustment

The rate of wage adjustment in a particular year is assumed to be affected by three things: unemployment, expectations about price inflation and wage and price controls. In other words, wage adjustment is governed by a simple Phillips relation. The effect of unemployment is non-linear (inverse formulation) which implies that wages adjust more to labour market conditions when unemployment is low than when it is high. This is based on a standard result in Canadian empirical work, although recent work suggests that the non-linearity may not be very prominent (see Riddell and Smith 1982). The quantitative impact is roughly comparable with recent results (see Fortin 1982). Expectations about price inflation are assumed to be fully reflected in the rate of wage adjustment. This is not out of line with recent empirical results, although there is by no means unanimity on this point. As is well known, this assumption is necessary to obtain the result that in the long run the rate of inflation only depends on the growth of the money supply. Since I want to look at wage and price controls, within the context of a "monetarist" model the assumption is a crucial aspect of the exercise.

Wage and price controls are assumed to shift the wage adjustment process down by 2 percent per year for the duration of the program, which is assumed to be three years. In other words, I envisage a program like

that of the Anti-Inflation Board (AIB) in terms of duration and effectiveness. The assumed 2 percent effect of a wage and price controls program is within the range of recent estimates of the AIB impact although at the low end of the scale (see e.g. Auld et al 1979, Reid 1979, Riddell and Smith 1982). The question of what precise form such a wage and price controls program should take (e.g. tax-based, or target-based controls) is not discussed in this paper[1].

### 2.2.2 Price Adjustment

Price adjustment is assumed to proceed on the basis of a simple mark-up scheme. Two cost items, wages and autonomous prices, are fully reflected in final prices, with weights somewhat arbitrarily chosen as .6 and .4 respectively. It is assumed that the mark-up process reflects "normal" capacity conditions, which implies that a normal or average productivity growth factor of 2 percent is also included. Mark-up formulations of this type are quite commonly used in empirical work (see e.g. McCallum 1982a) although there are exceptions in which the mark-up varies with cyclical conditions (Letourneau 1979). The role of autonomous price changes is crucial, as we shall see, and the justification for this will require further discussion later on. For the moment, it is sufficient to visualize that autonomous price movements include energy, food and import price components (see McCallum 1982a).

By not including a wage and price control effect in the price adjustment process I am implicitly assuming that the size of the mark-up is not affected by the controls program. This does not imply that corporate profits are unaffected by controls, since a higher level of capacity utilization should have a positive impact on profits. Letourneau (1979) has some evidence on these points but his results are somewhat confusing. He concludes that the AIB had no effect on mark-ups, but corporate profits were favourably affected even though real output and employment were essentially unchanged. Our assumption of no direct controls impact on prices and mark-ups suggests that the term wage and price controls is perhaps too encompassing, although it should be remembered that the controls impact on wage adjustment feeds through as an impact on price adjustment.

### 2.2.3 Inflation Expectations

Inflation expectations are assumed to be based on past experience with regard to actual inflation. To be more precise, expectations are formed adaptively with a one-half revision in expectations about next year's rate of price inflation based on this year's inflation experience. Such an adaptive process is commonly used in empirical work although the subject remains controversial.



### 2.2.4 Money Growth

The rate of growth in the demand (=supply) for money is fully determined by growth in total nominal aggregate demand which in turn means the sum of price inflation and real output growth. This formulation is not based on any direct empirical evidence. Instead it is a dynamic version of the simple quantity theory of money which is chosen to stay close to a "monetarist" view of the economy. In most empirical work on the demand for money one or more interest rates play an important role, and in many cases the demand for money adjusts quite slowly to its long run (desired) level. Moreover, there is considerable controversy about recently observed instability in the demand for money relationship, with financial innovations as a possible explanation (see Judd and Scadding 1982). These complications will be referred to later.

### 2.2.5 Unemployment and Output

The final relationship in the simple macro model describes the relation between output growth and unemployment. This relationship has become associated with the name of Okun: output increases are associated with reduced unemployment rates but these reductions are dampened due to cyclical variations in productivity and labour force participation rates. The specific relation chosen here links the changes in the (inverse of) unemployment rate to real output growth minus the long term growth in output taken to be 4 percent per year; this long term growth rate reflects secular increases in productivity and labour force. The output-unemployment relation is non-linear i.e. the effect varies with the initial level of unemployment; for example, around a 6 percent unemployment rate an increase in real output growth of 8 percent results in a reduction of unemployment of about 3 percentage points. While this formulation has been chosen for convenience it appears to be a realistic first approximation during normal cyclical conditions.

The complete (algebraic) formulation of this simple macro model is given in the Appendix. Figure 1 represents an attempt to picture this model in graphical form. The North-West quadrant gives the demand for money relation with two monetary growth rates (14 percent and 4 percent) illustrated. This money relation indicates by how much aggregate demand can increase in a particular year but the Phillips relation is required to tell us how much of the money growth is reflected in inflation and how much in output growth. The N-E quadrant shows derived Phillips curve relationships in which the rate of price inflation is related to the unemployment rate. LP, the long-run Phillips curve, is vertical at the 5 percent unemployment rate ( $U^*$ ) as it incorporates the typical equilibrium conditions that expectations must be in tune with actual price inflation and that autonomous prices change at the same rate as all other prices. At the other extreme SP-curves represent short run Phillips relationships which are based on a given set of inflationary expectations and autonomous price movements. IP curves show an intermediate stage relation in which actual and expected inflation are fully consistent, but autonomous prices are assumed to change at a particular

rate (10 percent and 0 percent per year in Figure 1). The relations between wage and price movements and the effects of actual on expected inflation are, of course, hidden "behind" the diagram. The S-E quadrant shows an example of an Okun-relation between real output growth and unemployment, using 5 percent unemployment as the starting point.

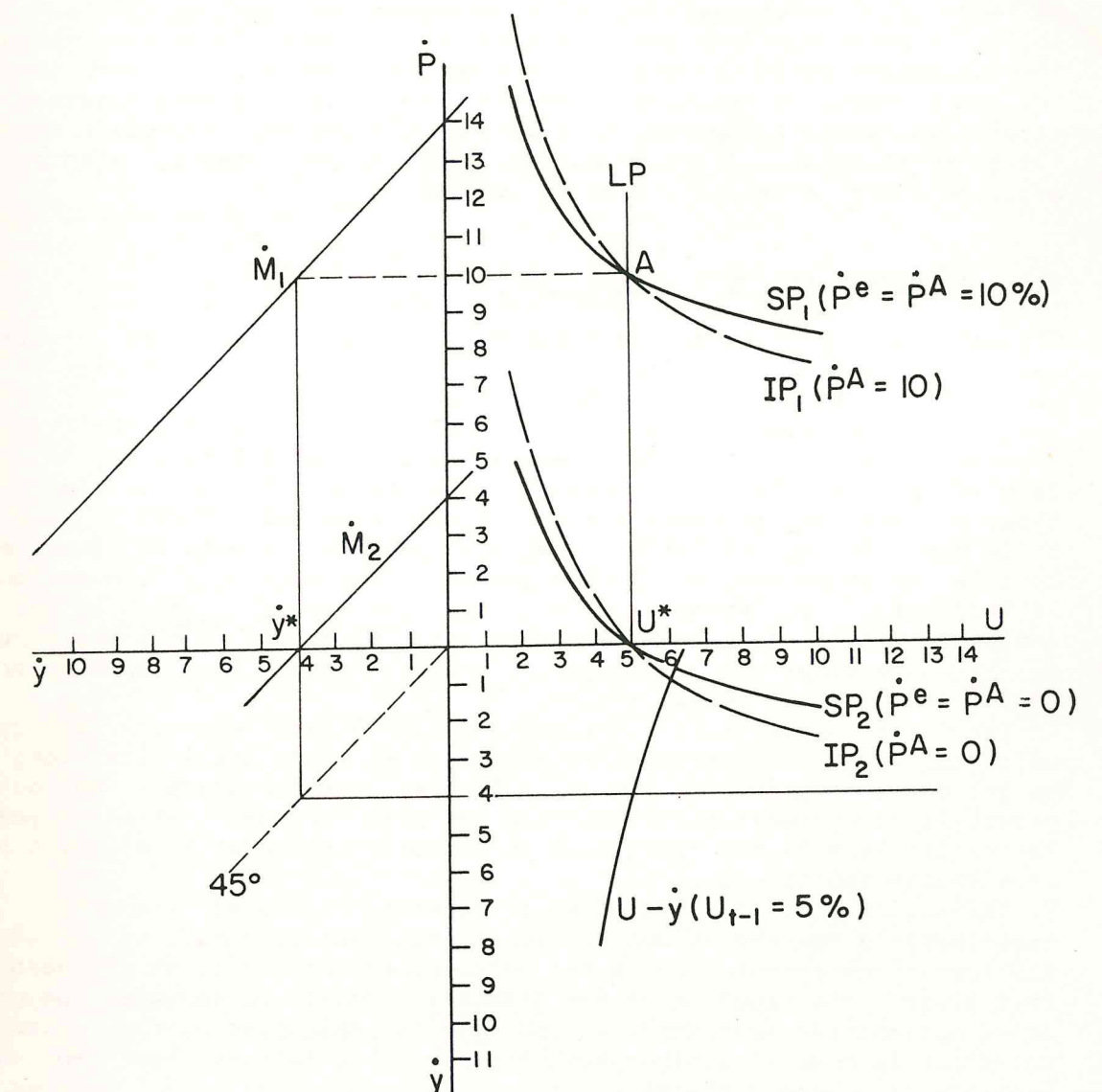


FIGURE 1

A SIMPLE MACRO MODEL



Figure 1 depicts two long run equilibrium situations: a high inflation equilibrium at point A and a zero inflation situation at U\*. At A the rate of price inflation is 10 percent and autonomous prices are also advancing at 10 percent per year, while the money supply is growing at 14 percent thus permitting 4 percent real output growth which keeps the unemployment rate at its natural point of 5 percent. At U\* on the other hand there are no changes in the level of prices, including autonomous prices, and the money supply grows at a 4 percent rate per annum again permitting a real output growth rate of 4 percent per year and a stationary unemployment rate of 5 percent.

The basic question is what policies will allow us to get from A to U\* at least cost. Suppose that we use monetary restraint by itself as the policy to bring down the rate of inflation. Under those circumstances the adjustment would trace out a path to the right of A-U\* line, involving unemployment rates above 5 percent. The reason is that monetary restraint increases unemployment and that is necessary to obtain reduced inflation expectations since expectations are only lowered when actual wage and price increases are being reduced.

### 2.3 ILLUSTRATIVE POLICY SIMULATIONS

Figure 1 in itself is not suitable for tracing out different adjustment paths. It is more convenient to use the macro model for a series of numerical simulations which can be reported in tabular form. Table 1 reports four such simulations, each of which starts off from the high inflation equilibrium situation (denoted by point A in Figure 1). Each of these simulations is based on a different policy scenario. Two types of monetary programs are instituted with and without a wage and price controls policy (WPC). Table 1 reports the path of the simple model's variables over a six year period. The meaning of the variables is indicated in the Appendix. All variables except U, which is the unemployment rate, represent percentage rates of change:  $\dot{M}$  - money supply,  $\dot{P}^A$  - autonomous prices,  $\dot{W}$  - wages,  $\dot{P}$  - price index,  $\dot{P}^e$  - expected price level, and  $\dot{y}$  - real output levels.

The first scenario is labelled a "Cold Shower" monetary policy in which the rate of money supply growth is at once set at its long run target of 4 percent. Rates of inflation decrease sharply but output growth is forced well below its long run path for the first three years. The result is a fairly rapid rise in unemployment rates to almost 8 percent in the fourth year.

The second involves a gradualist monetary restraint scenario. The results are a somewhat slower decline in inflation rates and considerably less unemployment than in the cold shower case. It should be noted that given the circumstances the gradualist policy is somewhat too gradual since unemployment actually declines in the first year; a sharper reduction in money supply growth from 14 to 8 to 6 to 4 percent would probably have been preferable.

The third scenario envisages a wage and price controls program in the first three years of the cold shower monetary policy. Inflation rates decline very rapidly in the first three years and unemployment rates

TABLE 1

Illustrative Policy Alternatives to Reduce Inflation Rates

| Year                                   | $\dot{M}$ | $\dot{P}^A$ | WPC | $\dot{W}$ | $\dot{P}$ | $\dot{P}^e$ | $\dot{y}$ | U   | $(W-\dot{P}^e)$ | $(W-\dot{P})$ |
|--|-----------|-------------|-----|-----------|-----------|-------------|-----------|-----|-----------------|---------------|
| Original Situation (Equilibrium)       |           |             |     |           |           |             |           |     |                 |               |
| 0                                      | 14        | 10          | -   | 13.3      | 10        | 10          | 4         | 5   | 3.3             | 3.3           |
| 'Cold Shower' Monetary Policy          |           |             |     |           |           |             |           |     |                 |               |
| 1                                      | 4         | 0           | -   | 9.5       | 3.7       | 6.9         | .3        | 6.2 | 2.6             | 5.8           |
| 2                                      | 4         | 0           | -   | 6.8       | 2.1       | 4.5         | 1.9       | 7.1 | 2.3             | 4.7           |
| 3                                      | 4         | 0           | -   | 4.9       | 1.0       | 2.7         | 3.0       | 7.6 | 2.2             | 3.9           |
| 4                                      | 4         | 0           | -   | 3.6       | .2        | 1.5         | 3.8       | 7.7 | 2.1             | 3.4           |
| 5                                      | 4         | 0           | -   | 2.7       | -.3       | .6          | 4.3       | 7.5 | 2.1             | 3.0           |
| 6                                      | 4         | 0           | -   | 2.3       | -.6       | 0           | 4.6       | 7.1 | 2.3             | 2.9           |
| Gradualist Monetary Policy             |           |             |     |           |           |             |           |     |                 |               |
| 1                                      | 10        | 0           | -   | 10.8      | 4.5       | 7.3         | 5.5       | 4.6 | 3.5             | 6.3           |
| 2                                      | 7         | 0           | -   | 8.7       | 3.3       | 5.3         | 3.7       | 4.7 | 3.4             | 5.4           |
| 3                                      | 4         | 0           | -   | 6.9       | 2.1       | 3.7         | 1.9       | 5.2 | 3.2             | 4.8           |
| 4                                      | 4         | 0           | -   | 5.4       | 1.3       | 2.5         | 2.7       | 5.6 | 3.1             | 4.1           |
| 5                                      | 4         | 0           | -   | 4.4       | .7        | 1.6         | 3.3       | 5.8 | 2.8             | 3.7           |
| 6                                      | 4         | 0           | -   | 3.7       | .2        | .9          | 3.8       | 5.9 | 2.8             | 3.5           |
| 'Cold Shower' Monetary Policy with WPC |           |             |     |           |           |             |           |     |                 |               |
| 1                                      | 4         | 0           | -2  | 7.0       | 2.3       | 6.1         | 1.7       | 5.6 | .9              | 4.7           |
| 2                                      | 4         | 0           | -2  | 4.2       | .5        | 3.3         | 3.5       | 5.8 | .9              | 3.7           |
| 3                                      | 4         | 0           | -2  | 2.3       | -.6       | 1.4         | 4.6       | 5.6 | .9              | 2.9           |
| 4                                      | 4         | 0           | 0   | 3.7       | .2        | .8          | 3.8       | 5.7 | 2.9             | 3.5           |
| 5                                      | 4         | 0           | 0   | 3.3       | 0         | .4          | 4.0       | 5.7 | 2.9             | 3.3           |
| 6                                      | 4         | 0           | 0   | 3.0       | -.2       | .1          | 4.2       | 5.6 | 2.9             | 3.2           |
| Gradualist Monetary Policy with WPC    |           |             |     |           |           |             |           |     |                 |               |
| 1                                      | 10        | 0           | -2  | 8.3       | 3.0       | 6.5         | 7.0       | 4.3 | 1.8             | 5.3           |
| 2                                      | 7         | 0           | -2  | 6.1       | 1.7       | 4.1         | 5.3       | 4.1 | 2.0             | 4.4           |
| 3                                      | 4         | 0           | -2  | 4.2       | .5        | 2.3         | 3.5       | 4.2 | 1.9             | 3.7           |
| 4                                      | 4         | 0           | 0   | 5.5       | 1.3       | 1.8         | 2.7       | 4.4 | 3.7             | 4.2           |
| 5                                      | 4         | 0           | 0   | 4.9       | 1.0       | 1.4         | 3.0       | 4.7 | 3.5             | 3.9           |
| 6                                      | 4         | 0           | 0   | 4.6       | .7        | 1.0         | 3.3       | 4.8 | 3.6             | 3.9           |

only go up to about 5.7 percent. After the end of the WPC program there is a slight rebound in inflation which in turn creates a small increase in unemployment.

The fourth case combines the gradualist money supply program with wage and price controls. Inflation is reduced fairly well at the start but even by the sixth year there is still a significant amount of inflation in the system. The reason is that for the whole six-year period unemployment is well below its natural rate thus counteracting the anti-inflation efforts of the total program. The basic problem is that



WPC is supposedly having such a strongly negative effect that the gradualist monetary contraction in fact turns out to stimulate real output growth in the first few years.

When comparing the various cases we observe a pattern characteristic of all four scenarios viz. the declining path of inflation rates being achieved without very major unemployment increases. In this connection four factors require emphasis in order of importance.

1. Autonomous price increases are assumed to go to zero instantly and they have a large weight (.4) in the price index. This issue will be examined further.
2. Monetary policy has a strong and immediate impact on the growth of nominal aggregate demand. In other words, there are no lags in the effects of monetary action per se.
3. The effect of inflationary expectations on wage adjustment is full and complete within the annual time unit. Multi-year wage contracts and/or price - catch-up arrangements would tend to slow the response rate.
4. In view of recent experience the assumed long run rate of growth in labour productivity is probably on the high side. A lower rate of productivity improvement would put less of a wedge between wage and price adjustment.

To evaluate the importance of the role of autonomous prices (factor (1)) two of the simulations were re-run with a different assumption viz. that autonomous price inflation was exactly keeping pace with domestic inflation during the transition period to lower inflation rates. ( $\dot{P}_t^A = \dot{P}_t$ ). The results are in Table 2. These results are quite different from those in Table 1. In particular, inflation rates come down sharply in Table 2 but the corresponding unemployment rates are considerably higher.

While the scenarios presented in Tables 1 and 2 are neither exhaustive nor optimal a number of generalizations suggest themselves. It should be remembered that the model is set up in such a way that a wage and price controls policy by itself serves no useful purpose except for a purely transitory reduction in inflation rates. For example, even without a simulation it is obvious that with initial conditions (including  $\dot{M} = 14\%$  and  $\dot{P}^A = 10\%$ ) prevailing throughout, a temporary WPC policy would result in a temporary reduction in wage and price inflation but the resulting lower unemployment rates would simply cycle us back to the initial equilibrium situation. In this sense, the "conclusion" that a WPC program will only work in conjunction with monetary restraint is built in from the start. Given the presumed "success" of wage and price controls (to the tune of a 2% reduction in annual wage increases), it is also not surprising to find that such a program tends to reinforce a monetary restraint process. Tables 1 and 2 show that during the three years of wage and price controls the various rates of inflation do indeed come down more quickly than if the relevant monetary restraint is practiced by itself.

