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HAVE CONTROLS EVER WORKED?

THE POST-WAR RECORD

**Michael Parkin on the United Kingdom
and
Michael R. Darby on the United States**



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**WAGE AND PRICE CONTROLS:
THE LESSONS FROM BRITAIN**

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Professor of Economics, University of Western Ontario

and

**THE U.S. ECONOMIC STABILIZATION PROGRAM
OF 1971-1974**

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THE U.S. ECONOMIC STABILIZATION PROGRAM OF 1971-1974

Michael R. Darby

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Preface

These two studies on the effectiveness of wage and price controls are the second and third in the current Fraser Institute series on inflation and its cure. In the first study in the series, *Wage and Price Controls: Panacea for Inflation or Prescription for Disaster?* Professor Jack Carr, of the University of Toronto, addressed two questions: 1. What causes inflation? and 2. Are wage and price controls, in principle, likely to work? The studies in this volume are designed to gather lessons for Canada from the experiences of other countries. In particular, the objective was to see if controls had worked, or are working, in the U.K. and if they worked in the U.S.

The United Kingdom has had more experience with wage and price controls than any other country and Professor Michael Parkin, formerly of the University of Manchester in the U.K., has had more experience analyzing them than any other well-known economist. Professor Parkin is as emphatic in his conclusions as he is lucid in his analysis: “. . . whatever their superficial attractiveness, they (controls) simply do not work. *They do not control inflation.*” As Professor Parkin himself says, he makes strong claims that can only be demonstrated by hard evidence. His study is essentially a compendium of hard evidence that, in the U.K. at least, controls have not worked and are not working to reduce the long term rate of inflation.

The second study in this volume, by Professor Michael Darby, is essentially an attempt to determine what impact, if any, controls had on the rate of inflation in the U.S. Like Professor Parkin, Professor Darby is an expert in the analysis of wage-price controls and provides interesting insights into the effect that President Nixon’s “Economic Stabilization Program” had on the rate of inflation.

Professor Darby calls into question the accuracy of reported inflation statistics. He points out that the procedures that government agencies use to measure the rate of inflation are ill-suited to measure inflation during a wage-price control period. (If, as is generally the case, there are no controls on quality.) For example, smaller portions in restaurant meals, long queues for gasoline and reduced quality in everything from applesauce to chocolate milk are not reflected in official statistics.

Darby concludes that declines in quality substituted for price rises during much of the American control program. The impression that controls worked is an illusion created by government inflation data which did not provide an accurate "reading" on the true increase in prices.

In the preface to the first study in this series, I remarked that since controls did not seem to deal with the cause of inflation but only with its symptoms, Canadians ought to question the policy course being charted by their government. In these studies we are told that controls did not work in the U.S. or in the U.K. but that they may well create the illusion that things are under control. They may create the illusion of control either because they have a temporary effect on inflation or because inflation statistics are inaccurate. The evidence that controls don't work is compelling and suggests that we very carefully monitor the way in which the government manages the supply of money and its expenditures lest we all become victims of the illusion.

February 1976

M.A. Walker

THE AUTHORS

Michael Parkin was born in Yorkshire, England in 1939 and in 1963 was graduated from the University of Leicester. Until fall 1975, when he moved to Canada, he was Professor of Economics at the University of Manchester. Currently, he is Professor of Economics at the University of Western Ontario.

Professor Parkin's scholarly publications are numerous and include on the subject of inflation alone: *Incomes Policy and Inflation*, edited by M. Parkin and M.T. Sumner, University of Toronto Press, 1973; *Inflation in the World Economy*, University of Toronto Press, 1976; and "Inflation: A Survey" (with David Laidler), *Economic Journal*, December, 1975.

Michael R. Darby was born in Dallas, Texas in 1945 and was graduated from Dartmouth College in 1967 before taking his PhD. at the University of Chicago in 1971. Professor Darby taught at Ohio State University as an Assistant Professor before moving to the University of California at Los Angeles where he is presently Associate Professor of Economics. During 1975 Professor Darby was on academic leave as Harry Scherman Research Fellow, National Bureau of Economic Research, New York.

Professor Darby's recent publications include a text book, *Macroeconomics: The Theory of Income, Employment and the Price Level*, McGraw Hill, New York, 1976. Other scholarly works of Professor Darby recently appeared in the *Quarterly Journal of Economics*, ("The Permanent Income Theory of Consumption: A Restatement", May, 1974) and the *Journal of Political Economy*, ("Three-and-a-Half Million U.S. Employees Have Been Misled: or, an Explanation of Unemployment, 1934-1941", February, 1976).

Wage and Price Controls: The Lessons From Britain

MICHAEL PARKIN

*Professor of Economics
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INTRODUCTION

When Prime Minister Trudeau introduced Canada's current *Attack on Inflation*,¹ in October 1975[†] with a program of direct controls on wages and prices as its centrepiece, he made yet one more move in the direction of rejecting workable and potentially successful economic policies based on careful scientific analysis and of embracing policies based on ignorance, prejudice and instinctive reaction. It is an increasingly common view that the simultaneous pursuit of high and stable employment and stable prices via Keynesian-inspired economic policies is inconsistent with traditional free collective bargaining and market determination of prices. It is a popular view that 'new' prices and incomes policies must be adopted if the twin objectives of high and stable employment and stable prices are to be simultaneously achieved. In fact, nothing could be further from the truth. Rather, the so-called 'new' policies are the oldest² and crudest best likened to medieval medicine, based on ignorance and misunderstanding of the fundamental processes at work and more likely to kill the patient than to cure him.

[†]Editor's Note: Curiously, but surely not without significance, the same title as Harold Wilson's program launched in the U.K., August 1975.

Understanding inflation

It was not until relatively recently in the long sweep of human history, in the seventeenth and eighteenth centuries,³ that the principles governing the determination of the general level of prices were made clear. The insights of Bodin and Hume and the refinements which have followed, through the work and writings of Irving Fisher, Wicksell, Keynes and modern monetary theorists such as Milton Friedman, are critical for understanding and influencing the fundamental monetary forces which determine the general level of prices, the rate of inflation and the general level of output and employment. In their way, these insights are as important as those of Newton and the subsequent refinements of his ideas for an understanding of gravity and the fundamental laws governing the behavior of physical matter. The fruits of this analysis and their implications for the control of inflation are set out by David Laidler in a subsequent study, in which it is shown that there does exist a coherent and workable, though inevitably non-painless, cure for Canada's current inflationary ills.

This study has the more negative, though vitally important task, of analyzing the effects of wage-price controls and of showing that, whatever their superficial attractiveness, they simply do not work. *They do not control inflation.* At best, they are evaded by the skilful use of legal and financial talent — talent which is scarce and could, more importantly should, be put to productive use. At worst, they distort the allocation of scarce economic resources, they produce arbitrary and in general unjust redistributions of income, they generate a deterioration in industrial relations and they engender a disregard for the rule of law. These are strong claims and cannot simply be made by assertion. Nor can they be justified by *a priori* argument. They must be demonstrated by hard evidence.