TABLE 2

Policy Scenarios with Gradual "Autonomous"  
Price Inflation Adjustment

| Year                                   | $\dot{M}$ | WPC | $\dot{W}$ | $\dot{P} = \dot{P}^A$ | $\dot{P}^e$ | $\dot{y}$ | U    |
|--|-----------|-----|-----------|-----------------------|-------------|-----------|------|
| 0                                      | 14        | -   | 13.3      | 10                    | 10          | 4         | 5    |
| 'Cold Shower' Monetary Policy          |           |     |           |                       |             |           |      |
| 1                                      | 4         | -   | 10.8      | 7.5                   | 8.8         | -3.5      | 8.0  |
| 2                                      | 4         | -   | 8.0       | 4.7                   | 6.7         | -.7       | 12.8 |
| 3                                      | 4         | -   | 5.3       | 2.0                   | 4.4         | 2.0       | 17.2 |
| 4                                      | 4         | -   | 3.1       | -.2                   | 2.1         | 4.2       | 16.7 |
| 5                                      | 4         | -   | 1.4       | -1.9                  | .1          | 5.9       | 12.7 |
| 6                                      | 4         | -   | .4        | -2.9                  | -1.4        | 6.9       | 9.3  |
| 'Cold Shower' Monetary Policy with WPC |           |     |           |                       |             |           |      |
| 1                                      | 4         | -2  | 7.8       | 4.5                   | 7.2         | -.5       | 6.5  |
| 2                                      | 4         | -2  | 4.6       | 1.3                   | 4.3         | 2.7       | 7.0  |
| 3                                      | 4         | -2  | 2.4       | -.9                   | 1.7         | 4.9       | 6.6  |
| 4                                      | 4         | -   | 3.4       | .1                    | .9          | 3.9       | 6.7  |
| 5                                      | 4         | -   | 2.8       | -.5                   | .2          | 4.5       | 6.5  |
| 6                                      | 4         | -   | 2.4       | -.9                   | -.4         | 4.9       | 6.1  |

The first point to note is that careful design of the combined anti-inflation program is necessary. That this may in fact be quite difficult can be surmised from a comparison of the various simulations. Thus wage and price controls appear to work "best" in conjunction with a "cold shower" version of monetary policy. When combined with a gradualist monetary program the controls policy leads to a fairly sharp reduction in unemployment. This would create problems of credibility since it appears as if we are entering an expansionary phase with possible fears of subsequent inflationary pressure. It is true that one could envisage a gradualist policy which would not lead to unemployment declines, but it is also evident from the last panel in Table 1 that the reduction in monetary growth would have to be very sharp to 6 percent in year 1 and 5 percent in year 2 - in fact more of a cold shower than gradualism; this basic conclusion holds also if a gradual monetary policy is implemented under the conditions of Table 2. In other words, to be believable the package may well have to contain a version of cold shower monetary policy along with controls. Scarth argues that the success - coefficient of controls program will be drastically reduced if stabilization policy appears to be moving the economy on an expansionary path (Scarth 1982).



Scarth in fact presumes that monetary and controls targets will be identical. Let us suppose that in the context of Table 1 we follow the gradual - cold shower monetary targets of 6 percent, 5 percent and 4 percent in the first three years, that control targets coincide and that the success rate is .75 i.e. 3/4 of target reduction in wage increases is achieved. Under those circumstances we would have the somewhat fortuitous result that unemployment would stay almost stationary at exactly 5 percent in those three years. Because of that and the fact that controls would be less effective with these targets, the rate of wage inflation in the third year would be about 2 percent higher than under the cold shower with controls scenario. As a result the joint targets approach would produce an unemployment increase after the end of controls, but not during the controls period. This might lead to lack of credibility and effectiveness of the joint targets arrangement. In short, the main point of this discussion is that a careful coordination of monetary restraint policy and a controls program may be necessary but not necessarily very easy.

It will be observed that post-controls bubbles appear in the WPC scenarios; in Table 1 the rate of wage inflation increases by about 1.5 percent in year 4 of the last two scenarios and in Table 2 the bubble effect is about 1 percent. This should not surprise since it is a natural consequence of wage adjustment behaviour returning to normal rules. A post-controls bubble would be even more noticeable if at the termination of the controls program the rate of monetary expansion were above the longer term output growth rate, since then unemployment would be declining sharply. There is, however, no need for a special explanatory variable to capture these kinds of bubbles since it is entirely explained within the model. It is of course possible that bubbles may arise for other reasons e.g. autonomous spurts of wage inflation unrelated to unemployment or inflation expectation. The simple model presented here does not contain any allowance for autonomous wage increases.

The final observation about the comparison of policy alternatives can best be appreciated with reference to Table 3 which shows the average inflation rates and unemployment over the six-year period. The combination of controls with a restrictive monetary policy leads to a lower unemployment rate but also a lower rate of real wage advance compared with monetary restraint by itself under conditions of Table 1.

In the two "cold shower" scenarios from Table 1 actual real wages under the controls version advance 0.5 percent per annum less but unemployment is 1.5 percent lower compared with the no-controls version; when autonomous price changes are in fact endogenous as in Table 2 then this generalization does not hold. This suggests strongly that under conditions of autonomous price behaviour wage and price controls are an avenue for sharing the adjustment costs associated with an anti-inflation program[2]. If everyone is prepared to accept reduced real wage advances then unemployment need not increase a great deal. In other words, it presents a social trade-off between real wage sacrifices for all compared with increased unemployment for the few. In this light the objections from the unionized sector of the economy to WPC may not seem surprising, although they may be self-serving.

TABLE 3

Comparison of Scenarios  
(Simple Averages for 6 Years)

| From Table 1                              | $\dot{W}$ | $\dot{P}$ | $\dot{P}^e$ | U    | $(\dot{W} - \dot{P})$ |
|---|-----------|-----------|-------------|------|-----------------------|
| Cold Shower Monetary Policy               | 5.0       | 1.0       | 2.7         | 7.2  | 4.0                   |
| Cold Shower Monetary Policy<br>(with WPC) | 3.9       | .4        | 2.0         | 5.7  | 3.5                   |
| Gradualist Monetary Policy                | 6.7       | 2.0       | 3.6         | 5.3  | 4.7                   |
| Gradualist Monetary Policy<br>(with WPC)  | 5.6       | 1.4       | 2.9         | 4.4  | 4.2                   |
| From Table 2                              |           |           |             |      |                       |
| Cold Shower Monetary Policy               | 4.8       | 1.5       | 3.4         | 12.8 | 3.3                   |
| Cold Shower Monetary Policy<br>(with WPC) | 3.9       | .6        | 2.3         | 6.6  | 3.3                   |

#### 2.4 ROLE OF AUTONOMOUS PRICE INCREASES

The role of autonomous prices in our simple macro model is obviously troublesome and requires further exploration. The intermediate Phillips relations (IP) in Figure 1 give the menu of choices available when we can assume that autonomous prices are advancing at some particular rate. To illustrate, suppose that autonomous prices are not increasing but the money supply is somehow allowed to increase at a rate of 10 percent per year. Under those circumstances we would end up in an (intermediate) equilibrium position with 13.3 percent gain in wages, 6 percent price inflation and a 2.3 percent unemployment rate. On the other hand, it is clear from Figure 1 that beyond a certain rate of autonomous price change (about 4 percent) there is no zero-inflation equilibrium. In other words if autonomous prices were to advance continuously at a 5 percent rate per year (or higher) it would be impossible to adjust monetary policy in such a way as to attain a zero-inflation situation here.

A Phillips relation is essentially based on a more or less competitive configuration of labour markets in which excess demand in each labour market gives rise to wage pressure. Wage rigidity in a downward direction gives the Phillips curve its strongly non-linear shape. It is quite possible to accommodate non-competitive labour markets within the total system provided there are no major movements from one group to the other. We can picture the Phillips curve arising as the economy moves through its various cyclical phases: when unemployment is low a larger number of labour markets find themselves in greater excess demand situ-



ations thus leading to upward pressure on the wage level. On the other hand, when unemployment is high fewer labour markets experience smaller rates of excess demand and adjustment of wages becomes the exception thus producing little or no rise in the overall wage level. The particular (inverse) shape of the Phillips curve can be derived from wages increasing in proportion to excess demand in the individual labour markets with a particular distribution of excess demands across all markets. The inclusion of expected price inflation in wage adjustment makes sense provided price inflation affects both sides of labour markets directly without becoming evident in excess demand or supply. The price adjustment process is a cost-mark-up process which can be shown to be compatible with a number of different market structures. To be sure the size of the mark-up would vary with the market structures but as long as there are no major changes in market structure the overall price adjustment process would proceed along mark-up lines. In other words, there is not much room for price or wage shocks in the adjustment process envisaged here.

How would we obtain price (or wage) shocks and where would they originate? In this connection two areas are often identified: international and government. The important point of differentiation is that any such shocks must be unrelated to domestic excess demand situations. Such international price shocks may arise from changes in market structure, as in the case of the oil price shocks, or due to global excess demand situations which may be caused by supply shocks, as in the case of some foodstuffs e.g. associated with crop failures, or by rapid demand expansion with little short run supply response, as in the case of many raw materials. Governments, on the other hand, have an important influence on many regulated prices. Marketing boards may raise the relative price of certain food items without any excess demand pressure. The government may also interfere in the transmission of international prices, as our energy price story over the last 8 years clearly shows, and it may affect the impact of international prices through tariffs and quotas, as in the case of clothing and footwear.

To be sure all of these so-called autonomous price changes are changes in relative prices. In principle there is no reason why the price level needs to be affected since other prices may decline to compensate. But our model of wage and price adjustment leaves little or no room for such downward adjustment in other prices and wages. The dual assumption of downward rigidity in individual wage rates and mark-up behaviour with regard to individual prices precludes the kind of downward adjustment in some prices which would be required to offset autonomous price shocks. As an aside it should be noted that not all these autonomous price shocks need to be in an upward direction. In fact apart from productivity gains, the only source of downward movement in the price level are negative price shocks e.g. due to declines in raw material demands, bumper crops or the dismantling of a marketing board or import quota system.

If we are agreed that autonomous price shocks will have an effect on inflation in our model and can have potentially serious consequences for stabilization policy, we should discuss how we can identify such autonomous price changes. Those associated with government actions mainly

fall into the categories of restrictions on trade or competition; included in the latter category might also be legislation permitting the unionization of public employees. Many of my colleagues would insist that increases in income or sales taxes should also be considered under this heading, and they are no doubt correct in the technical meaning of the traditional price index; if increased taxes pay for increased provision of public goods which are made available at zero prices then a comprehensive price index might not be affected. But this line of thought would lead us too far afield. In any case, the potential price shocks caused by government actions can presumably be identified if not prevented. Perhaps their identification will help to set up more political pressure against such actions, for example the Agriculture Minister might meet with more opposition if there was widespread awareness that the establishment of an egg marketing scheme contributes to price and wage inflation; it is perhaps ironical that the macro distortion might carry more political weight than the micro distortion.

The identification of international price shocks is a more difficult matter. Many people, myself included, have used the import price index for this purpose in a price adjustment equation. But there are serious problems with this approach. In particular, we should consider three issues. First, not only imported commodities matter. If there is a global rise in raw material prices this is more likely to be registered in the Canadian export price index than in import prices. Initially such export prices will also be reflected in domestic prices through cost increases. This emphasis on the prices of internationally traded commodities provided the motivation for the rather large weight (.4) of autonomous prices in the simple macro model[3]. Second, the weights of goods in the import or export price index are not necessarily the appropriate ones for our purposes. The appropriate weights are those associated with the overall domestic price index. For example, a country may "consume" very little of a raw material which features very large in terms of its export composition. Conversely, a country may have a negligible net trade position in a commodity which is a major component of total consumption. In this context it is not the openness of an economy which matters for the identification of autonomous price shocks but its consumption pattern.

So far this argument has had a Scandinavian flavour as if exchange rates are irrevocably fixed. The third issue in identifying truly autonomous international price shocks relates to the adjustment of the balance of payments and exchange rates. This is a complex subject and I will only scratch a bit of the surface. To see some of the complexities I will briefly discuss four cases.

The first case concerns a country which only exports one raw material, which has little share in its domestic consumption. An increase in the price of this raw material in international markets constitutes an improvement in the country's terms of trade which will normally lead to an appreciation of its exchange rate. The result will be a reduction in the import price index "caused" by the appreciation of the exchange rate. This rather special case, which might be labelled "South Africa and gold," shows that an autonomous price increase of a commodity which does not feature in domestic consumption might still produce an impact (but negative!) on the country's inflation rate.



In the second case we have a food stuff or raw material which is entirely imported and a major component of a country's consumption. A supply shock causes an increase in the world price of this good which implies a deterioration in our country's terms of trade and produces an exchange rate depreciation. The extent of the autonomous price increase will then depend on the weights of this commodity in consumption and in the balance of payments. But there may also be a change in the exchange rate induced by differential policy reactions to this autonomous shock.

The third case concerns a commodity which is very important in a particular country's domestic consumption but it so happens that there are no trade flows as this country is exactly self-sufficient. The country could be Canada and the commodity might be energy. An increase in the international price of this commodity will have no effect on the country's balance of payments, but it will have an impact on the domestic price level. The extent to which inflation rates rise depends on the weight of this commodity in the country's consumption basket and on the monetary policy stance. Similarly for other countries their rates of inflation will depend on consumption patterns, monetary reactions and on the direct exchange rate effects, which in turn are related to their net export or import positions concerning this commodity (see second case). What the effect on our country's exchange rate is depends on the relative magnitudes of these effects. It does not necessarily follow that the autonomous price impact on an energy importing country would be more severe than on an energy self-sufficient country: it could be that the relative weight of energy in consumption is much larger in the self-sufficient country's case. In any event it is clear that under these circumstances the energy price rise is autonomous, but most of the exchange rate and import price effects are likely to be induced by the policy stance taken; for a much more complete treatment see Helliwell (1981).

The fourth case concerns a general global inflation in all commodities. This will, of course, have a major impact on our country's domestic price level unless exchange rate appreciation exactly offsets this global inflation. If the exchange rate is sticky some of the global inflation may indeed be "imported" which may then influence the monetary policy stance. It seems reasonable not to identify such a global inflation as an autonomous price change.

The upshot of this much too superficial discussion is that autonomous price changes are difficult to identify. The underlying argument is that autonomous shocks are unrelated to normal market forces working through domestic excess demand and supply situations which affect internal wage and price adjustment behaviour. The problem is that the domestic excess demand situation is obviously influenced by monetary policy, which also has an effect on exchange rates. Ideally we would therefore want to exclude policy-induced exchange rate effects from the price shocks originating on the international scene. But that is easier said than done. Autonomous price shocks created by domestic government actions may be somewhat easier to identify. At the practical level it may be opportune to start off by identifying a few important commodities which are strongly influenced by government regulation and/or by international market developments. Good candidates for this list would be a number of food items, raw materials and energy.

Let us assume that we have constructed a price index related to this list of autonomous prices. The question is then what policy alternatives will best cope with a shock originating in this index. For this purpose we look at four policy alternatives which are simulated for a 6-year period using the simple macro model. Table 4, which is presented in the same way as Table 1, shows the results of these four simulations. In all cases the autonomous price index is assumed to increase at a 10 percent rate for 3 years. Policy Scenarios with Gradual "Autonomous" Price Inflation Adjustment The simulations all commence from a zero inflation (equilibrium) situation.

TABLE 4

## Illustrative Policies to Cope with Autonomous Price Shock

| Year   | $\dot{M}$ | $\dot{P}^A$ | WPC | $\dot{W}$ | $\dot{P}$ | $\dot{P}^e$ | $\dot{y}$ | U    | $(\dot{W}-\dot{P}^e)$ | $(\dot{W}-\dot{P})$ |
|--|-----------|-------------|-----|-----------|-----------|-------------|-----------|------|-----------------------|---------------------|
| Original Situation (Equilibrium)                 |           |             |     |           |           |             |           |      |                       |                     |
| 0  | 4         | 0           | -   | 3.3       | 0         | 0           | 4         | 5    | 3.3                   | 3.3                 |
| Cold Shoulder Monetary Policy                    |           |             |     |           |           |             |           |      |                       |                     |
| 1  | 4         | 10          | -   | 5.0       | 5.0       | 2.5         | -1.0      | 6.7  | 2.5                   | 0                   |
| 2  | 4         | 10          | -   | 5.5       | 5.3       | 3.9         | -1.3      | 10.3 | 1.6                   | .2                  |
| 3  | 4         | 10          | -   | 5.3       | 5.2       | 4.6         | -1.2      | 22.2 | .7                    | .1                  |
| 4  | 4         | 0           | -   | 2.9       | -3        | 2.2         | 4.3       | 20.8 | .7                    | 3.2                 |
| 5  | 4         | 0           | -   | 1.5       | -1.1      | .6          | 5.1       | 16.9 | .9                    | 2.6                 |
| 6  | 4         | 0           | -   | .8        | -1.5      | -.5         | 5.5       | 13.5 | 1.3                   | 2.3                 |
| Minimally Accommodating Monetary Policy          |           |             |     |           |           |             |           |      |                       |                     |
| 1  | 8         | 10          | -   | 5.8       | 5.5       | 2.7         | 2.5       | 5.4  | 3.1                   | .3                  |
| 2  | 8         | 10          | -   | 7.2       | 6.3       | 4.5         | 1.7       | 6.2  | 2.7                   | .9                  |
| 3  | 8         | 10          | -   | 7.8       | 6.7       | 5.6         | 1.3       | 7.4  | 2.2                   | 1.1                 |
| 4  | 4         | 0           | -   | 5.4       | 1.2       | 3.4         | 2.8       | 8.1  | 2.0                   | 4.2                 |
| 5  | 4         | 0           | -   | 3.8       | .8        | 2.1         | 3.2       | 8.7  | 1.7                   | 3.0                 |
| 6  | 4         | 0           | -   | 2.8       | -.3       | .9          | 4.3       | 8.5  | 1.9                   | 3.1                 |
| Minimally Accommodating Monetary Policy with WPC |           |             |     |           |           |             |           |      |                       |                     |
| 1  | 8         | 10          | -2  | 3.8       | 4.3       | 2.1         | 3.7       | 5.1  | 1.7                   | -.5                 |
| 2  | 8         | 10          | -2  | 3.4       | 4.0       | 3.1         | 4.0       | 5.1  | .3                    | -.6                 |
| 3  | 8         | 10          | -2  | 4.0       | 4.1       | 3.6         | 3.9       | 5.1  | .4                    | -.1                 |
| 4  | 4         | 0           | 0   | 5.4       | 1.3       | 2.5         | 2.7       | 5.5  | 2.9                   | 4.1                 |
| 5  | 4         | 0           | 0   | 4.5       | .7        | 1.6         | 3.3       | 5.7  | 2.9                   | 3.8                 |
| 6  | 4         | 0           | 0   | 3.8       | .3        | .9          | 3.7       | 5.8  | 2.9                   | 3.5                 |
| Fully Accommodating Monetary Policy              |           |             |     |           |           |             |           |      |                       |                     |
| 1  | 9.7       | 10          | -   | 6.1       | 5.7       | 2.8         | 4         | 5    | 3.3                   | .4                  |
| 2  | 10.9      | 10          | -   | 8.1       | 6.9       | 4.8         | 4         | 5    | 3.3                   | 1.2                 |
| 3  | 11.8      | 10          | -   | 9.6       | 7.8       | 6.3         | 4         | 5    | 3.3                   | 1.8                 |
| 4  | 6.7       | 0           | -   | 7.8       | 2.7       | 4.5         | 4         | 5    | 3.3                   | 5.1                 |
| 5  | 6.7       | 0           | -   | 6.5       | 1.9       | 3.2         | 4         | 5    | 3.3                   | 4.6                 |
| 6  | 5.4       | 0           | -   | 5.6       | 1.4       | 2.3         | 4         | 5    | 3.3                   | 4.2                 |



In the first scenario, labelled "cold shoulder," monetary policy completely ignores the price shock and the rate of monetary expansion is kept at the original 4 percent rate. The rate of price inflation increases to a little more than 5 percent but the unemployment rate jumps to more than 20 percent. By the sixth year the system experiences considerable deflation which will have to continue for some time before the unemployment rate returns to normal levels. It would be difficult to argue that the cold shoulder represents an optimal policy response in any sense of the word.