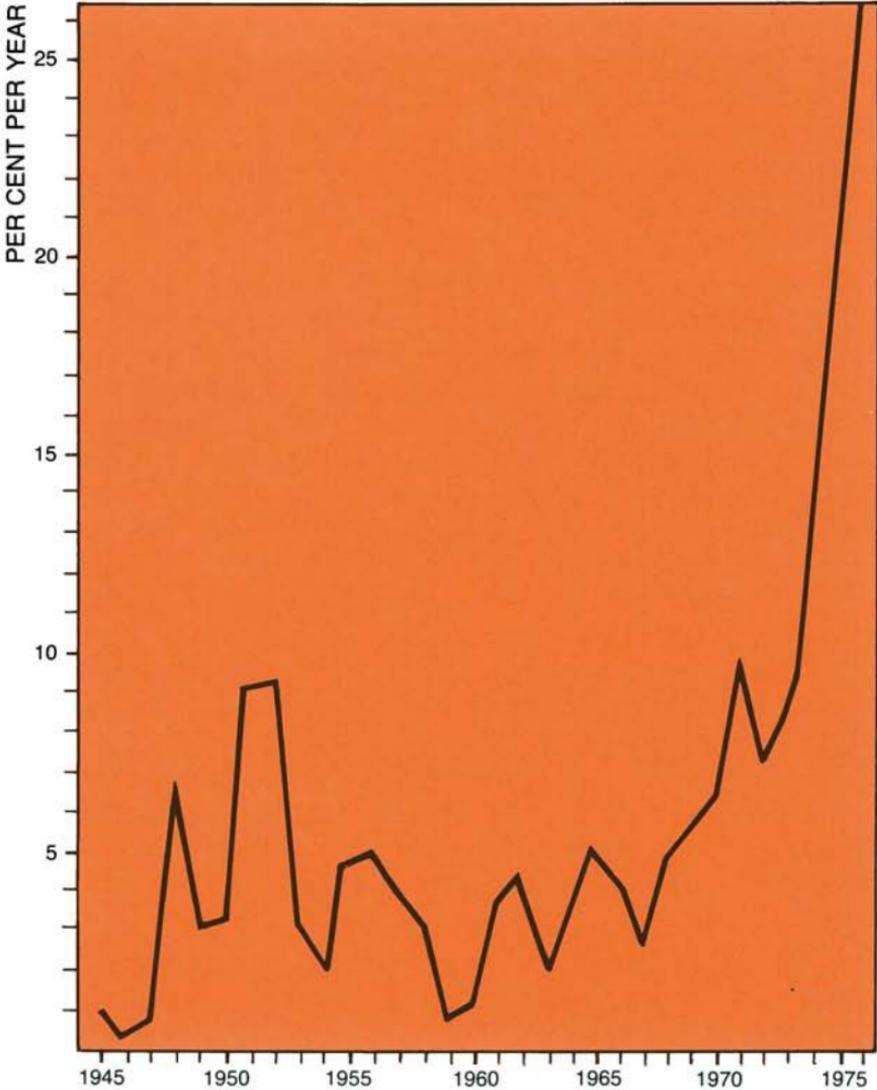
The British disease

Fortunately for Canada, whilst the present controls are the first such comprehensive program in peacetime, other than the voluntary restraint of 1969, other countries have pursued such policies extensively and have generated experience from which we can learn. Sad to say, experiments with the 'new' policies of wage and price controls have a long and checkered history. Robert Scheutinger, in a paper in this series, provides a short but devastating survey of these experiences. Much hard evidence is also available from recent and probably more relevant policy mistakes in the United Kingdom.

This experience is pertinent for Canada today for two key reasons. First, it is extensive, well-documented, and has been closely studied. Second, Canada in 1976 has, despite many obvious differences, a great deal in common with the United Kingdom. Like Britain, it has a political process which despite party labels, tends to produce governments either inclined or committed to intervene in people's affairs and to expand the government sector. It has labour unions which are apparently short-sighted and which consequently do not act in their own long-term self-interest. It has a large volume of, and dependence on, international trade and investment. Thus Canada has a great deal of value to learn from the mistakes of Britain's past twenty-five years of slide into economic and social chaos. *If the lesson is ignored*, Canada is well set on that same path. *If it is learned*, there is ample time to reverse the present trends and move this country to a path of unparalleled enlightenment and prosperity. The choice is simple, but the lesson apparently is hard to learn.

It is the purpose of this paper to try to spell out the lesson. It focuses solely on the United Kingdom's experience with wage-price controls since 1945. The study has three main sections. First, it examines Britain's post-war inflation record and describes the various episodes of controls. Second, it compares the performance of inflation in 'controls on' and 'controls off' periods and assesses the impact of controls on the pace of inflation. Third, it examines the side-effects of controls.

Chart 1 — United Kingdom Inflation, 1945-1975 (Retail Prices)



Source: U.K. Department of Employment Gazette.

I. INFLATION AND CONTROLS: THE BRITISH POST-WAR HISTORY

Britain's post-war inflation record has, on the average, been worse than that of most other major industrial countries and, in the years since 1970, has been especially severe. The full post-war record, as measured by the rate of inflation of retail (consumers') prices is set out in Chart 1. Three things stand out in this chart. First, with the exception of 1948, the Korean war years 1951-2 and the years since 1969, inflation has never been really severe and has uniformly been below 5 per cent per annum. Second, there has been, until recently, a pronounced and rather regular cycle with a duration of approximately four years. Third, there is no single discernible trend but rather two distinct sub-trends: the 1950's during which, measuring from trough to trough to avoid the distortion of the Korean War, the trend was clearly downwards, while in the 1960's and 1970's the price trend has been strongly upwards and explosively so in the final years.

Against this background of the ebbs and flows of the inflation tide, let us now briefly describe chronologically, the various episodes of 'prices and incomes policies'. Eleven distinct episodes can be identified, many of them consecutive.

Episode one — the Cripps-TUC co-op

The first ran from 1948 to 1950, and its chief feature was an impressive and widely-respected appeal by Sir Stafford Cripps, (the then Chancellor of the Exchequer), to the Trades Union Congress (TUC) for wage restraint and to the Federation of British Industry for dividend restraint. The episode ended in October 1950 with a vote by the TUC to abandon wage restraint. There were no statutory agencies set up to implement Cripps' policy and no announced 'norms' or guidelines. The entire program was based on persuasion and voluntary compliance. It must be borne in mind, however, that throughout this period, an elaborate system of points rationing, licencing and other wartime controls remained in force. These controls, in effect, temporarily replaced the resource allocating function normally performed by changes in prices and wages.

Episode two — mild rebuff

The second episode covered one year only, 1956, and was milder than either its predecessor or successors. It amounted to repeated requests by the then Conservative government for wage restraint and repeated refusals by the unions to cooperate.

Episode three — the pay pause

Episode three was initiated at the height of a balance-of-payments crisis in the summer of 1961 and was a request by the Conservative Government for a temporary wage freeze (or 'pay pause' as it was called). Again there was no enforcing agency and compliance was voluntary.