In the minimally accommodating monetary policy stance the money supply is increased at an 8 percent rate for the 3-year duration of the price shock. The rate of price inflation now goes up to almost 7 percent in the third year and unemployment increases much less but still reaches almost 9 percent before turning around. Next, this monetary policy is combined with a wage and price controls program, which operates for three years with -2 percent impact per year, the same assumption as before. The result is a relatively small jump in the inflation rate and quite moderate increases in the unemployment rate, which stays below 6 percent throughout.

A fully accommodating policy is one in which unemployment is kept at the 5 percent "natural" rate. Quite naturally, this scenario produces the highest rates of price and wage inflation.

A comparison of the second and third scenarios shows that a successful wage and price controls program dramatically reduces the unemployment costs of coping with an autonomous price shock. The unemployment rate averages 5.4 percent in the third scenario compared with 7.4 percent in the second. On the other hand, the costs in terms of real wage advances go the other way: real wages under WPC advance by .4 percent less on average during the six-year period.

A wage and price control program combined with a restrictive monetary restraint policy appears to be even more effective in combatting an autonomous price shock than in lowering an established inflation rate. But the problem of design may be more difficult under these circumstances. In particular, there is no way in which monetary and controls targets can be aligned. Whether such an alignment is a pre-condition for a successful wage and price controls program should be a subject of further examination.

In conclusion a controls program can make an important contribution to a stabilization process trying to cope with an autonomous price shock. Whether such a controls program can be designed to be successful under these circumstances remains an open question. Presumably a controls program would only be put in place for major price shocks such as those associated with energy in the last decade. Many of the more practical questions which come up in the design of a controls program have not been considered in this paper.

## 2.5 CONCLUDING THOUGHTS

The traditional way of viewing the wage and price adjustment process envisaged in this paper (the Phillips curve *et al*) is that it presents a trade-off. In the 1960s, this trade-off was emphasized as a policy dilemma which implied a choice between low unemployment and inflation, or no inflation with higher unemployment. By the 1970s, the expectations arguments had shifted the emphasis from this short term trade-off to the long term lack of a trade-off. The policy discussion became more concerned with the large costs, inherent in the Phillips curve, of bringing down a well-established inflation rate. The first half of this paper was concerned with the question what role might be played by a wage and price controls program in reducing an established inflation rate to zero. We saw that a combination of monetary restraint with a controls program may well present an attractive policy alternative. Careful design may be necessary but quite difficult. The combination of policies can be interpreted as a more equitable way of spreading the costs of downward inflation adjustment across the whole labour force.

We live in the 1980s and we have seen the folly of the short term trade-off between unemployment and inflation. Once we have 'wrestled inflation to the ground' there would seem to be no further reason to worry about it. The second half of the paper explored the role of autonomous price shocks in disturbing such a cosy state. It may be concluded that autonomous price shocks, if they exist and can be identified, have serious consequences in the context of our simple macro model. The policy dilemma presented by the Phillips curve is now that autonomous price shocks have to be accommodated to some extent with monetary expansion. A controls program may make such an accommodation process more efficient by containing inflation at relatively low unemployment costs. But the appropriate design of such a controls program may present serious difficulties.

In the simple model used throughout the effect of autonomous price shocks is entirely conditioned by the active policy stance taken. But the real world is not as simple as our model, although the long run truth of the argument may well be correct. In particular in the short run an autonomous price shock may affect the demand for money relation in a different way from that implicit in our simple model. The demand for money is likely to be a much more "elastic" concept. All aside from any instability, e.g. due to financial innovations, there are two aspects of money demand which require special attention. First, most money demand relations contain substantial lags. This implies that the effect of a change in the rate of inflation on money demand changes is delayed and only a small part is felt in the short run. The result is that output is less seriously affected and that corresponding inflation rates can reach higher levels in the short run than is implied by our model. In other words, even under a 'cold shoulder' scenario the unemployment rate would climb less severely but inflation would advance more rapidly than in Table 4.

Second, the demand for money is affected by nominal interest rates which are in turn related to inflationary expectations. When an autonomous price shock affects the expected rate of inflation and interest



rates increase, this will result in rise of money velocity. In other words, the same rate of monetary expansion will in the short run permit a lower rate of unemployment and a higher rate of price inflation.

This more appropriate way of viewing the demand for money will mean a greater probability of an economy drifting into a higher inflation rate due to an autonomous price shock. As long as an expanded macro model is stable (in the mathematical sense) the implications of our simple model will ultimately prevail. But the adjustment process is our primary concern and this is bound to be affected considerably by a model extension. A more elaborate model which includes more comprehensive treatments of the demand for money, the exchange rate, real output shocks and the role of fiscal policy would no doubt be a welcome extension of the simple exercise of this paper.

## Appendix A

### A Simple Illustrative Macro-Model

This is basically a quantitative version of the "textbook" macro-model which was featured in my paper in Journal of Monetary Economics (1975). There are five structural equations which simultaneously determine the five endogenous variables:

$$\dot{W}_t = \text{the annual rate of wage change (\%)}$$

$$\dot{P}_t = \text{the annual rate of change in the price index (\%)}$$

$$\dot{P}_t^e = \text{the expected annual rate of change in the price index (\%)}$$

$$\dot{Y}_t = \text{the annual rate of change in the real output index (\%)}$$

$$U_t = \text{the unemployment rate (\%) used as an inverse } 1/U$$

The exogenous variables are:

$$\dot{M}_t = \text{the annual rate of change in the money supply (\%)}$$

$$\dot{P}_t^A = \text{the annual rate of change in autonomous components of the price index (\%)}$$

$$WPC = \text{effect of wage (and price) controls program on the rate of wage change (\%); to be viewed as a dummy variable which equals 1 if and when wage (and price) controls are in effect}$$

There are also two predetermined variables which reflect the past history of events:

$$\dot{P}_{t-1}^e = \text{the expected annual rate of change in the price index during the preceding period (\%)}$$



$U_{t-1}$  = the unemployment rate (%) during the preceding period, used in inverse form

$$(1) \quad \dot{W}_t = \dot{P}_t^e + 16.5 \frac{1}{U_t} + \text{WPC}$$

$$(2) \quad \dot{P}_t^e = \dot{P}_{t-1}^e + .5 (\dot{P}_t - \dot{P}_{t-1}^e)$$

$$(3) \quad \dot{P}_t = .6 \dot{W}_t + .4 \dot{P}_t^A - 2$$

Constant -2 allows for productivity growth.  
With  $\dot{P}_t^A = \dot{P}_t$  and  $\dot{P}_t^e = \dot{P}_{t-1}^e = \dot{P}_t$ , i.e., in long-run equilibrium,  $U^* = 5\%$ .

$$(4) \quad \frac{1}{U_t} = \frac{1}{U_{t-1}} + .01 (\dot{y}_t - \dot{y}^*), \text{ where } \dot{y}^* = 4\%$$

is assumed to be the long-term real growth rate.

$$(5) \quad \dot{M}_t = \dot{P}_t + \dot{y}_t$$

In long-run equilibrium  $\dot{y}_t = \dot{y}^* = 4$  and  $\dot{P}_t = \dot{M}_t - 4$ .

For simulation purposes it is useful to compute the reduced form equations, which in the same order are:

$$(R1) \quad W_t = .625 \dot{P}_{t-1}^e + 20.6 \frac{1}{U_{t-1}} + .206 \dot{M}_t + .168 \dot{P}_t^A - 1.66 + 1.25 \text{ WPC}$$

$$(R2) \quad \dot{P}_t^e = .688 \dot{P}_{t-1}^e + 6.25 \frac{1}{U_{t-1}} + .062 \dot{M}_t + .25 \dot{P}_t^A - 1.5 + .375 \text{ WPC}$$

$$(R3) \quad \dot{P}_t = .375 \dot{P}_{t-1}^e + 12.5 \frac{1}{U_{t-1}} + .125 \dot{M}_t + .5 \dot{P}_t^A - 3 + .75 \text{ WPC}$$

$$(R4) \quad \frac{1}{U_t} = .875 \frac{1}{U_{t-1}} - .00375 \dot{P}_{t-1}^e + .00875 \dot{M}_t - .005 \dot{P}_t^A - .01 - .0075 \text{ WPC}$$

$$(R5) \quad \dot{y}_t = .875 \dot{M}_t - .375 \dot{P}_{t-1}^e - 12.5 \frac{1}{U_{t-1}} - .5 \dot{P}_t^A + 3 - .75 \text{ WPC}$$



## Notes

\* Some useful comments were received during the Conference. I want to thank Louis Christofides and other members of the Macro Workshop held at Guelph in November for helpful reactions. That the revisions are not more extensive is not their fault.

- [1] It is possible to think of the social consensus model of Barber and McCallum (1982) as a form of implicit wage and price control. In other words, in countries such as the Netherlands and Sweden target rates of wage and price increases are determined by national consensus along with other policy targets including monetary policy.
- [2] To anticipate the subsequent discussion about policies for coping with an autonomous price shock this same observation is valid also. The two middle panels in Table 4 show that real wage gains are less but unemployment is also considerably lower when a WPC-program is combined with a minimally accommodating monetary policy.
- [3] The intriguing idea is advanced by Clarence Barber that prices of internationally traded commodities (particularly Canadian export prices) have a direct effect on the Canadian rate of wage inflation. This hypothesis was suggested as a way of explaining the greater fluctuation in Canadian wage inflation during the seventies compared with that in the U.S. It is quite plausible and well in line with some recent work which emphasizes the effect of producer prices on wages (see Sumner and Ward 1982). In contrast with the tenor of the following discussion this argument suggests that the openness of the Canadian economy does indeed contribute to our susceptibility to international price shocks but directly through wages not prices.

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### 3

## The Political Economy of a Canadian Incomes Control Policy - a Microeconomic Perspective

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### 3.1 INTRODUCTION

Included in the "conventional wisdom" of economics are a number of propositions that have garnered virtually unanimous agreement among economists. Consequently, in tendering policy advice, economists have been very much in agreement on a corresponding range of public policy issues. The superiority of free trade to trade restrictions is one such area of agreement. The economic losses caused by specific price regulations is another. Perhaps the most prominent examples of the latter are rent ceilings and wage floors.

Not very long ago, the follies of general wage and price controls would probably have made the list as well. Only a few professional economists argued that such control schemes could serve any useful purpose; most dismissed controls in all but the most extraordinary of circumstances (e.g., war emergencies). Perhaps most prominent among the small band of control advocates was John Kenneth Galbraith[1]. Galbraith's argument for a permanent system of controls on the large corporate sector of the economy stemmed from a distinct view of the functioning of the economic system, and had as much to do with planning and the control of agents with significant market power as it did with the control of inflation.

More recently, however, the number of economists advocating controls appears to have grown. We don't have (at least to my knowledge) any empirical surveys of how economists line up on this question, but one gets the impression that the number in favour of controls (at least in the current circumstances) has grown substantially, though they probably still remain a minority.



### 3.2 RECONSIDERATIONS OF CONTROLS

The willingness to take a new look at controls seems to be prompted by (at least) three interrelated developments. First, of course, are the difficulties encountered by the more traditional macroeconomic stabilization policies. To say that conventional fiscal and, particularly, monetary policies have been encountering difficulties over the last several years is an understatement on the same scale as saying Custer had some "difficulties" with the Indians. Based on Canada's (and perhaps all the Western industrial nations') economic performance, judgments of conventional policy range from condemning it as a complete failure to questioning whether we really must endure such high costs to "wring" inflation out of the system. Even those who advocate a continuation of the existing tight money policy must surely be alarmed at the course the economy has taken since late 1981.

The major concerns with current policy centre around the apparently long time lags and the high cost imposed on the economy in order to bring the rate of inflation down to a more acceptable level. The long lags permit (and perhaps foster) the solidification of inflationary expectations. The costs associated with high interest rates appear to build cumulatively over time. That, in turn, contributes to the overall economic costs that we are incurring. Real GNP declined by 6 percent in the year ending in June, 1982[2]. Are there alternatives that may involve lower costs than our current policy stance that relies almost entirely on monetary policy? Income controls may be one.

Secondly, there have been recent developments in macroeconomic theory, partly in response to the dissatisfaction with conventional policies and the theories on which they are based. Price and wage controls play a role in these new models. The most noteworthy of these studies is Arthur Okun's last major work before his death[3].

In economies like that of Canada, prices and wages appear to be much less flexible in the short-run, particularly in the downward direction, than many models would lead one to expect. Rather, a good deal of the burden of short-run adjustment falls upon quantities. Okun provides an analysis of a "fix-price" economy. In Okun's model, "most prices and wages are not set to clear markets in the short-run, but rather are strongly conditioned by longer term considerations involving customer-supplier and employer-worker relations. These factors insulate wages and prices to a significant degree from the impact of shifts in demand so that the adjustment must be made in employment and output." [4]

In Okun's view, the most important goods markets in the economy are "customer" or "price-tag" markets, and most labour markets are "career" oriented, best characterized by a "toll model." The important characteristic of customer markets is the investment buyers and sellers have in each other that reduces the transaction costs faced by both parties. Prices are set by a "mark-up" strategy based on costs, including labour costs. Previous cost increases will continue to influence today's prices until they completely work through the system. Similarly, in career labour markets employers and workers have significant investments in each other, resulting in rigidities in wages (and the labour market generally), and imparting considerable importance to relative wage rate and

wage-price comparisons[5]. Correspondingly, the link between wages and unemployment is much weaker than in traditional models. In this world, cost disturbances, whatever their source, have important consequences as they work through these markets that are affected in important ways by existing institutional arrangements. For example, an exogenous increase in energy prices[6] will become part of the cost structure that leads to further increases, and will create pressure for upward wage adjustments which in turn lead to further wage and price increases. Fiscal and monetary policies cannot, by themselves, easily restore price level stability once it has been seriously disrupted. Policy actions that reduce costs may be desirable as well, and perhaps necessary complements to conventional stabilization policy.

Inflationary forces, once introduced into a "price-tag" economy, will thus continue to be potent even when the level of aggregate demand is less than the potential total output of the economy. Economic groups attempt to protect their shares of national income, recoup losses suffered as a result of past inflation, or protect themselves against expected future inflation. Increased nominal income demands may simply be in response to some event or change in perceptions which has disturbed an existing implicit "social contract." To a large extent, these responses are simply different manifestations of the important pattern of behaviour motivated by relative income position considerations that have been referred to above, and that form an integral part of Okun's analysis.

Unions seek larger wage increases to catch up with the inflation that occurred during their last contracts or to protect their members against the inflation expected to occur during their next contract. These efforts at "catch up" and "protection" are not only in terms of their real incomes, but are also relative to the pattern of wage settlements during the last contract, and anticipated settlements during the period of the next. Firms that only infrequently adjust their prices pursue the same strategy. Lenders seek rates of return that allow for the effects of price level increases expected to occur during the loan period.

Other forms of behavioural adjustment are, perhaps, more subtle. Inflation creates uncertainty, and one can never be certain that one's expectations will be realized. As a result, economic decision-makers attempt, where possible, not to lock themselves into long-term commitments denominated in nominal dollars. That is, they seek, to the extent possible, to bargain in real dollars. The most widely recognized examples are labour collective agreements that incorporate COLA clauses. Other contracts with price re-openers are another example. Another is the general shortening of contract lengths as has recently occurred in residential mortgages and collective agreements. A somewhat different class of examples is the indexing of public sector taxes and transfers.

Because of behavioural responses like those noted above, inflationary forces become "institutionalized" in the economy. Further lags are thus introduced into any process designed to purge the economic system of inflation. In addition to altering the expectations and consequent behaviour of economic agents, it is now also necessary to wait out (or short circuit) the built-in inflationary pressures that accompany at least some of these institutional arrangements.



The third development prompting a renewed consideration of controls is the emergence of new schemes that may, at least in part, meet some of the economic and political objections that these programs usually face. These new approaches, besides adding a new set of acronyms to the literature, have been sufficiently imaginative to prompt a renewed debate concerning the efficacy of controls. With the above comments as background, it is the purpose of this paper to explore the microeconomic characteristics of several models of income controls, including these new approaches, and, at least tentatively, to assess their applicability to Canada. It is the premise of this paper that a credible, if not conclusive, macroeconomic case for controls has been made elsewhere[7]. The intent here, therefore, is to focus on the microeconomics of controls, a largely neglected area of investigation thus far.

The next section (II) of the paper offers five factors for consideration in evaluating a controls plan. These may either be viewed as statements of desirable attributes or as acknowledgements of the most serious criticisms raised against controls that any future program should seek to avoid. Section III then discusses several models of income control and how they stack up against our five criteria in the context of the Canadian economy. A final section briefly offers several conclusions to the analysis.

### 3.3 EVALUATION CRITERIA

Before turning to the actual examination of income control schemes, in this section we identify and discuss five considerations that form the basis of our microeconomic evaluation. Included in these five factors are some of the most important questions traditionally raised in discussions of wage and price control programs.

#### 3.3.1 Rigidities

Ideally, a controls system should restrain the overall price level while leaving individual prices free to adjust[8]. That is, relative price adjustments should not be impeded because price rigidities result in resource misallocations. If we are to achieve a completely stable price level, then some prices must fall in absolute terms.

Historically, wage and price control systems have not been very successful in meeting this criterion. The stabilization of the overall price level, to the extent that it has been achieved, has been pursued through the control of individual prices and wages. It is inevitable, under such a system, for some form of political allocation to replace the market mechanism. If the political authority's decisions are binding, the result is usually allocational inefficiency manifested, for example, through shortages of goods. If the forces of the market prevail, for example, by means of black or grey markets, then the program fails to control actual inflation, though "official" price level statistics may indeed show progress.