Episode four — the guiding light

The next episode was a direct extension of the previous one and was an attempt to make the relaxation of the 1961 wage freeze as orderly as possible. It specified a set of 'guiding lights' for wage and price rises based on the assumption that productivity would grow at 2.5 per cent per annum. The 'guiding light' for wages was to be a rise of 2 to 2.5 per cent per annum and for prices nil. Again these 'norms' were voluntary but for the first time an agency (the National Incomes Commission) was established to monitor and encourage compliance. However, the unions adopted a position of non-cooperation with this agency. The 2.5 per cent (maximum) 'guiding light' for wages was adjusted to 3.5 per cent in 1963 and by the time of the 1964 General Election (October) the policy was abandoned.

Episode five — accord

That election saw the return of a Labour Government after thirteen years of Conservative rule and, in consequence, a revival of cooperation between government and organized labour. By the middle of 1965, the new government was able to sign with the Trade Unions and the employers federation (the Confederation of British Industry) a *Joint Statement of Intent on Productivity, Prices and Incomes*, which set down a voluntary guideline of 3 to 3.5 per cent per annum for wage increases, rules for permissible price increases, and criteria for exceptions. It also established a National Board for Prices and Incomes. This episode of policy lasted until mid-1966.

Episode six — Labour — first forced freeze

The next episode was the first British attempt (and this by a Labour government) to impose *statutory* limits on wage and price increases with penalties (fines) for non-compliance and provision for 'roll-backs'. For the first six months, July to December 1966, there was a total wage freeze and to mid-1967 a further period of 'severe restraint'.

Episode seven — rule by exception

Episode seven was a mild relaxation of its predecessor. The force of the law still lay behind the guidelines, but more 'exceptional cases' were permitted to take pay increases above the 'norm'.

Episode eight — controls for a decade

The next episode was, in effect, the phasing out of the previous restraint. A White Paper published in April 1968, *Productivity, Prices and Incomes in 1968 and 1969*, reverted to a 3.5 per cent per annum norm for wage increases but made exceptions, both for 'lower paid' workers and in cases of 'productivity agreements'. These turned out to produce loopholes through which a blindfolded man could drive a bus and in effect were the method whereby the policy was gradually abandoned. The maximum permissible normal wage increase was raised from 3.5 to 4.5 per cent at the end of 1969 and the policy finally ended with the election of the new Conservative Government in June 1970. This also ended almost ten unbroken years of some form or other of wage and price controls.

Episode nine — Tory phased-freeze

Controls were reactivated by Edward Heath's Conservative Government in November 1972 in a three-stage statutory program. Stage I was a three month total freeze (similar to that imposed by President Nixon in 1971); Stage II a flat £1 per week plus 4 per cent to last six months; Stage III, a norm of 7 per cent plus partial indexation. Stage III was finally abandoned in a bitter conflict between the government and the coal miners which led to British industry being put on the three-day week and ended in the defeat of the Heath Government in February 1974.

Episode ten — Labour's social contract

The new Labour Government of Harold Wilson which emerged from the wreckage entered into a 'social contract' or voluntary incomes policy, with the unions, a contract described as 'not worth the paper on which it was not written' which pledged the government to deliver high employment and more sustained *real* income in return for the unions delivering moderation in *money* wage claims.

Episode eleven — Attack on Inflation

The final episode started in July 1975 and is still in force. This places statutory obligations on employers to limit pay increases to £6 per week (about 12 per cent of the average weekly wage) and to limit price rises to ensure that margins do not increase.

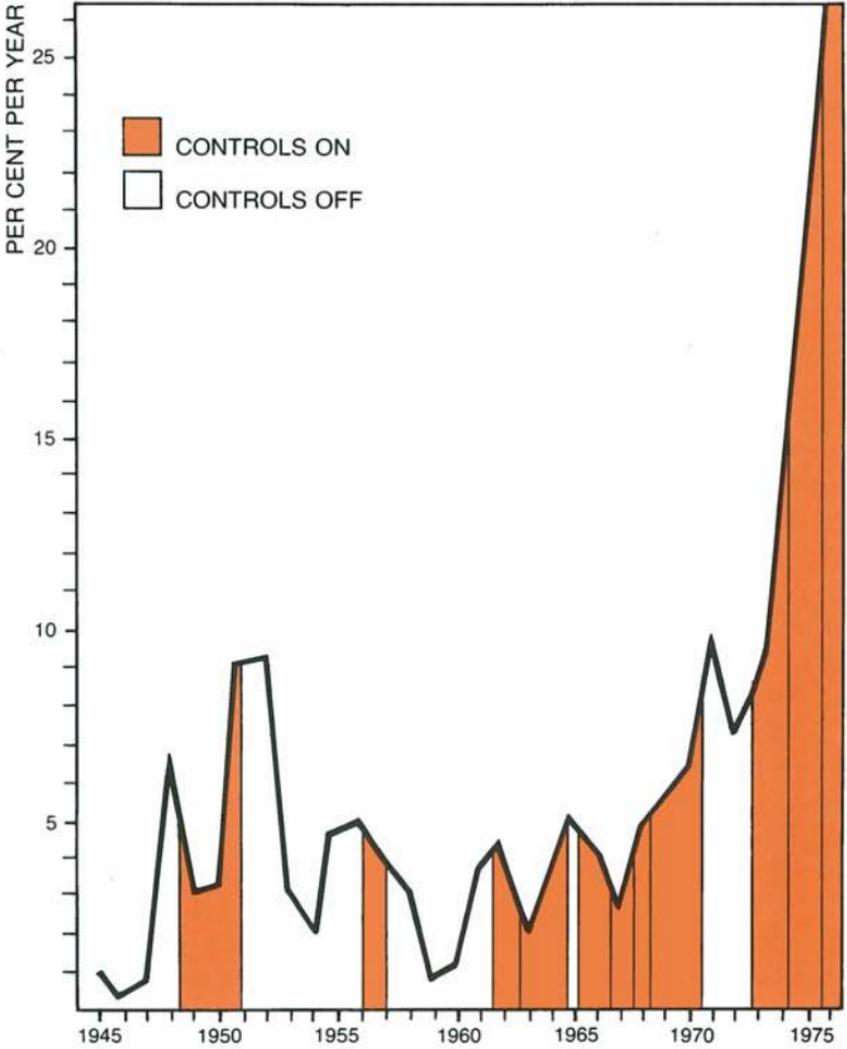
With all this vast variety and extent of experience, it should be possible to discover whether or not controls do have any effect on inflation and also to establish what side effects they have. We now turn to that task.

II. THE EFFECTS OF CONTROLS ON THE PACE OF INFLATION

Isolating the effects controls have had on the pace of inflation in the United Kingdom is no easy matter. The rate of inflation is subject to influences from many sources and it is necessary to assess what these influences are in order to remove their effect from our analysis and establish the separate and independent influence of wage-price controls.

As a preliminary to that analysis it is instructive to see how Britain's record of inflation lines up with its experience with controls. This is done in Chart 2 which repeats the course of inflation shown in Chart 1 and superimposes as shaded areas the various episodes of wage-price controls. What is striking about this chart is the lack of any systematic tendency for controls to be associated with a reduction in inflation. Indeed, in broad terms, the reverse is true. As controls have become more severe (with statutory controls replacing voluntary guidelines) and more prolonged, so the pace of inflation has accelerated.

Chart 2 — Inflation and Controls, United Kingdom
1945-1975



Source: U.K. Department of Employment Gazette.

Of course, to a large extent, this reflects causation running from inflation to controls. As inflation becomes more serious so it brings in its wake an increasing clamour for the government to 'do something' and, in view of their primitive appeal, controls are the natural measures to create the impression of government action. Few would want to deny that inflation leads to controls: but do controls lead to the moderation of inflation?

The answer from the facts portrayed in Chart 2 must be a qualified "no". It is true that in the *early phases* of episodes (1), (3) and (6) and throughout episodes (2) and (5), the rate of inflation did fall. However, it is also clear that in the *later phases* of episodes (1), (3) and (6) and in all other episodes of controls, the inflation rate continued to climb. It is noteworthy that, with the exception of 1956, the rate of U.K. inflation was *higher* at the end of each control episode than it had been at the beginning of the episode. However, we must qualify, with a caution, the conclusion that controls do not help to reduce inflation. Could it be that the forces making for inflation were on a strong upward trend, especially throughout the 1960's and that, bad though Britain's inflation record was over this period, in the absence of controls it would have been much worse? If we are to assess properly the contribution of the controls, we cannot dodge that question.

To answer this question it is necessary to establish what have been the main causes of inflation in postwar Britain and, in the light of these factors to predict the course that inflation would have taken in the absence of controls and then to measure the separate and independent effects of the controls.

What then have been the main sources of Britain's postwar inflation? This, of course, has been and continues to be a controversial question and one on which a great deal has been written — much by the present author.⁴ It is also though a question on which a stronger consensus is beginning to emerge as the facts become clearer. The two broad opposing views on the question may be labelled: 'wage-push' and 'monetary-pull'.

Wage-push inflation

The wage-push view takes as its starting point factors which directly determine the rate of wage inflation. The central precondition for the wage-push analysis of inflation is the notion that, in an economy which uses Keynesian aggregate demand management techniques to maintain full employment, the demand for labour in aggregate will be almost independent of the level of money wages since any wage level will be validated by the actions of the government and central bank. Trade unions, behaving in the absence of constraints on employment will set wages in order primarily to achieve what they regard as fair wages. Concern with justice in the distribution of wages will ensure that any badly out-of-line high wage settlement in a particular sector of the economy will quickly transmit itself to other sectors, thereby preserving the general structure of relative wages but raising their overall level. With wages determined in this manner and with productivity growth determined by longer-term factors, unit costs and hence prices will inflate in line with the initiating behaviour of wages. Monetary and fiscal policy will accommodate and validate the inflation in order to ensure that real output does not fall and too much unemployment emerge. Further, if the inflation gets too far out of line with inflation in other countries, then, from time to time, the exchange rate will have to be depreciated.