The price rigidity problem tends to become more severe as the control program becomes tighter (i.e., tries to get the rate of inflation closer to zero) and extends for longer time periods. In both cases the pressures for relative price adjustments build up.

#### 3.3.2 Causes Versus Symptoms

It has often been charged that wage and price controls treat inflationary symptoms (i.e., temporarily hold down the recorded rate of price increase) but do not cure the underlying cause of the disease. The implication is that inflation pops up in other forms that official statistics do not pick up (e.g., shortages, quality deterioration), and that, when removed, even the official record will not be permanently affected.

But surely this argument begs the question. One must first know what forces are responsible for the inflation. A counter-argument is contained in the Okun analysis sketched earlier. In that model, an appropriate controls program may bring about a restoration of a more stable cost structure (and hence price structure) with a lower cost in lost production or unemployment than would be experienced with conventional stabilization policies.

Closely related are the potential impacts of controls on inflationary expectations. To the extent that inflationary expectations are translated into patterns of behaviour that contribute to higher costs and prices, a program of controls may result in permanent improvement. Inflationary expectations are generally not very well understood by economists, psychologists or anyone else, but two factors appear to be important. (Obviously, other factors enter the picture as well.) The first is simply the continuing experience of inflation. The longer the inflationary period extends, despite the efforts, explanations, and exhortations from government that will most assuredly accompany it, the more economic agents will expect the inflation to continue at the same (or even at a higher) rate. Secondly, if the government's anti-inflation policies inflict large costs on the economy in terms of lost output and unemployment, the greater becomes the pressure for the government to deal with these new problems. When the government limits itself to conventional monetary and fiscal policy instruments, this shift in policy must inevitably involve at least a partial abandonment of its anti-inflation policy. In simple terms, there is some question of whether the government will ever see an anti-inflation policy through to fruition.

Price and wage controls may moderate expectations through operating on both of these factors. If they can relatively quickly and visibly reduce observed inflation rates, expectations based upon experience may moderate accordingly. As to the second factor, controls may provide the government with a less costly instrument (in terms of lost real production), thereby making its pledges to "wrestle inflation to the ground" more believable.

As will be argued in the next section, whether any controls program can actually succeed in treating causes rather than masking symptoms, is to a considerable extent, a function of the micro-characteristics of the scheme.



### 3.3.3 Distribution and Equity

As serious as any issue an income controls program must confront is that of distributional effects. There are at least two dimensions to this issue. One is the division of total income between the groups that can broadly be categorized as deriving income from labour and capital. The second is the distribution of income within each of these groups, particularly labour.

The relative impact of a controls program on labour and capital incomes, is, for the most part, a question of the effectiveness of wage controls versus price controls. As a technical matter, it is generally easier to control wages than prices. (We are not referring here to "uncontrollable" prices such as those determined in international markets, but only to prices of goods potentially controllable.) In the unionized sector, collective agreements are registered, wage adjustments are made relatively infrequently and settlements often attract considerable public attention. In some types of controls programs, employers and employees can collaborate to finesse the wage controls[9] and in other cases, particularly in the non-unionized sector, wage adjustments may be more difficult to monitor. But, generally, for large complements of workers, income controls pose relatively few administrative problems. In the case of price controls, however, the balance is in the other direction. Some price increases are relatively easy to monitor and control. Such would be the case for prices set by government agencies or crown corporations, or for prices authorized by government regulatory authorities. However, most price increases are much more difficult to monitor. This difficulty arises from the sheer volume of price adjustments occurring in a complex economy, the fuzziness in defining a product[10], and the fact that these adjustments can occur almost continuously in many cases.

In addition to the problem of symmetry (equity?) in administration, there is a problem of perceived intent. Many individuals, particularly those associated with the labour movement, are suspicious that all controls efforts are deliberately intended to redistribute from labour to capital. Most empirical evidence does, in fact, lend some support to their suspicions. Whether by design or not, wage control has generally been more effective than price control[11].

The second equity question concerns the effective impact of controls on various labour groups. As already noted, some types of earnings tend to be less controllable. Non-unionized employees, especially professionals and executives, and self-employed individuals are in, or are suspected of being in, this category.

Beyond these groups, further questions arise from the design of particular programs. The controls during 1975-78 were deliberately designed to give the AIB considerable discretion rather than to require strict adherence to a set of legislated rules. The reasoning, a priori, was that a program of the latter type would be too rigid. Many cases would be bound to arise which the drafters of the legislation could not foresee - cases in which a strong argument for special treatment could be made on allocative or equity grounds. Therefore, the choice was to establish "guidelines" rather than rules, and to endow an administrative

agency with the authority to exercise discretion when these "deserving" cases arose. In actual fact, the AIB, being a (small "p") political body, was subjected to and responsive to (small "p") political pressures, and exercised its discretionary authority in favour of groups not falling into the "deserving" category envisaged by the drafters. For example, on average, militant union groups were treated more generously than the norm[12].

To generalize, the danger of incomes policies is that they tend to politicize questions of distribution and equity that society can better resolve via less obvious and less confrontational mechanisms. The visibility of the (perceived) distributional impact of controls is probably one reason in itself. Perhaps another is that society in general is more willing to accept the outcome of a game, the rules of which (i.e., a market economy/ social welfare state) are accepted by the vast majority of its members. Controls, at least the kinds of controls that have been imposed in the past, partially substitute new rules that are less understood and less generally accepted. The outcome of the new game is thus viewed more skeptically if not with outright hostility.

### 3.3.4 Feasibility and Saleability

Perhaps because controls alter the rules of the game to some extent, it is desirable for them to be readily understandable by virtually all economic agents. In addition, if they are to have any shock effect on expectations, an apparent linkage between the controls system and a decreasing rate of inflation must be readily traceable.

Thus, very complex and indirect methods of control would certainly be less desirable from a political perspective and likely from an economic one as well. Designers of controls programs are thus very likely to face a trade-off. Programs that are direct and readily understandable are also probably programs that are more rigid in terms of inhibiting relative price adjustments. The only long-term prospect of easing this trade-off is to promote greater understanding of the nature of our economic system, thereby eventually permitting the use of more sophisticated and more subtle control programs.

### 3.3.5 Cost

A final consideration often raised in debates over wage and price controls is the administrative cost of the program. This consideration has two dimensions. One is the actual resource-using cost of the operation. For most schemes, this is not a significant cost relative to the overall size of the government, the economy, or the realizable benefits if the program succeeds.

The second factor is more political in nature. The very appearance of the government spending more money and hiring people to staff a new bureaucracy may create cynicism when contrasted to the exhortations for restraint and co-operation that inevitably accompany a controls system. For this reason, a scheme that can be administered within an existing



bureau and with a relatively small number of extra personnel is likely to be preferable. However, this final consideration is unlikely to be decisive compared to the other criteria discussed in this section.

### 3.4 MODELS OF INCOME CONTROLS

Having examined a number of general considerations or criteria in income control designs, we now turn to the discussion of four specific plans. They are: a system of wage and price "rules," a system of administrative discretion (similar to the AIB in 1975-78), a tax-based incomes policy (TIP), and a market-based anti-inflationary plan (MAP). Each of these four schemes will be examined in turn, in the context of the criteria for evaluation in Section 11.

#### 3.4.1 Wage and Price Rules

This category does not refer to any specific system of controls, but rather to the class of models in which (possibly different) rules are established for wage and price increases, and exceptions to the rules are kept to a minimum[13]. A freeze on wage and price increases is a special case of the rules model.

The rules may be very simple and straightforward (e.g., 6 percent allowed for all cases[14]) or more complex, distinguishing groups on the basis of recent experience, income levels, region, or other relevant characteristics. The creation of an agency is usually involved to monitor compliance and to decide those cases in which specific, narrowly defined exceptions are permitted. In addition, such agencies usually play a role in exhorting co-operation, a prominent feature of virtually all controls schemes. Coverage may be universal or may exclude certain units, usually farmers and firms with employment below some threshold level.

Perhaps the most serious flaw in control by rules is their extreme rigidity. The very fact that exceptions are deliberately kept to a minimum prevents the relative price adjustments that would otherwise occur. The more simple the rules, the more severe this problem becomes. It is basically for this reason that wage and price controls based on strict rules must have a restricted lifespan. The pressures caused by the inability of relative prices to adjust, accumulate and ultimately will bring about the collapse of the controls program.

We have already argued that a controls program can treat the causes of inflation if it can alter the cost structure of firms or moderate inflationary expectations, rather than just temporarily cap excess demand pressures. The most likely route to success for wage and price rules to treat inflationary causes is their potential for altering expectations. They may do this in two ways. First, they will focus public attention on the decline in the inflation rate that will be officially registered very quickly after the imposition of controls. This highlighting of a decline in the CPI may be more important to changing expectations than it appears at first blush. Some months after the rate of inflation in

the United States fell from the 12 percent range to the 6 percent range (in mid-1982), a public opinion poll revealed that a majority of the population still perceived inflation to be at the higher rate. Secondly, these controls potentially could buy time for the government to put in place policies that would convince economic decision-makers that the currently observed decline in the inflation rate would be permanent. However, this must be done within the relatively severe time constraint noted above.

A rigid rules program would appear to stack up very poorly in terms of the equity criterion. However, I believe the conclusion may not be so clear cut, at least for a short-term program. Undoubtedly the rigidities will introduce inequities that a discretionary program could, in theory, avoid. However, as discussed earlier, controls are political and the administrative agency set up to exercise the discretion may not use its authority as intended. On balance, then, are rigid rules more inequitable? Obviously, at the level of generality of this discussion, a final answer to that question is impossible; our purpose here has only been to point out that the issue is real and not a foregone conclusion.

In terms of being explainable and understandable, a system of rules probably scores the highest of the control models considered. This is a function of its directness and lack of subtlety. Indeed, when most people not familiar with the intricacies of controls think about wage and price restraints, it is probably a set of rules that they have in the back of their minds.

Finally, the administrative cost of a program based on rules is unlikely to be a serious consideration. Costs would tend to grow with the scope of exemptions to the rules, and with the scale of the "public relations" function given to the agency, but even these are unlikely to impose major constraints.

#### 3.4.2 Administrative Discretion

In these programs, rules are replaced with "guidelines" and an agency is established to determine, often on a case-by-case basis, the relationship of wage and price increases to the guidelines. This was the model adopted in 1975-78. The rationale for this model, as a preferred alternative to a system of rules, is based on the rigidity and equity criteria.

While a problem of rigidity certainly remains, there is at least some expectation that an agency will be able to identify the most serious consequences of relative price rigidities and to permit appropriate adjustments. This attention may be directed to either the labour or the goods market[15]. Thus, we should expect a discretionary program to be preferable to rules on this basis, though the trade-off cost is probably a less dramatic immediate impact on inflation indices.

The distribution and equity implications of this type of program have already been referenced quite extensively. A discretionary program holds out the promise of being more equitable than a rigid set of rules, but the distinction between a priori reasoning and actual performance may be quite striking. This problem can perhaps be minimized through



careful design of the parameters of discretion of the administrative agency. But, as we constrain the behaviour of the agency we move back in the direction of wage and price rules. The trick is to find an acceptable compromise between the inequities that arise from rigid rules, and those that stem from compromising political decision-makers[16].

In terms of the remaining three considerations, there is not much to choose between a program based on administrative discretion and one based on rules. If one program is able to affect underlying inflationary causes rather than simply mask symptoms, then the other is likely to do the same. If one fails on this score, the other will as well. Both are relatively straightforward schemes and therefore easily explained to, and understood by, private sector actors. Finally, while the administrative cost of the second plan is likely to exceed that of the first, it is still unlikely to present a significant financial obstacle to the federal government[17]. However, a discretionary plan is likely to impose significantly higher administrative costs on the private sector, as firms and unions devote resources to negotiating with the controls agency.

Presumably, those with the greatest incentives to secure exemption from the controls will be the ones who, on a relative basis, will devote the most resources to negotiating. Overall resource misallocation costs may therefore be lessened if the most serious cases of price rigidity are thereby relieved.

### 3.4.3 Tax-Based Incomes Policy (TIP)

A TIP is one of the genuinely novel controls programs proposed in recent years[18]. The acronym refers to a group of incomes policy schemes which would be administered through the existing income tax system. The basic idea is to use the tax system to create incentives for wage and price restraint. If the incentives are sufficiently strong, they will affect the behaviour of firms and unions, thereby reducing the rates of price and wage inflation. To the extent that the existence of a TIP leads economic agents to expect lower inflation in the future, their behaviour should also adjust favourably.

The TIP incentives may be penalties or rewards and may apply to employees or employers. A penalty TIP would impose an extra tax burden on workers whose wages were raised by an amount higher than a specified guideline, or on employers who acceded to such wage increases. A reward TIP would grant tax benefits to workers who agreed to accept wage increases below the guideline, or to the employers of these workers. Price TIPs would reward or penalize firms whose average price or profit behaviour was respectively within or outside prescribed guidelines.

A TIP for employees would most likely involve a tax credit amounting to a given percentage of total earnings up to a specified maximum (reward), or a tax surcharge that would remove from them some (perhaps even 100 percent) of the earnings received as a result of exceeding the guidelines (penalty). For employers, a reward TIP could be a corporate tax credit tied to the total wage bill, or to the amount by which average wage increases remained below the guideline. A penalty TIP could be

a disallowance of above-guideline wage increases as tax deductible expenses, or a tax surcharge on firms exceeding the guideline. On the price side, firms could get a tax cut or be levied a surcharge for desirable or undesirable price behaviour. If some profit measure were adopted, then the penalty TIP would, in effect, amount to an excess profits tax. In most penalty TIPs, the overall tax rates would be adjusted downwards, keeping total tax revenues constant (i.e., the tax rate cuts would just offset the revenues collected from the tax penalties), and thereby avoiding any deflationary macroeconomic effects from the existence of the plan.

Overall, a penalty TIP on workers would be certain to generate vehement union opposition; this would be particularly so if no acceptable price side TIP could be implemented to penalize "irresponsible" firms. We have already noted the inherent technical difficulties in controlling prices and these considerations would apply to a TIP as well. A reward TIP for employers is also a political non-starter. It would be viewed as the government giving money to employers in return for being tough with their workers; government would be seen as sitting on the employer's side of the bargaining table. From these preliminary comments, it would seem that the most acceptable wage TIPs would be a reward TIP for employees, or a penalty TIP on employers. However, because Quebec, Ontario and Alberta administer their own corporate income taxes, the latter would involve considerable co-ordination problems. More serious is the fact that the only feasible method of bringing the public sector into the plan is by means of a TIP involving individual employees. Thus, the only type of plan which successfully clears all these preliminary hurdles is a reward TIP for employees. The remainder of the discussion in this section will focus on this alternative.

TIP is favourably discussed by Okun in his previously cited work[19] as well as in his earlier writings. In the "price tag" economy described by Okun, cost disturbances cannot be dismissed as transitory blips because they trigger wage-price and wage-wage feedbacks. Wage and price increases thus can be viewed as externalities analogous to environmental pollution. These increases impose costs on other economic decision-makers. The standard economics textbook solution to externalities is to internalize them into the cost calculations of the polluting individuals or firms. In this light, Okun argues that a TIP may be an effective way to hold down inflationary pressures in career labour markets and customer product markets[20].

When held up against our five evaluation criteria and in comparison to the first two schemes, a TIP comes out moderately better on three counts and significantly poorer on one. First, in terms of creating wage and price rigidities, a TIP is comparable to a program of rules except that groups can choose to exceed the rule and forego the tax reduction. TIP is a rules-based plan in that all participants are likely to be required to abide by the same permissible increase in compensation. However, in instances where a group of workers can extract a wage increase large enough to offset the foregone tax advantage, they are free to exceed the rule. Flexibility is thereby introduced, but it is limited by a threshold calculation.



In terms of treating causes, in a "price-tag" economy, a TIP appears to be preferable to either of the first two programs. In this economy, cost increases create "inflation pollution" and a TIP solution is, in principle, largely consistent with microeconomic theory. TIP treats causes of inflation in this world, just as anti-pollution subsidies (or pollution charges) treat the causes of air or water pollution.

An employee-reward TIP does not confront the equity issue as directly as the first two plans, and thus is preferable to them on political grounds. The issue, while not removed, is largely finessed because the government rewards co-operativeness by reducing income taxes.

While we have no previous experience with TIPs, the administration of such a program is not likely to be a major problem. Much of the administrative apparatus already exists in the income tax collection system[21]. The saleability of a TIP as an anti-inflationary device may be slightly more difficult because it is a more subtle and indirect scheme than the previous two programs. A valid comparison may be the difficulty in explaining a system of pollution fees (or subsidies) versus a direct admonition (backed by penalties) against polluting. However, no government is likely to encounter great difficulties in explaining a program of rewards for good behaviour.

It is on the final consideration - cost - that TIP encounters major difficulty. One estimate of the cost of an employee-reward TIP was \$3 billion per year (1981[22]) current estimates would likely be substantially greater. In order to finance this program, the government would have to choose among some combination of higher deficits, reduced spending, or increased taxes. Moreover, a reward TIP would create a conflict of interest for the government - the more successful it was (measured by its ability to restrain wage settlements), or the stronger the incentive the government wished to offer, the more it would cost in foregone tax revenues. I believe this cost factor to be a very serious impediment to the successful implementation of a TIP.

#### 3.4.4 Market Anti-Inflation Plan (MAP)

MAP is the invention of Abba Lerner and it is clearly the most imaginative of the four types of incomes policies discussed in this paper. Lerner also adopts the view of inflation as an externality and has designed a plan in which the price of the "pollution licences" is set in the market rather than by legislators.

MAP would operate as follows[23]. Every firm is granted a quantity of MAP Credits equal to its Net Sales for the previous year plus a further amount equal to  $x$  percent of Net Sales, where " $x$ " is the estimated growth of national average productivity (net output per unit of input). Net Sales are defined as gross sales (including inventory increases) minus purchases from other firms. Net Sales therefore equal wages plus profits (broadly defined), or all payments that constitute income to individuals or are, in effect, value-added[24]. Total Net Sales thus correspond to total income of the economy.

Each firm must keep its Net Sales equal to the MAP Credits it holds in the new year by buying or selling credits in a national market.

Since the total amount of MAP Credits outstanding is fixed, the national average increase in incomes would be fixed, but individual incomes would be free to expand more (or less) quickly. The MAP Credit market could be administered by a new bureau or by an existing agency such as the Bank of Canada[25].

If there were a general tendency to increase wages or profits (prices) faster than the real productive capacity of the economy could expand, many firms would be forced to enter the market to buy MAP Credits, and the price of Credits would rise. As in any market, the price would rise until the demand for MAP Credits was brought into equality with the supply forthcoming from firms increasing wages and profits at a rate less than that corresponding to their initial allocation. In the opposite circumstances the price of MAP Credits may fall to zero.

A complete description of the plan is beyond the scope of this paper. Some details and its adaptation to the Canadian economy will be discussed as we evaluate MAP in terms of our five criteria. In terms of permitting individual price flexibility, the MAP scheme is designed to accomplish precisely that objective. Namely, it would not inhibit the adjustment of relative prices and wages but would control the price level. The whole purpose of establishing a market for MAP Credits is to permit relative price adjustments to occur. At least in theory, on this score MAP dominates all of the other controls schemes.

In a "price-tag" or "fix-price" economy as described by Okun, MAP like TIP, is fully consistent with the prescriptions of economic theory. If, in this context, wage and price pressures can be regarded as "inflation pollution," then MAP is analogous to auctioning off a fixed total of pollution rights to the highest bidders. It is thus a further refinement of TIP, which corresponds to setting the pollution fees by authorities rather than by markets. MAP also includes inflation pollution caused by rising prices, while TIP only is really effective on the wage side.

Thus, we have seen that under some circumstances, a plausible case can be made that all four types of controls can remove or moderate causes of inflation. Of the four, MAP again emerges as the dominant alternative, while TIP emerges as a strong second choice.

MAP also appears to satisfy our equity considerations, both between labour and capital distributions and within various classes of labour. Because Net Sales include both wages and profits, the MAP scheme should not disturb the normal processes by which the income pie is split between these claims. A similar conclusion would apply to various employee groups (unionized or not) within the firm. MAP raises the cost to the firm of increasing wages and profits at a rate higher than national productivity increases, but it does so equally for either form of income and therefore does not distort the choices between them.

Largely due to its novelty, a number of questions arise about the feasibility of MAP. One concerns the prices regulated by governments or established by Crown corporations. The former pose no serious obstacles. Firms in regulated industries would still apply to the relevant agency to approve their price increases. In addition, they would be required to hold MAP Credits sufficient to cover their Net Sales (which would be a function of prices). Crown corporations that set their own



prices and reach wage bargains with their own employees would be similarly required to hold sufficient MAP credits, although the accounting definition of Net Sales would likely require some modification in these cases.

More serious problems arise when considering direct employees of governments. Compensation is generally not determined within a given agency or department; each category of employees strikes wage bargains that apply across all units of the government. Similar difficulties arise in many quasi-public institutions such as schools, universities, colleges, and hospitals. One solution is to restrain these groups by legislation to the increase established as the national average (x percent). However, this rule would violate the spirit of MAP which is to work with the market and not to restrict relative adjustments. Another possibility would be to devise concepts analogous to Net Sales that would apply to a government, hospital or school system as a whole. Thus, if a government or a school wishes to increase the average compensation of its employees by more than its initial Credit allocation permits, it too would be required to use part of its budget to purchase the required amount of MAP Credits.

An enforcement problem may be created if firms are able to devise ways of redefining some of their Net Sales as purchases of materials. For example, rather than raise the salaries of a group of employees by more than x percent, a firm may instead choose to provide them with company cars. One could easily think of a fairly long list of similar examples of "creative accounting." If widespread, these actions would undermine the effectiveness and equitability of the program. Of course, this problem is not unique to MAP, but applies to all of the other schemes as well. Ultimately, all income control programs require the monitoring authority to employ accountants who are at least as creative as those working for the controlled firms.

A further concern is the political saleability of MAP. Because it is more complex and indirect than the other programs, it will be more difficult to explain its operation and how it would reduce the rate of inflation. We need only recall the difficulty economists have encountered in promoting the idea of a market in pollution licences to get some appreciation of the promotion difficulties likely to accompany MAP.

Finally, administrative costs of MAP are likely to be small. The costs of operating the MAP Credit market would be minimal, and the monitoring and enforcement costs probably would not be much different than for a rules-based program or a TIP.

### 3.5 CONCLUDING OBSERVATIONS

The purpose of this paper has been to compare alternative models of incomes controls in terms of a number of the considerations often raised by both proponents and opponents of such plans. The focus has been on microeconomic and equity questions, although one obviously cannot ignore macroeconomics in a discussion of wage and price controls. The issue of causes versus symptoms in particular involves macro considerations.

Trying to invent a formal scoring system to evaluate the alternative models is not an activity in which I wish to engage. On an informal qualitative basis, however, MAP seems to emerge as a very attractive prospect, if it is possible to get by a series of implementation problems (including some not raised in this paper) without destroying the spirit of the program. At the other end, the arguments for reinstituting another discretionary program modelled on the Anti-Inflation Board of 1975-78 are not very convincing. A reward TIP for individuals merits serious consideration, although the cost of the tax rebates may in the end prove fatal. A system of controls based on rules (surprisingly) may be viable on a short-term basis, but would certainly break down in the medium to long-term.

Clearly no system of income controls is costless or without serious problems. None of the plans considered here satisfactorily met all of our criteria. These problems are both economic and political. The real question is one of weighing the costs of an economic program that includes controls, against one that tends to rely almost entirely on monetary and fiscal policy. That the economic costs of the latter are enormous there can no longer be any doubt.

It is clear that income controls or wage and price controls are not a single instrument of policy. The various plans discussed here could be expected to have significantly different allocational and equity consequences. The same could be said of specific versions of any one of the general controls models. Specific questions of program design are important. Yet a good deal of general public and professional discussion of income controls seems to ignore this fact.

Finally, recall that political considerations appear many times in this paper. Income controls are instruments with political repercussions much more direct and visible than virtually all other instruments of economic management. Moreover, they tend to politicize issues of economics well beyond the immediate concerns of controlling prices and wages. For many people, this politicization raises important questions of social conflicts and costs [26]. From the perspective of the present analysis, we might view the politics of income control policies as a design problem as well. As our discussion indicated, designers of control programs are likely to be required to consider political as well as economic factors and to face trade-offs between them.



## Notes

\* The author wishes to thank Tom Rymes, Gene Swimmer, George Warskett and Stephen Harris for helpful comments.

- [1] The controls argument can be found in many of Galbraith's writings but perhaps its most complete development is in The New Industrial State 1967. (Boston: Houghton Mifflin Company).
- [2] Statistics Canada Daily (11.001), September 2, 1982.
- [3] Arthur M. Okun (1981)., Prices and Quantities: A Macroeconomic Analysis. (Washington: The Brookings Institution).
- [4] Ibid., p. 223.
- [5] Okun also recognizes that (smaller) portions of both the goods and labour markets can be characterized in the terms of more traditional theory in which prices (wages) are the primary short-run mechanisms of adjustment in response to changing supply and demand conditions. These markets are referred to by Okun as "auction" markets and casual labour markets, respectively.
- [6] An initial inflationary stimulus or cost disturbance may arise from a number of sources. Price increases in domestic or world auction markets (e. g., OPEC price increases in 1973 and 1979) may be the culprit. A period of excess demand - when the society collectively is attempting to consume more than the total output of the economy (e.g., the United States during the Vietnam War period) - would be another stimulus. A third possible source may be a disruption of the stable price and/or wage patterns in an industry in the "price-tag" sector of the economy.
- [7] Also see John Vanderkamp, "Wage and Price Controls: Some Basic Macro Issues", in this Monograph, (Winnipeg: Institute for Social and Economic Research), 1983, pp. 3-26.
- [8] Even in a "fix-price" economy described by Okun, a considerable amount of price flexibility remains. A significant number of prices are still determined in "auction" markets and, even in "customer" markets at any given time, many price adjustments are occurring.
- [9] There are numerous anecdotes describing such collaborations during the regime of the Anti-Inflation Board, (1975-78) for example. See Allan M. Maslove and Gene Swimmer (1980) Wage Controls in Canada 1975-87: A Study of Public Decision-Making, (Montreal: Institute for Research on Public Policy).
- [10] It is easier, for example, for a firm to adjust successfully to a

nominally controlled price by altering product quality than for a group of workers to make an analogous adjustment by "working to rule."

- [11] For example, according to one study, during the 1975-78 period, the average weekly wage was about 8 percent lower in the third quarter of 1978 than would have been the case without controls. The comparable figure for average prices was 2.5 percent. In terms of the rate of increase of the CPI, the maximum effect was a slowing of the inflation rate by just over 1 percent by the end of the program. See Reginald S. Letourneau (1981) Inflation: The Canadian Experience (Ottawa: The Conference Board of Canada). A recent study, however, found a much more significant decrease in inflation as a result of the 1975-78 controls program. Barber and McCallum found the inflation rate (at a given level of unemployment) to be about six percentage points lower in 1981 than would have been the case without the AIB. See Clarence L. Barber and John McCallum (1982), Controlling Inflation, Canadian Institute for Economic Policy.
- [12] Maslove and Swimmer, op. cit.
- [13] It is a (not particularly interesting) matter of judgment as to the point at which exceptions become widespread enough to regard the plan as being discretionary rather than one of "rules." We are simply attempting to characterize how a system, based primarily on previously specified regulations, would fare under our criteria compared to one based on case-by-case decision making.
- [14] The federal government's "6 and 5" regime of 1982 is an example of a rules type controls system, though its application is quite restricted.
- [15] The AIB devoted the vast majority of its resources to the labour side to handle requests for wage increases above the specified guideline. The fact that much fewer resources were devoted to similar activity on the price side is explained by the much looser (weaker) controls system for prices.
- [16] For one suggestion as to how an agency similar to the AIB might be constrained see Maslove and Swimmer, op. cit., Chapter 10.
- [17] For example, the administrative budget of the Anti-Inflation Board peaked at about \$24 million, less than one-tenth of 1 percent of the total spending of the federal government.
- [18] The first full statement of the TIP approach (to my knowledge) was in Henry C. Wallich and Sidney Weintraub (1971) "A Tax-Based Incomes Policy," Journal of Economic Issues, Vol.5, June, pp. 1-19. President Carter proposed a variant of TIP (real wage insurance) late in 1978. By early 1979, however, the proposal had collapsed in the Congress. For a review of Carter's plan see Daniel J. B.



Mitchell (1980) "The Rise and Fall of Real Wage Insurance," Industrial Relations, Vol. 19, No. 1, Winter, pp. 64-73.

[19] Okun, op. cit.

[20] Okun discussed both tax penalties on employers and tax rewards to employees; one is left with the impression that, on economic grounds, he would have accepted either version. The decisive determinant may well be political, as was the case in focusing on an employee reward TIP in this paper.

[21] For a more detailed discussion of TIP administration, see Ronald G. Bodkin (1981) "The Challenge of Inflation and Unemployment in Canada During the 1980s: Would a Tax-Based Incomes Policy Help?", Canadian Public Policy, Vol. VII, April, Supplement, pp. 202-214.

[22] Ibid.

[23] For a detailed exposition see Abba P. Lerner and David C. Colander (1980) MAP: A Market Anti-Inflation Plan, (New York: Harcourt Brace Jovanovich). A forerunner of MAP is described in Abba P. Lerner (1978) "A Wage-Increase Permit Plan to Stop Inflation," in Arthur M. Okun and George L. Perry (editors), Curing Chronic Inflation (Washington: The Brookings Institution).

[24] Allowances are made in Lerner's plan for expanding (contracting) firms that are hiring (releasing) additional labour and capital.

[25] In fact, MAP Credits would possess some of the characteristics of money and would impose a similar kind of anti-inflationary discipline on the economy that a monetarist would expect from a "properly managed" money supply. Would it be going too far to characterize Lerner as a "neo-monetarist"?

[26] For example, Okun himself recognized this problem "...a mandatory controls program tends to politicize the entire economic process. That may be its largest social cost." (p. 347).

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## 4 Review and Discussion of: Wage and Price Controls: Some Basic Macro Issues -and-the Political Economy of a Canadian Income Control Policy - a Microeconomic Perspective

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The papers we have heard by Professors Maslove and Vanderkamp are very different from one another but they also complement each other. They both address the problem of inflation and evaluate various policy prescriptions. Maslove examines the merits of several variants of control regimes. In conjunction with a policy of monetary restraint - gradualist and sudden death (cold shower) - Vanderkamp examines the impact of an unspecified controls regime which, however, resembles the administrative discretion model in Maslove's paper. Maslove does not specify fiscal and monetary policy in his discussion of the various control regimes, although he too mentions that he does not see controls as a single instrument of policy, and he would presumably accept Vanderkamp's presumption that an expansionary monetary and/or fiscal policy would cancel out any increase in market discipline achieved by an incomes policy. Both authors, then, are speaking about the impact of income controls in combination with some degree of monetary-fiscal restraint. And they both end up with a very optimistic conclusion that while a restricted monetary-fiscal policy by itself imposes huge costs in terms of unemployment and lost output as a way of bringing down inflation - a temporary controls regime will, in tandem with monetary-fiscal restraint, substantially reduce that cost.

I am going to question that conclusion based on two considerations. The first is that I do not believe the authors have considered the full implications of the conflict theory that underlies the explanation of inflation presumed by advocates of wage and price controls. The second is that both authors implicitly assume that the current world recession is entirely induced by government measures to counter inflation through restraint - rather than the world recession being a symptom of a deep economic crisis that has only been aggravated by government measures to deal with inflation. If these considerations are important then the optimistic conclusions of the authors would appear to be unwarranted.

First, I wish to deal with the theoretical framework that informs both papers. I think it would be worthwhile pointing out that while



Vanderkamp says he is working within a monetarist framework, this is not the case at all. According to the monetarist doctrine, capitalism functions in a largely atomistic fashion. Unions and firms are small by comparison with the whole economy. Each firm or union acts independently of the other. Wage and price movements are determined largely by the atomistic process of supply and demand with monopolies and unions exercising a marginal influence on the overall movement. Unions, for example, can have little effect on the overall wage level, although by restricting entry they can alter the pattern of wage differentials. The only relevant variable in determining the price level is the supply of money. Therefore, wage and price controls have no prescriptive powers in the monetarist framework. They are entirely unnecessary and, insofar as they introduce allocative distortions, they can only have a negative impact.

The theory of inflation endorsed by Vanderkamp and Maslove is rather a conflict theory which of course is at the heart of so-called post-Keynesian economics. But their's is a modified or weak version of post-Keynesianism.

Following J.K. Galbraith, post-Keynesians divide industry into two sectors - core industries characterised by oligopolistic market structures, high capital-to-labour ratios, sophisticated technology, strong trade unions; and peripheral industries characterised by a lack of market power, low capital requirements, simple technology and managerial organization, and weak or non-existent trade unions.

Core industries, which overwhelmingly dominate the goods producing sector of all modern economies, usually have on hand at any time considerable unutilized capacity so that output can be raised by simply adding more workers. Therefore, until full capacity output is reached, a point which may never arise, firms can meet an increase in demand for their product by increasing output at the prevailing cost level ("Supply Curves" are horizontal). The consequence is that for core industries, prices are largely insensitive to demand. Variations in demand have their main impact on profit margins. It is rather variations in cost that determine price.

While increases in demand have little impact on prices, Post-Keynesians argue that general increases in cost are almost instantly and totally absorbed in higher prices. These increases could come in the form of higher interest rates, raw material prices, tax rates or money wages. Most Post-Keynesians concentrate on money wages.

What triggers the inflation is less important than the process that develops from it into a wage-price spiral. It could be triggered by a sharp rise in oil prices, for example; or by a sharp rise in income taxes; or by some group of workers trying to leap-frog over others, thus momentarily upsetting a long-accepted wage contour, or by a large wage increase in an industry matched by an equivalent rise in productivity but which sparks a similar wage increase in the public sector where productivity rises more slowly. Whatever triggers it off, militant trade unions protect the real disposable income of their members and their relative position in the wage contour. And oligopolistic firms protect their profit margins by passing the resulting higher wages onto their consumers.

The upshot of Post-Keynesian economics is that since the origins of inflation are to be found in the competitive power struggle within and between different social groups and not in excessive aggregate demand, a policy designed to restrict aggregate demand cannot halt inflation. It only causes smaller output and unemployment which heightens the distributional conflict. An incomes policy, it suggests, would allow the state to achieve full employment while moderating wage claims and thus inflation.

Taken to its extreme, the Post-Keynesian position is untenable. Surely it is unreasonable to argue that the state of demand has no impact on wages and prices. Yet that is what a pure Post-Keynesian position assumes and it is the key assumption behind the belief that we can have a full employment level of output and wage and price stability. There need be no trade-off between inflation and unemployment provided Keynesian demand management is combined with an incomes policy. But to deny that the rate of change of demand (if not the level) exerts an influence over labour and capital is mere dogma. While changes in wages do not clear the labour market, it has been widely observed that labour bargains harder and for a more rapid rise in wages and fringe benefits when labour markets tighten. Employers, in turn, are reluctant to risk a strike when profits are high and are more willing to accept higher wage demands. At the other extreme, a sudden high level of unemployment in an industry with the threat of further redundancies or even bankruptcy of the employer weakens the willingness of workers to resist low pay offers. As for firms, a low level of demand and excess capacity reduces the ability of the employer to raise prices and stiffens their resistance to workers' demands. The idea that the rate of wages is determined by trade union fiat and that big capital can always and does always pass higher wages on to the consumer is neither reasonable nor supportable.

The importance of this assumption for the analysis may be gauged by examining what happens if it is dropped. For then it can no longer be argued that Keynesian demand management combined with an incomes policy could produce full employment and price stability. Full employment would build up inflationary pressures that an incomes policy could not repress. More realistic Post-Keynesians admit that an incomes policy does not dispense with the need for monetary-fiscal restraints - only that it allows for a less deflationary policy - monetarism with a human face.

This I believe is the premise of both of our authors, certainly Vanderkamp. They are neither pure monetarists nor pure Post-Keynesians. Their position can be summarized as follows:

Inflation is caused by conflict over the distribution of income. Money influences price only through its effect on this conflict. Since conflict depends on, or at least is influenced in a major way by demand, if monetary factors can alter the level of demand, they can influence the degree of conflict and through it the rate of inflation. So monetary factors may influence price through the causal chain of money -- demand -- conflict -- prices.

Having got that out of the way and before proceeding to the way conflict theory links up with controls, I want to take a moment to suggest



that even if some incomes policy could help resolve conflict as it is reflected in the sphere of distribution, this only deals with the problem at the level of appearances. Below the surface of the conflict between workers and capitalists over the distribution of income, is the sphere of production - and here too conflict between workers and capitalists exists. Capitalists do not, after all, buy productivity. They buy labour time which they have to convert into productivity. While the output of a machine can be perfectly known, this is not so for a worker. The output of workers with similar skills and working with similar machinery, depends on the relative 'diligence' with which they work. This, in turn, depends largely on the relative ability of capitalists and workers to influence the work process. Capitalists will be able to get more output from the worker by gaining his loyalty, providing easy channels of promotion and incentives, for example. Workers will be able to control their output by resisting speed-ups, punishing 'rate busters', etc. Resolving conflicts at the level of distribution even if that were possible, does not touch this deeper conflict. Moreover, the extent of distributional conflict is governed, in part at least, by the extent of conflict in production. The intensity of wage demands no doubt reflects in part the degree of oppression and lack of control that exists in the work situation. As the French writer Andre Gorz put it, it is part payment for "the time being lost, the life being wasted, the liberty being alienated..., a distortion and a mystification of a deeper demand that at the present stage of union activity is not overtly expressed."