Monetary-pull inflation

The alternative ‘monetary-pull’ view takes as its starting point an analysis of the socio-political factors which lead to the printing of an excessive supply of money relative to the demand for it. The central ingredients in this analysis are that vote-seeking politicians believe (rightly apparently) that, by increasing government expenditure on social programs, subsidies and the like, and by holding down interest rates, especially in the housing sector, they can improve their electoral chances. The result of such behaviour is an excessive rate of money creation to pay for the programs.

Excessive money supply leads first (with a variable time lag but a lag of between one and two years) to an increase in the demand for goods and labour services. With a further (variable) time lag of up to a year, this excess de-

mand leads to faster rises in wages and prices. Further, because the prices of some groups are the costs of others, an interactive spiral between wages and prices is set up. The more persistent is the inflationary money creation process, the more will firms and unions come to expect its continuance and the faster will wages and prices rise simply in anticipation of what others are likely to do. If the resulting inflation is faster than in other countries, the exchange rate will eventually have to be depreciated. When this happens inflation will be given a further upward thrust, the magnitude of which will be determined by the country's dependence on imported goods.

What does cause inflation?

Having said what the two most popular views of inflationary forces are we must now decide which of them is correct. To do this we have to examine what actually happened in the United Kingdom and compare what actually happened to what these two theories would have predicted. First, let's consider what the theories would have predicted about the relationship between the rate of money creation and the rate of inflation.

According to the wage-push view the pressure for increases in wages produces, via cost increases, increases in prices. Increasing prices then produce pressure for increases in the money supply. Accordingly, if the wage-push theory is correct we expect to find that on average changes in wage growth and inflation precede, by a short interval, changes in monetary growth.

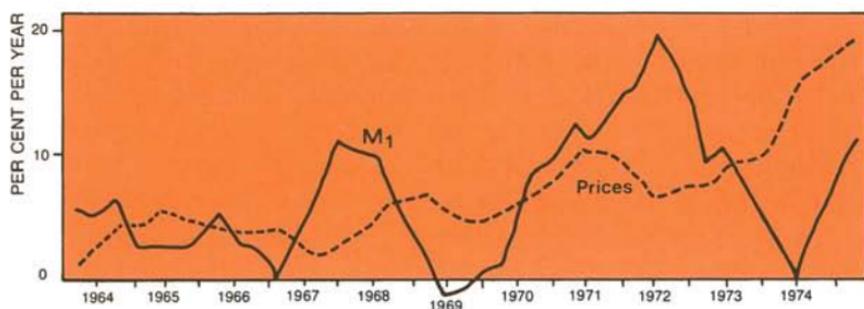
The monetary-pull view, on the other hand, maintains that a high rate of money creation is the cause of the inflation. Hence, if the monetary-pull view is correct we would expect to find that changes in the rate of inflation occur two or three years after a change in the rate of money creation.

The second relationship that we must analyze is that between changes in wages and the factors that are supposed to cause the changes.

From the point of view of the 'wage-push' theory, changes in wages represent a struggle for 'the income pie' and are only vaguely related to the demand for and supply of labour on the one hand and to inflation expectations on

the other. If this view is correct, the rate of change in wages, on the whole, should be observed to adjust largely independently of labour market conditions and inflation expectations and respond, instead, to a whole variety of socio-psychological factors. If the 'monetary-pull' view is correct, wages should be seen to respond primarily to market forces — i.e. the supply of and demand for labour — and inflation expectations.

Chart 3 — Inflation Rate and Growth of Money Stock, United Kingdom 1964-1974



Source: Reproduced from "Where is Britain's Inflation Going?"
Lloyds Bank Review, July 1975, No. 117.

We now have two predictions from each of the views of inflation. To determine which one of the theories is correct we must compare the predictions to what has actually happened. Let us look first at the relationship between money and inflation which Chart 3 illustrates. It shows the rate of inflation and the rate of growth of the money supply⁵ on a quarterly frequency from the beginning of 1964.⁶ Casual inspection of the chart does not reveal any strong correlation between money supply growth and inflation. However,

more careful inspection reveals there to be a strong correlation between the rate of monetary expansion and the rate of inflation some three years later. There is no similarly strong correlation in the opposite direction. That is, there is no strong tendency for the rate of growth of money to lag behind inflation as is predicted by the 'wage-push' theory.