Management schemes to overcome worker resistance and alienation - like profit-sharing, quality of work life, union rights to greater consultation and job enrichment are not usually effective because they do not penetrate very deeply into actual day-to-day working lives and therefore cannot satisfy felt needs. Yet the issue of productivity is at least as important as the issue of wages. Except for such schemes noted above, income policy advocates can only probe this area with great caution because far more than the question of distributional power, it touches the very heart of the capitalist economy.

Now I want to come to the contradiction that I see in resolving by means of wage and price controls, the class conflict that according to the Post-Keynesians, lies behind inflation.

Only widespread consensus about distribution or an army of enforcement inspectors can produce anything like adherence to a control regime for more than a brief period. To secure even minimum consent among workers, prices and other incomes have to be controlled. Dividend restraint is relatively painless except for small shareholders. So long as the economy is growing, large shareholders prefer to take their gains in the form of rising share prices. Restraint on prices and profit, however, involves heavy costs. High profits are essential to obtain greater output and productivity because profit is both the source and the incentive for investment.

With the claims of the foreign sector and to some extent, those of the government acting as a constraint in the total share of income available as profit and wages, it is assumed, given the primacy of profits, that a deterioration in the terms of trade or an increase in gov-

ernment expenditure must, in the main, be deducted from the wages share. According to conflict theorists, inflation arises precisely because trade unions do not accept this fact of life. They strike to protect and advance the real disposable income of their members in the face of rising taxes and import costs, by shifting a part of the burden onto profits. This can be particularly dangerous in times of slow growth because it threatens both the consumption of capitalists and their incentive to invest.

This means that the problem of gaining a consensus is particularly problematical during periods of stagnant output with companies facing declining and in some instances negative profits, heavy debt, and severe cash flow problems. In such periods the state has little to offer the working class. Anything extra it gives to labour must be subtracted from capital. But with profits being clearly squeezed, this could place the motor force of the system in jeopardy. Effective control over prices and profits under these circumstances would be suicidal for capital. During periods of crises there must be a shift in allocation the other way, from consumption to investment. Real wages must be sacrificed in favour of profits; state expenditures on social services must be cut back in favour of increased subsidies to industry. But with the state in effect nationalizing part of labour's income and transferring it to capitalists, consensus inevitably breaks down. Incomes policy is then either imposed through state coercion, eliminating basic trade union freedoms, or it is abandoned. It is in any event an inherently unstable regime.

While both TIP and particularly MAP require less arbitrary legislative impositions and leave some space for collective bargaining, their effectiveness in resolving conflict is still subject to the same criticism that can be made of the more direct control regimes, outlined by Professor Maslove.

I have, then, touched on one factor that leads me to a much less optimistic evaluation of the effectiveness of a control regime. Under real world circumstances - incomes policy is implemented only when business and government feel that wages are either rising too fast or have a potential for doing so; it is inconceivable that any form of incomes policy would be introduced because profits are rising too fast - incomes policy would have to be imposed by government dictate, as it was in 1975. It can hold wages down for a time and, via wage deflation, produce an indeterminate, but likely small effect on prices. Whether these presumed gains would be anything but short-lived is doubtful. Not having eliminated what they themselves identify as the real source of inflation, wage and price spirals would start up again with economic recovery.

I have already alluded to what I believe to be the second shortcoming of the analysis implicit in both papers. It is assumed that the current economic crisis is one merely of inflation or of a deep recession caused by government's efforts to control inflation. Therefore, a short-term regime of controls and monetary and/or fiscal restraint - if it is able to bring down inflation will enable a return to post-war normality. Thus the Vanderkamp paper assumes that the long-run average output growth of 4 percent continues to prevail except for the recessionary im-



pact on employment. Investment spending is not at all disturbed or even variable in his model. This probably has a lot to do with the optimistic results he gets in most of his simulations.

My own view is that the post-war boom was due far less to government policy than to certain very favourable underlying factors that kept wages and materials fairly cheap, that promoted major gains in productivity through technological change, that created vast new mass consumer markets and that produced a stable international economic environment. These circumstances promoted high rates of profit, high levels of investment spending and international trade. These expansionary forces gradually exhausted themselves by the mid-sixties, reaching critical proportions over the next decade and resulting in declining rates of profit and a decline in the share of post-tax profits throughout the advanced capitalist world. Simply put, given the combined claim of the state and primary producers and the ability of the working class to resist attempts to force them to reduce their consumption by an equivalent amount, what remained for profits was greatly reduced.

I believe it was the policy of most governments in the early 1970s to attempt to overcome falling profit rates by expanding the supply of money, enabling firms to raise prices. Workers demanded higher wages in response. The resulting inflation disguised the fact that the expansionary forces were exhausted. A reversal of monetary policy followed when double-digit inflation became untenable. If this analysis is correct then government policy does not produce the economic crisis. By withdrawing from a policy of artificially holding the economy up, it simply gave free reign to economic crisis to restructure the economy.

As we all know, economic growth under capitalism involves the on-going restructuring of production. Rapid technological change, which is a major part of this restructuring, entails the closing of existing factories, or a major reorganization of them, the firing, re-training or re-deployment of existing employees. Competition works to eliminate inefficient plants and firms and those that are slow to innovate and it replaces them by their stronger and more adaptable rivals. The significance of the economic downturn in the business cycle is that it accelerates this weeding-out process.

During long periods of prosperity founded on favourable conditions for capital accumulation, restructuring takes place rapidly and smoothly. Short and shallow recessions, involving only the selling off of excess inventories, may be all the adjustment necessary for a resumption of growth. However, in the course of a long period of fairly continuous growth, certain distortions inevitably arise which create obstacles in the path of further growth. Some firms expand their productive facilities far in advance of potential markets, producing over-capacity. Others avoid adopting new technology because it is inconvenient for managers and because it is unpleasant to make workers and relatively new machinery redundant, especially in the teeth of opposition from strong trade unions, hardened by years of job security. The relationship between prices and wages becomes increasingly unfavourable for profitable production and productivity slips both because productive capacity is strained and because management has lost the discipline of the shop floor. Large organizations are often able to shield themselves from in-

convenient pressures of the market place and are shaken into action only when they are pushed to the wall.

According to this analysis crisis may be seen as temporary means to eliminate obstacles to long-term growth and to force through required changes.

The reorganization of capital occurs at the enterprise, national and international levels. It concentrates production in those regions, countries and enterprises where labour is most productive of profit. The re-organization of work inside plants also raises worker productivity. The crisis eliminates the weakest firms, destroying their capital or transferring it at vastly reduced prices to financially stronger rivals. Mass unemployment weakens workers' ability to resist both cuts in real wages and the intensification of the work process. The "slaughter" of capital values, elimination of debt, the repression of wages, rise in productivity, etc. all have the effect of dampening inflation. More important, they have the effect of reversing the decline in the rate of profit. With profit being concentrated in a diminished number of firms that are both financially and industrially strong, it is more likely that profitable investment opportunities and available cost-cutting, but expensive technologies, will be taken advantage of.

The crisis is obviously very painful for both capitalist and worker but it may be necessary to recreate the conditions for renewed capital accumulation. I wish to add four important qualifications, each of which deserve to be much more fully elaborated upon than space here allows. 1. Notwithstanding the above, as the experience of the Great Depression showed, economic crisis cannot guarantee a recovery. 2. While a monetarist approach to economic policy forces a restructuring along the chaotic lines outlined above, the state could adopt an alternate strategy of directly supervising the crisis by directing public investment to some branches of private industry and/or some branches of nationalized industry. As we shall see, an incomes policy should be regarded as part of this state-directed restructuring process. 3. By mobilizing a successful resistance movement, workers can to some degree shape the restructuring process to better protect their interest. In the final analysis, however, trade union action by itself will never be sufficient to produce and effect an alternative economic strategy. 4. A stalled restructuring can produce more radical solutions - either of the Left or the Right.

According to the view I am presenting, there is a fundamental flaw in a discussion of income controls that abstracts from the crisis and the restructuring process that goes on in the crisis. In fact, whatever its stated aims, an incomes policy should be viewed as an instrument of the restructuring process. Its real function is to hold down real wages so as to recover capital's share of total income in the interest of investment and economic growth.

So far as equity considerations are concerned, therefore, at the very best an incomes policy can be designed to redistribute income more equitably within the working class - "Socialism in one class" - to use Leo Panitch's apt phrase. On the other hand, as Professor Maslove's paper points out, drawing on the AIB experience, given some discretionary power, government authorities are more likely to favour the most militant



and best organized workers, while giving much lower wage settlements to the weakest groups of workers. Even from within the working class, therefore, wage controls are more likely to widen income differentials than narrow them.

In any event, it cannot be used to resolve the basic distributional conflicts that incomes policy advocates themselves claim cause inflation. This is why, seen as a device to defeat inflation, one must expect incomes policy to fail. Because it has done nothing but, at most, freeze the distributional conflict, it cannot last long before the underlying pressures make it inoperative. Of course to the extent that inflation is driven by competition for greater shares within the working class, this conclusion needs qualification. In any case, unless the process of restructuring is allowed to complete itself, once institutional controls are removed one should expect that the unresolved distributional conflict will break out into another round of wage-price spirals.

In conclusion, let me repeat my thesis that authors Maslove and Vanderkamp reach such optimistic conclusions about the effectiveness of controls, first because they have failed to take seriously the full implications of the conflict theory that underlies their explanation of inflation. Secondly, resolving distributional conflict in a period of economic crisis is problematic to say the least when in a free enterprise economy what restructuring requires is very substantial redistribution of income away from wages in favour of profits. This does not mean that incomes control has no role to play. While it cannot work to resolve conflicts, it can help in a phase of the restructuring process by weakening trade unions and helping unemployment redistribute income towards profit. Its role then is just that: to redistribute income and redistribute power. Since this could never be done with the consent of the workers it would have to be forced upon them. The Canadian State is well versed in such practices. Let me hasten to add, finally, that refusal to recognize that material conditions impose parameters on policy that operate whatever the intentions of policy designers, is an error that is by no means confined to Professors Maslove and Vanderkamp. It seems to be a major shortcoming of much of economic theory.

## Appendix A Glossary

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AIB- Anti-Inflation Board.

Autonomous Prices- Prices exogenous to the system. Most notably international commodity prices and government administered prices.

Bubble Effect- It is hypothesized that during a period of incomes controls pressure for wage increases will build up. With the lifting of controls, for a period of time, wage increases may rise sharply to release this build up of pressure and then return to their natural level.

Career Labour Market- A highly organized hierarchical job structure existing within a firm or profession. Individuals enter a firm or profession at the bottom of a job ladder and must advance up it through job experience.

Customer Product Market- Customers develop allegiance to a particular seller resulting from shopping costs and experiences related to past services.

Natural Rate of Unemployment- The rate of unemployment associated with the equilibrium real wage. In this model, all unemployment is voluntary. Also termed the long run non-accelerating rate of unemployment.

Phillips Curve- Depicts the tradeoff between unemployment and price-wage inflation.

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



Quantity Theory of Money- A definitional statement which equates nominal GNP to the flow of money.  $MV = PQ$  where  $M$ =money supply,  $V$ =velocity of money,  $P$ =price level and  $Q$ =output. By rearranging terms we obtain  $P = kM$  which is the statement that inflation is a monetary phenomenon.

Real Output- Nominal output divided by the price level.

Simulation Model- An economy is depicted by a set of equations which reflect consumer, producer and government behaviour. By changing values of the variables and parameters, we can simulate changes in the economy and policy.

Stabilization Policy- The coordinated use of monetary and fiscal instruments to dampen the cyclical fluctuations of the economy.

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

Wage Contour- An established pattern of wages which exists between various occupations within an economy.