In terms of the cycles, these regularities can be seen most clearly in the latter part of the period depicted in the chart. The buildup of the money supply growth rate in 1967 and the U.K. devaluation of the pound of that year can be seen to have generated the inflation takeoff in 1969-70 and the even more dramatic buildup in the money supply growth rate from mid-1969 to mid-1972 as having brought the 1972 onwards inflation explosion. The reductions in the rate of inflation in 1969 and 1971-72 are equally clearly associated with earlier reductions in the rate of growth of the money supply in 1966 and 1968-69 respectively.

Thus, on the basis of this evidence, it appears that the 'monetary-pull' view is the correct explanation of Britain's inflation. It is also clear that the monetary forces making for faster inflation were in fact on the increase on the average through the later 1960's and 1970's. Hence, simply observing that inflation increased despite the presence of wage-price controls, does not lead to the inference that such controls were useless. We must examine whether, with controls in force, inflation was worse or better than it otherwise would have been. To do that within the framework of the relationship between money and inflation is not easy since that relationship is never exact and is subject to variable time lags. It turns out to be more fruitful to proceed by way of an analysis of the other relationship predicted by the 'monetary-pull' view and denied by the 'wage-push' view, that is the relationship between wages and the state of the supply of and demand for labour, together with inflation expectations. As a prelude to examining that relationship let us briefly consider the basic methods employed in the large and still growing literature which has attempted to isolate the separate effects of controls on the pace of wage inflation.⁷

Inflation — with and without controls

The basic method adopted in all the studies which we shall consider is the same and can be described very simply. First, the periods in which controls were not in operation are studied and a quantitative model is developed which explains how wages (and prices) are affected by the state of demand pressure, the state of inflation expectations and other (if any) relevant variables. The model is then used to predict the rate of wage and price change during a period in which controls are in operation. Any systematic differences between the actual behaviour and predicted behaviour of wages and prices is then attributed to the effects of controls. This procedure is not, of course, as reliable as a laboratory experiment in which everything is held constant except for the presence or absence of a controls program and the experiment then repeated a large number of times. It is, however, the nearest we can get to a laboratory experiment in a social science and, provided the statistical work is handled carefully, provides us with the most reliable information available.

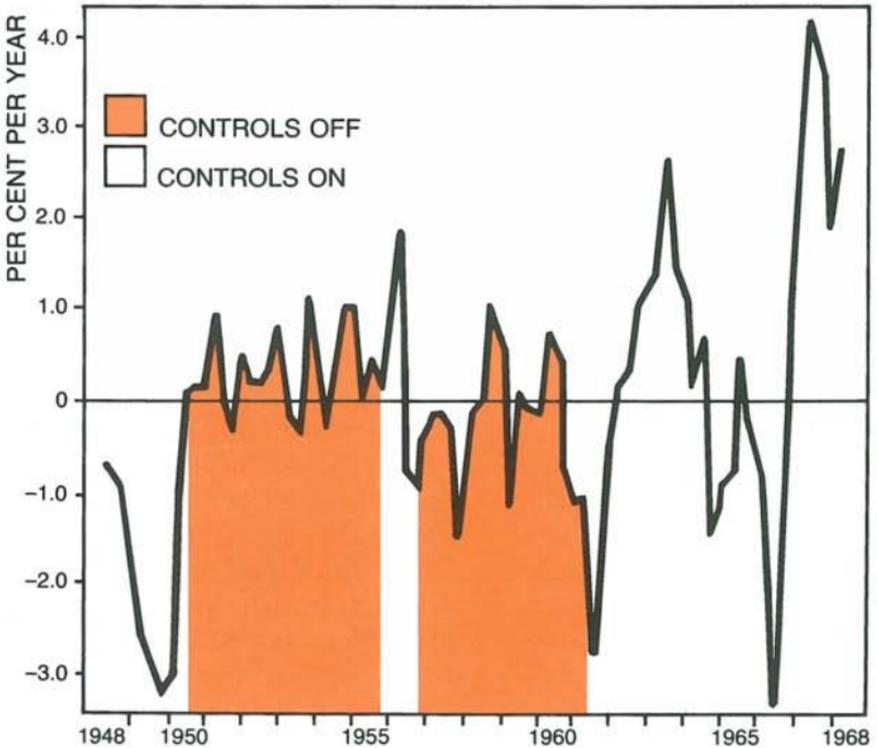
The starting point for such studies has been a familiar and intuitively appealing model which describes inflation in the absence of controls and has two propositions. The first proposition is that wage change depends on the excess demand for labour, the expected rate of inflation (usually measured by a weighted average of recent actual rates of inflation) and such factors as the change in the fraction of the labour force unionized. The second proposition is that prices are a markup over unit costs, which in turn are determined by wages, output per head and import prices. Models based on these propositions explain the bulk of the variability of wages and prices in postwar Britain.⁸ Such models also fit the Canadian experience very closely.⁹

Predicting the effect of controls

When such models are used to predict the rate of wage and price change during a period of wage-price controls they show that, on the average, with the exception of the Cripps episode, there is no significant downward adjustment of inflation attributable to the controls. The controls do,

however, have a temporary effect but one which, in the subsequent development of inflation, is offset and negated. Although individual studies differ in their details, their broad findings agree and to illustrate the calculated effects of controls, we will look at the findings of a study done by Lipsey and Parkin.¹⁰ Chart 4 summarizes their findings.