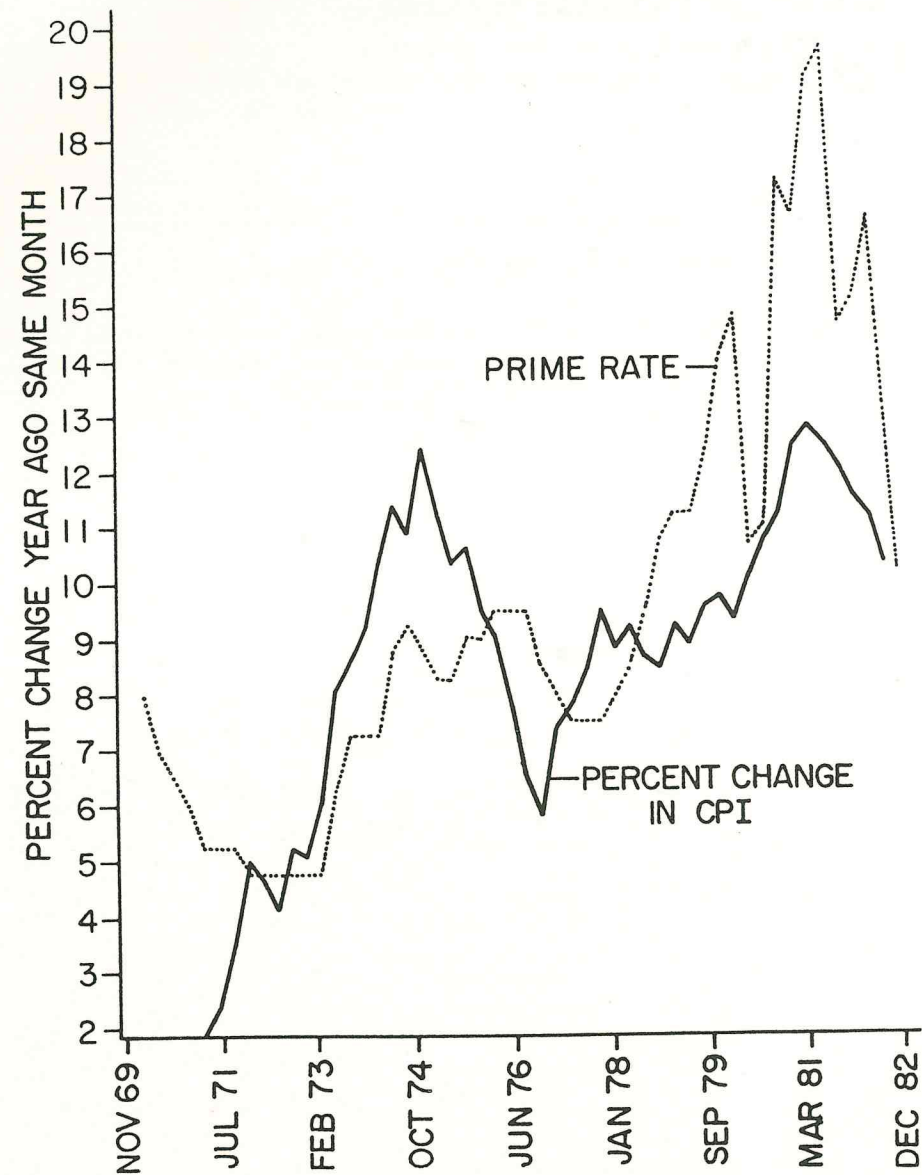
## Appendix B

### Facts and Figures on Wages and Prices in Canada since 1970

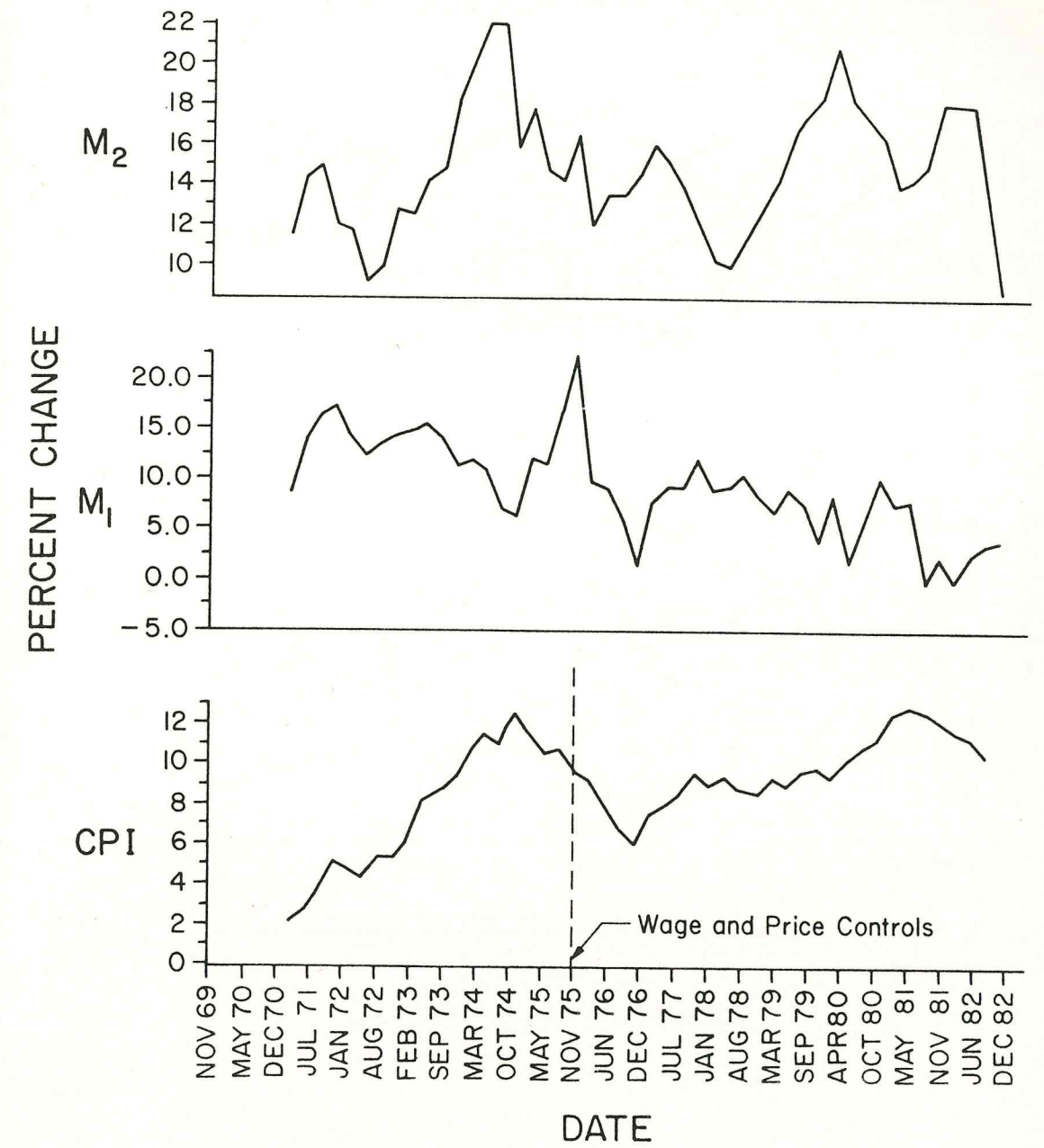
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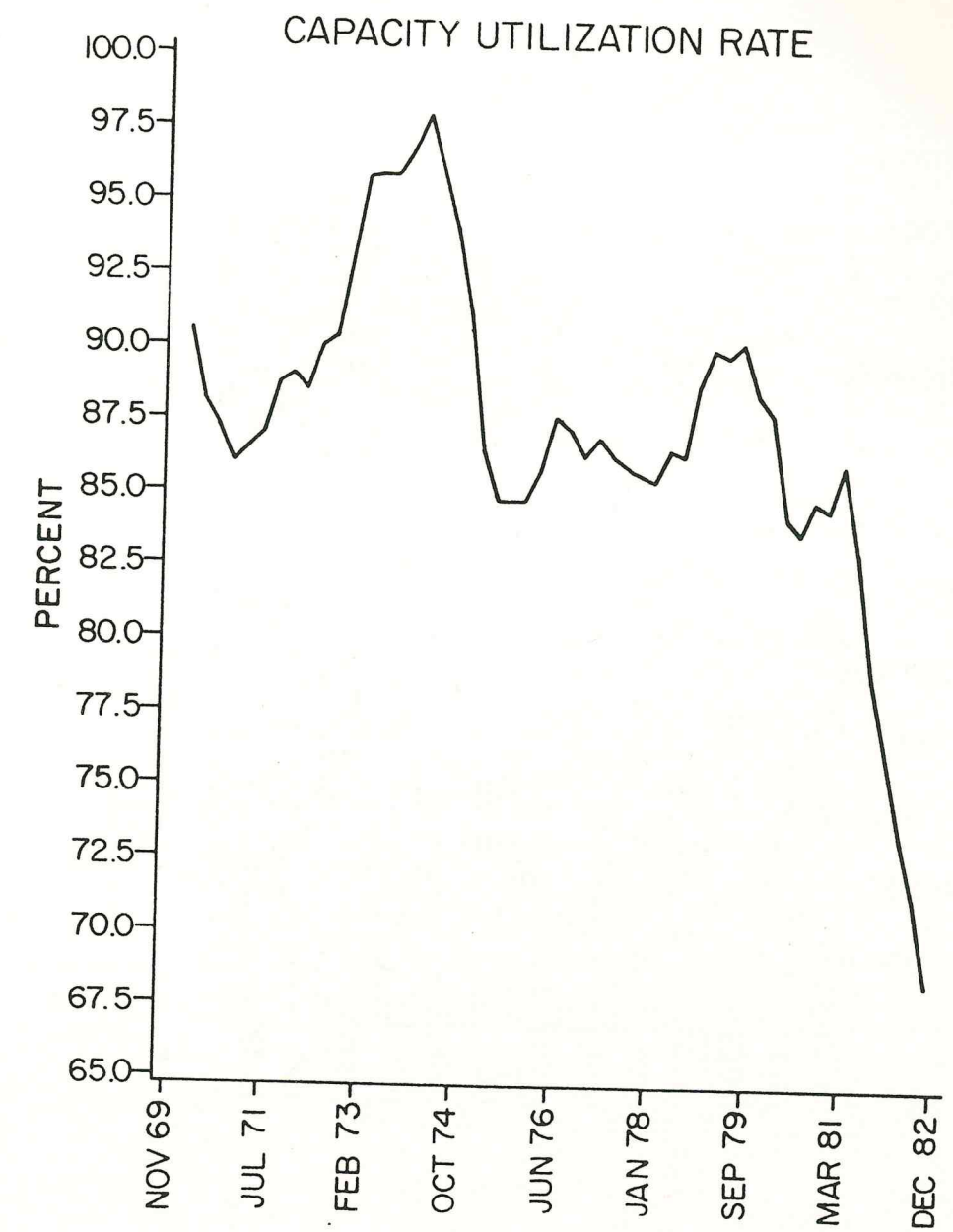
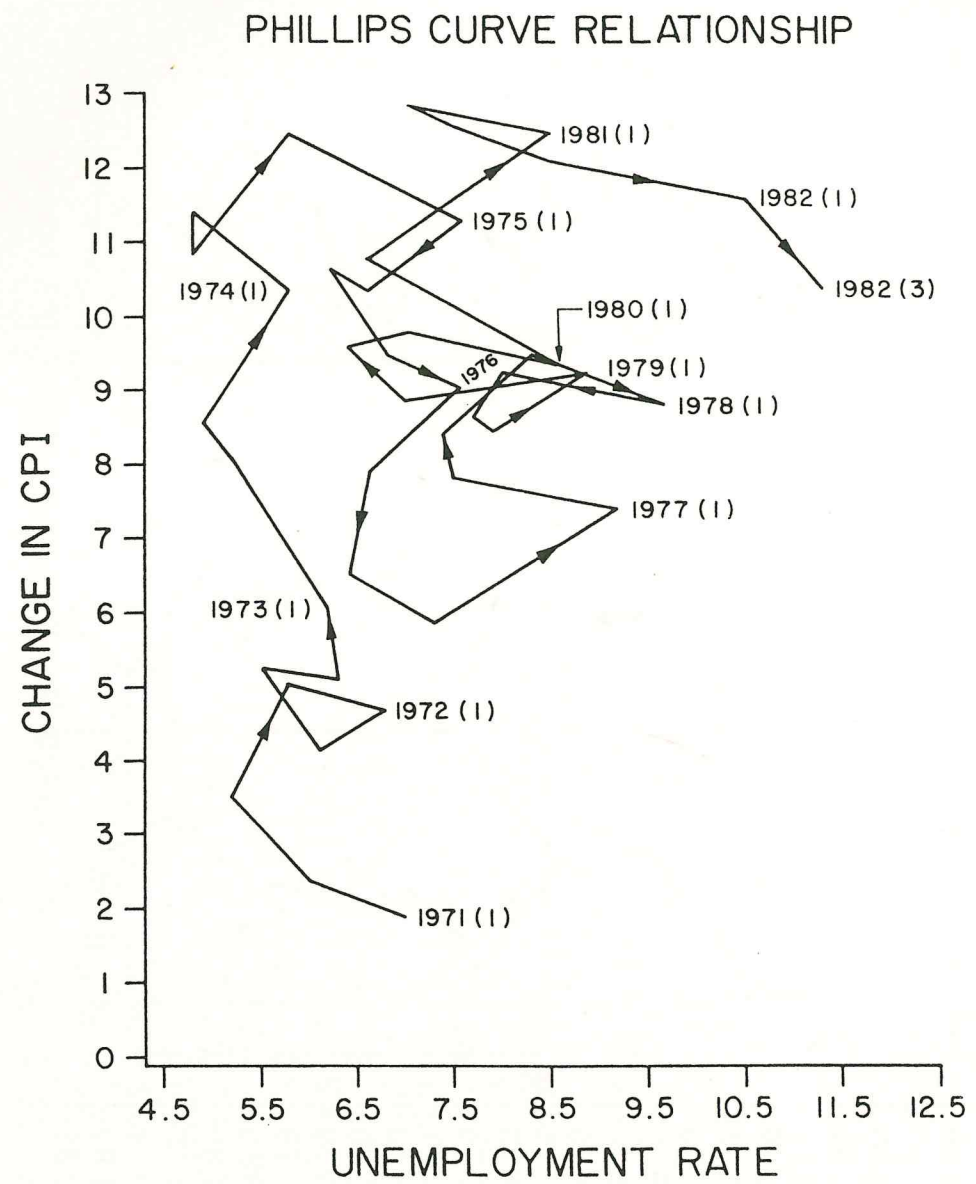
## INTEREST RATES AND PRICES



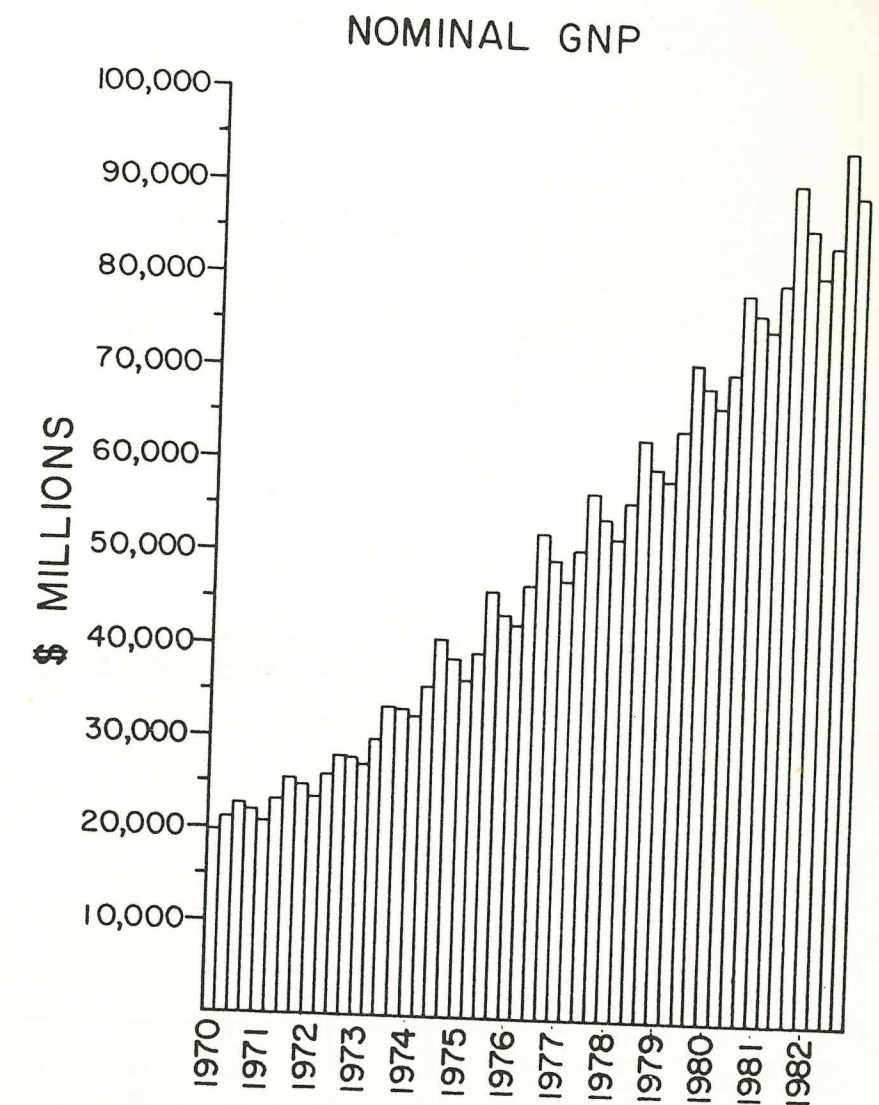
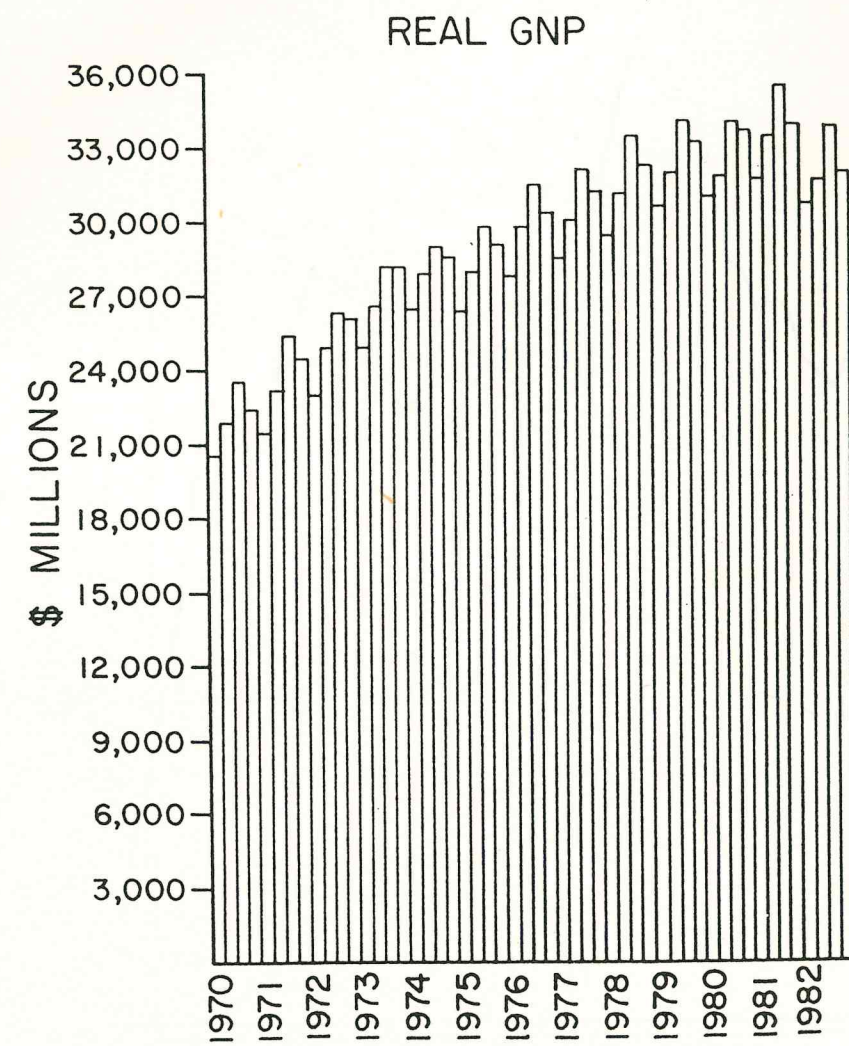
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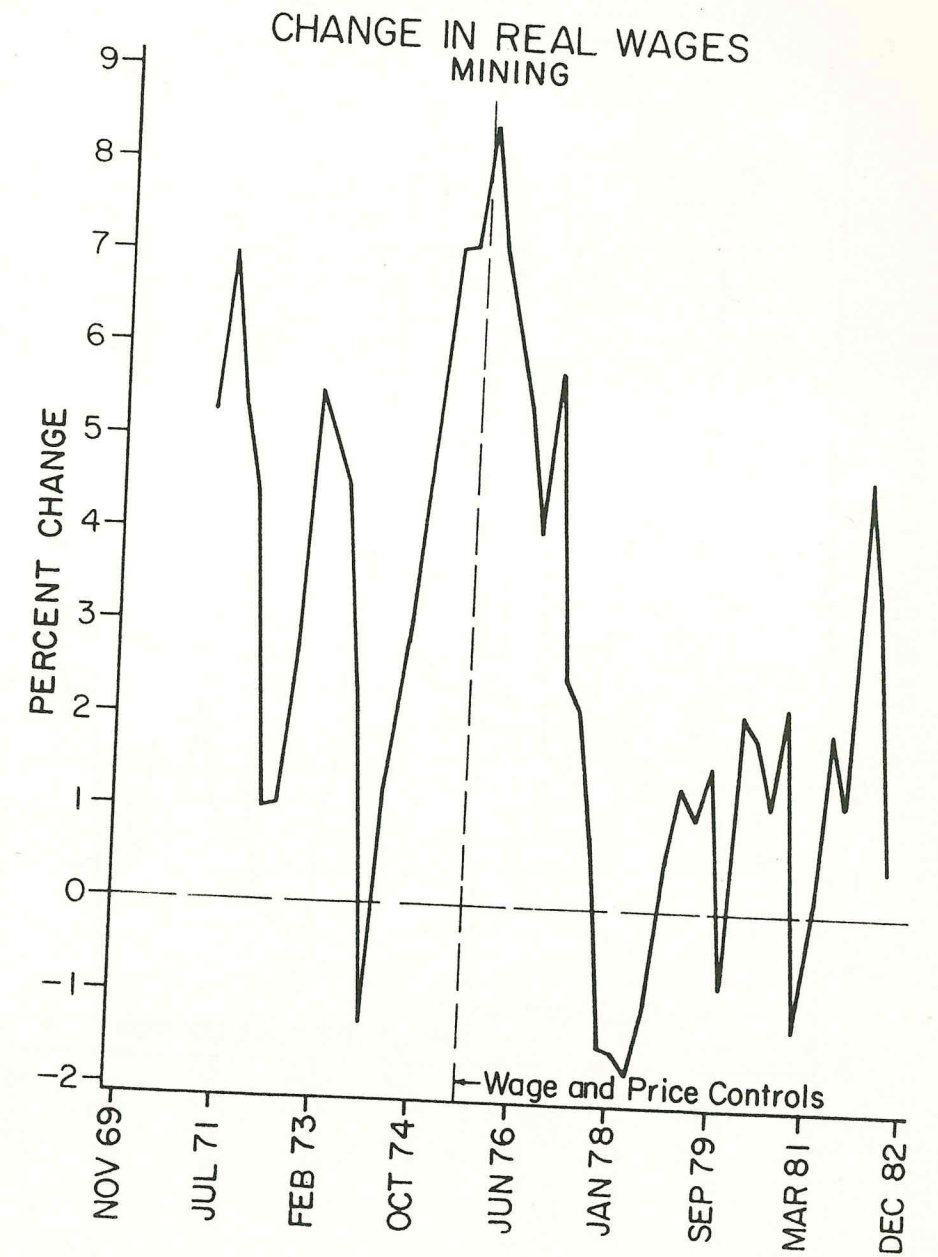
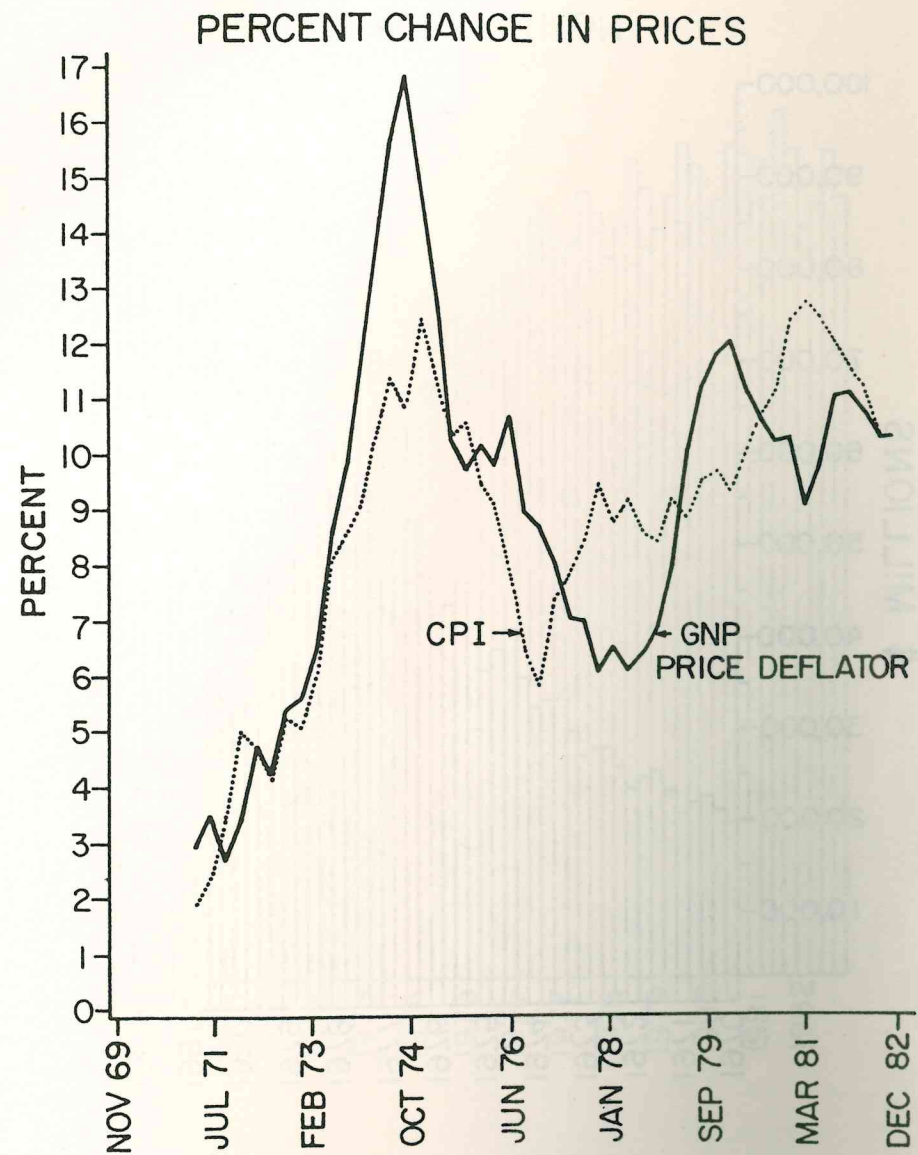














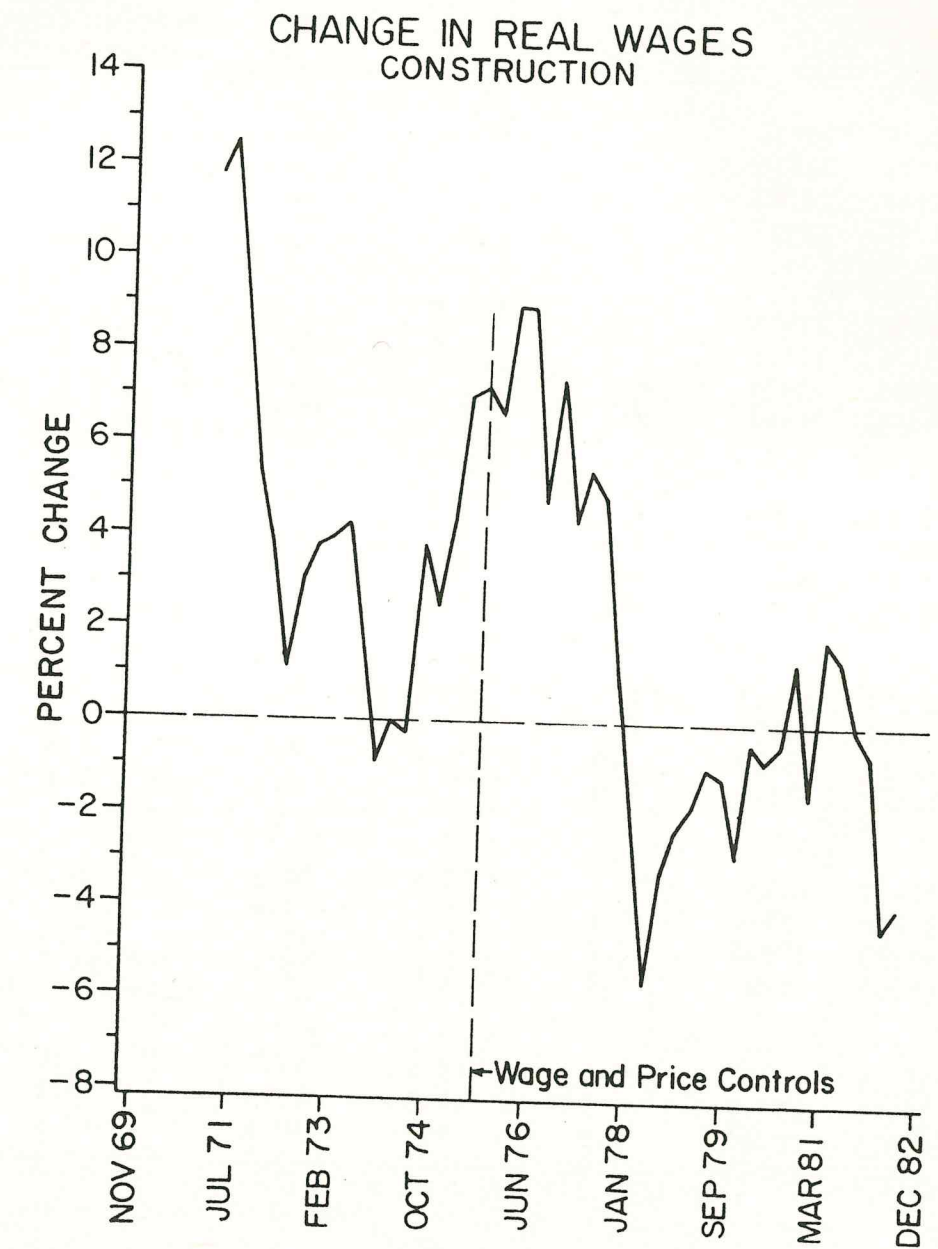
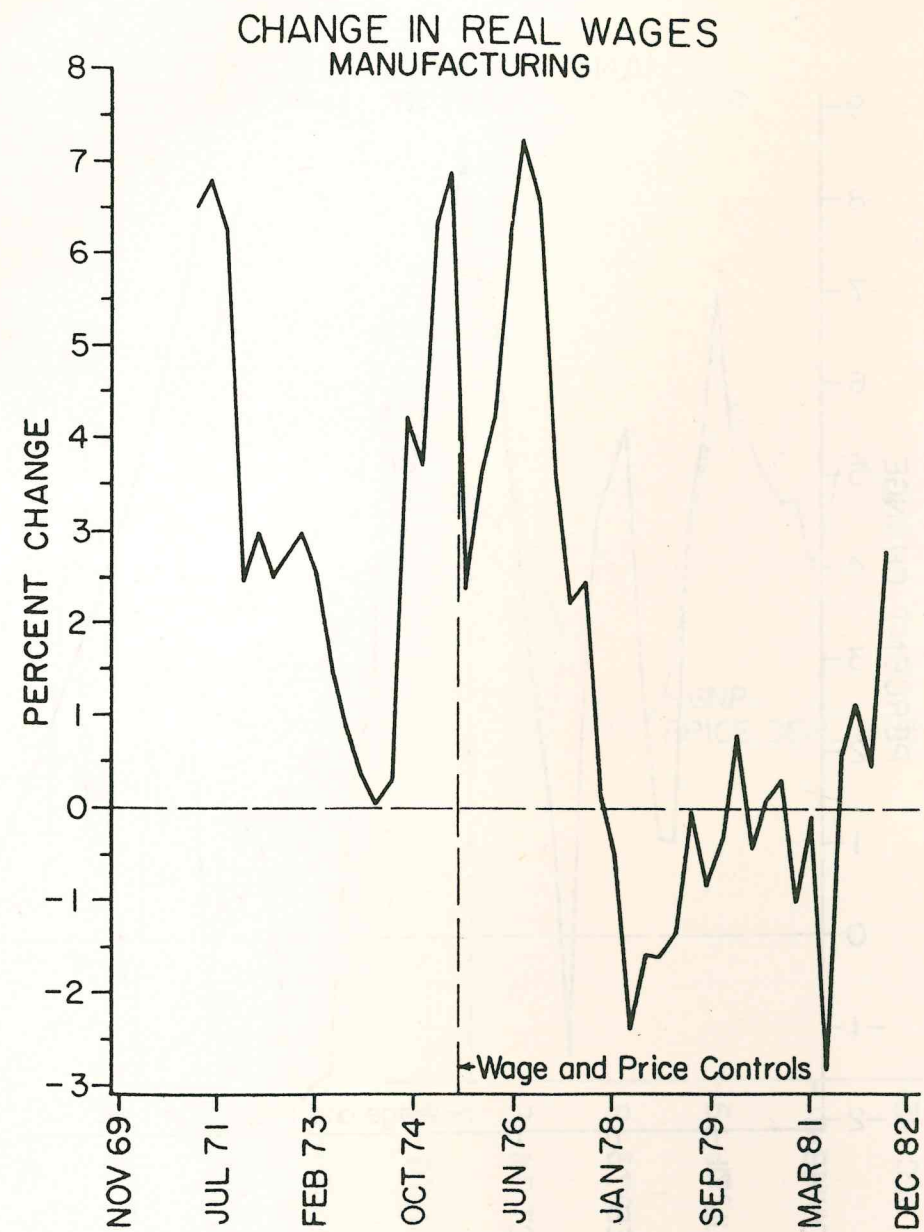




TABLE 1

## 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-<br>PLOYMENT<br>RATE | EXCHANGE<br>RATE | PERCENT<br>CHANGE<br>IN M1 | PERCENT<br>CHANGE<br>IN PRICE<br>PER UNIT<br>LABOR COST | PRIME<br>RATE | PERCENT<br>CHANGE<br>IN WAGES | CAPACITY<br>UTILIZATION<br>RATE | REAL<br>RETAIL<br>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-<br>PLOYMENT<br>RATE | EXCHANGE<br>RATE | PERCENT<br>CHANGE<br>IN M1 | PERCENT<br>CHANGE<br>IN PRICE<br>PER UNIT<br>LABOR COST | PRIME<br>RATE | PERCENT<br>CHANGE<br>IN WAGES | CAPACITY<br>UTILIZATION<br>RATE | REAL<br>RETAIL<br>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



TABLE 3

## PERCENTAGE CHANGE IN WAGE RATES

|       | MINING:<br>NOMINAL | MINING:<br>REAL | MANUFAC-<br>TURING:<br>NOMINAL | MANUFAC-<br>TURING:<br>REAL | CONSTRUC-<br>TION:<br>NOMINAL | CONSTRUC-<br>TION:<br>REAL |
|-------|--------------------|-----------------|--------------------------------|-----------------------------|-------------------------------|----------------------------|
| MAR71 | 7.2                | 5.3             | 8.4                            | 6.5                         | 13.8                          | 11.8                       |
| JUN71 | 9.5                | 7.0             | 9.3                            | 6.8                         | 15.2                          | 12.5                       |
| SEP71 | 9.1                | 5.4             | 9.9                            | 6.2                         | 12.6                          | 8.8                        |
| DEC71 | 9.6                | 4.4             | 7.6                            | 2.4                         | 10.7                          | 5.4                        |
| MAR72 | 5.7                | 1.0             | 7.8                            | 3.0                         | 8.5                           | 3.7                        |
| JUN72 | 5.2                | 1.1             | 6.7                            | 2.5                         | 5.3                           | 1.1                        |
| SEP72 | 8.1                | 2.7             | 8.1                            | 2.7                         | 8.5                           | 3.1                        |
| DEC72 | 10.9               | 5.6             | 8.2                            | 3.0                         | 9.1                           | 3.8                        |
| MAR73 | 11.3               | 5.0             | 8.7                            | 2.5                         | 10.2                          | 4.0                        |
| JUN73 | 13.0               | 4.5             | 9.7                            | 1.5                         | 12.7                          | 4.3                        |
| SEP73 | 11.1               | 2.3             | 9.5                            | 0.8                         | 10.3                          | 1.6                        |
| DEC73 | 7.7                | -1.3            | 9.5                            | 0.3                         | 8.1                           | -0.9                       |
| MAR74 | 11.7               | 1.2             | 10.4                           | 0.0                         | 10.3                          | -0.0                       |
| JUN74 | 14.0               | 2.3             | 11.7                           | 0.3                         | 11.1                          | -0.3                       |
| SEP74 | 15.1               | 3.8             | 15.5                           | 4.2                         | 15.1                          | 3.8                        |
| DEC74 | 18.9               | 5.7             | 16.6                           | 3.7                         | 15.2                          | 2.4                        |
| MAR75 | 19.2               | 7.1             | 18.3                           | 6.3                         | 16.0                          | 4.2                        |
| JUN75 | 18.2               | 7.1             | 17.9                           | 6.9                         | 18.0                          | 7.0                        |
| SEP75 | 20.0               | 8.5             | 13.2                           | 2.3                         | 18.6                          | 7.2                        |
| DEC75 | 17.2               | 7.1             | 13.4                           | 3.6                         | 16.7                          | 6.6                        |
| MAR76 | 15.8               | 6.2             | 13.6                           | 4.2                         | 18.8                          | 9.0                        |
| JUN76 | 13.7               | 5.4             | 14.4                           | 6.1                         | 17.5                          | 8.9                        |
| SEP76 | 10.8               | 4.0             | 14.2                           | 7.2                         | 11.5                          | 4.7                        |
| DEC76 | 12.0               | 5.8             | 12.7                           | 6.5                         | 13.7                          | 7.5                        |
| MAR77 | 10.1               | 2.5             | 11.3                           | 3.6                         | 12.0                          | 4.3                        |
| JUN77 | 10.1               | 2.1             | 10.2                           | 2.2                         | 13.7                          | 5.5                        |
| SEP77 | 9.2                | 0.7             | 11.1                           | 2.4                         | 13.6                          | 4.8                        |
| DEC77 | 7.9                | -1.5            | 9.6                            | 0.1                         | 10.7                          | 1.1                        |
| MAR78 | 7.1                | -1.5            | 8.2                            | -0.5                        | 6.7                           | -1.9                       |
| JUN78 | 7.3                | -1.8            | 6.6                            | -2.4                        | 3.1                           | -5.6                       |
| SEP78 | 7.6                | -1.0            | 6.9                            | -1.6                        | 5.1                           | -3.2                       |

TABLE 3

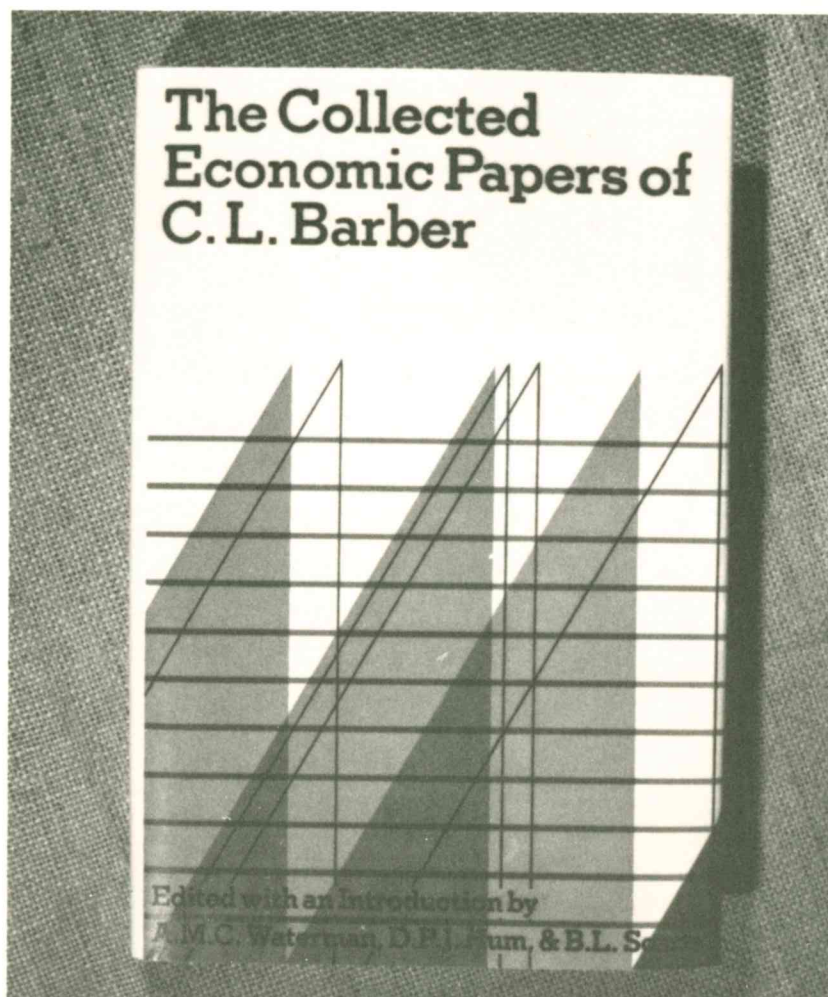
## PERCENTAGE CHANGE IN WAGE RATES

|       | MINING:<br>NOMINAL | MINING:<br>REAL | MANUFAC-<br>TURING:<br>NOMINAL | MANUFAC-<br>TURING:<br>REAL | CONSTRUC-<br>TION:<br>NOMINAL | CONSTRUC-<br>TION:<br>REAL |
|-------|--------------------|-----------------|--------------------------------|-----------------------------|-------------------------------|----------------------------|
| DEC78 | 9.0                | 0.5             | 6.7                            | -1.6                        | 5.9                           | -2.3                       |
| MAR79 | 10.7               | 1.4             | 7.7                            | -1.4                        | 7.3                           | -1.8                       |
| JUN79 | 9.9                | 1.0             | 8.8                            | -0.0                        | 7.8                           | -0.9                       |
| SEP79 | 11.3               | 1.6             | 8.6                            | -0.9                        | 8.3                           | -1.2                       |
| DEC79 | 8.9                | -0.8            | 9.4                            | -0.4                        | 6.6                           | -2.9                       |
| MAR80 | 11.7               | 2.2             | 10.2                           | 0.8                         | 8.9                           | -0.4                       |
| JUN80 | 12.2               | 1.9             | 9.6                            | -0.5                        | 9.2                           | -0.8                       |
| SEP80 | 12.0               | 1.1             | 10.8                           | 0.1                         | 10.2                          | -0.5                       |
| DEC80 | 13.7               | 2.3             | 11.6                           | 0.3                         | 12.8                          | 1.4                        |
| MAR81 | 11.0               | -1.2            | 11.3                           | -1.0                        | 10.7                          | -1.6                       |
| JUN81 | 12.7               | -0.1            | 12.7                           | -0.1                        | 14.9                          | 1.8                        |
| SEP81 | 14.8               | 2.0             | 9.3                            | -2.9                        | 14.1                          | 1.4                        |
| DEC81 | 13.4               | 1.2             | 12.7                           | 0.6                         | 12.0                          | -0.1                       |
| MAR82 | 16.8               | 4.7             | 12.8                           | 1.2                         | 10.8                          | -0.7                       |
| JUN82 | 15.0               | 3.4             | 11.7                           | 0.4                         | 6.3                           | -4.4                       |
| SEP82 | 10.9               | 0.5             | 13.4                           | 2.8                         | 6.0                           | -3.9                       |
| DEC82 | 9.5                | .               | 9.2                            | .                           | 9.8                           | .                          |

PERCENT CHANGES ARE FROM ONE QUARTER TO SAME QUARTER LAST YEAR

SOURCE: STATISTICS CANADA, CANSIM-UNIVERSITY BASE





**Collected Economic Papers  
of C.L. Barber,**

edited by A.M.C. Waterman, D.P.J. Hum,  
and B.L. Scarfe, this 1982 book includes  
21 of Dr. Barber's papers; available in  
hardcover, \$20.