Chart 4 — Wage Inflation in the United Kingdom 1948-1968



PREDICTION ERRORS OF EQUATION FITTED TO "CONTROLS OFF" PERIODS AND PREDICTION ERRORS OF THAT EQUATION FOR "CONTROLS ON" PERIODS.

Source: Reproduced from Lipsey and Parkin, *op. cit.*, Figure 4.

The chart shows the difference between the actual rate of wage inflation and the rate of wage inflation predicted by the model that Lipsey and Parkin constructed. Because the

model is only an approximation to reality there will always be a lack of precision in predicting the rate of wage increase at particular times. However, if the basic determinants of wage inflation stay the same then we should expect the precision of the model to stay the same through time. The shaded areas show the precision of the model during periods when controls were not in effect. As can be seen, the model was usually successful in predicting the percentage change in wages to within one per cent of the actual change.

During periods of wage controls the normal wage-determining process is suspended to the extent that the controls are successful. Therefore, we would not expect the model, which contains only the normal variables, to predict well during such periods. In fact, we would expect the model to make errors during periods of control that would vary in size with the effectiveness of the controls. A positive error larger than about one per cent during the 'controls on' period indicates that the control period produced a larger increase in wages than would otherwise have occurred. A negative value less than about one per cent (negative) indicates that the controls were successful in reducing the rate of wage increase.

Using this criterion let us analyze the various control periods. The first control episode — that of Cripps — was clearly successful. The annual reduction in the rate of wage inflation was almost *two percentage* points. The 1956 episode averaged out at virtually zero. The 1961 freeze was highly successful but for a single quarter only and was followed by some catch-up effects which at least offset the gains during the freeze. This is seen in the chart as the sequence of wage rises in excess of those predicted in the absence of controls peaking at almost 3 per cent in 1963. The 1966 freeze is seen as highly successful but again very short-lived. It lowered wage change by more than three percentage points below the level predicted in the absence of controls. However, it was quickly followed by oversized wage rises of more than four percentage points in 1967.

Controls don't work on wages

The general picture concerning the effects of controls on wages, given the actual degree of labour market demand pressure and state of inflation expectations, is of a successful immediate postwar policy episode followed by a zero average thereafter. The study by Lipsey and Parkin and the large literature which grew out of this work did not explore the effects of the most recent controls introduced at the end of 1972. The only study done recently enough to examine that episode is by Frank J. Reid of the University of Toronto though his study is not yet published.¹¹ Reid's study whilst more sophisticated than the earlier ones agrees with earlier findings on the success of the Cripps policy and on the temporary success of freezes. He finds that the freeze imposed during the first quarter of 1973 was also successful. However, his conclusions about the overall effectiveness of controls do not differ from my own.

About prices and expectations

The analysis of the effects of controls on the behaviour of wages which we have just reviewed leaves several questions in the air, two of which we now address. The first is, even if controls can temporarily hold wages back, do those effects feed through to prices? Second, do controls affect expectations of inflation, thereby reducing wage and price rises in a way that would be missed by the procedures described above? We take up each of these questions in turn.

The linkage between wages and prices is by no means an exact one even in the absence of controls. We can, however, use the same procedure as described above to calculate that relationship (including an allowance for changes in import prices and productivity) for periods when controls are not operating and then use that relationship to predict the rate of price change which would have taken place given the rates of wage, import price, and productivity change. After conducting such an exercise, Lipsey and Parkin calculated that during the Cripps policy period, prices *rose faster* by three-quarters of a percentage point per annum on the average than predicted, thereby partly though not wholly negating the successful reduction in the rate of wage inflation during that period.¹²

Prices not affected

A similar situation arose during the wage freeze of 1961. The only solidly successful reduction of the rate of price inflation relative to wage inflation was in 1956. For the remainder of the time, there is no discernible change in price behaviour. The implication of this is that, to some extent, 'successful' reductions in the rate of wage change are offset by rising profit margins but, on the whole, the behaviour of prices under a controls program is not very different than would have occurred in the absence of controls.

Expectations

Do controls affect expectations of inflation thereby reducing both wage and price rises in an almost direct manner? This question has been addressed in a study by Carlson and Parkin.¹³ Using the results of a monthly survey of individual expectations of future price increases they estimated a time series which measures variations in inflation expectations. The authors determined that inflation expectations are adjusted in the light of current inflation experience but are not influenced by the presence or absence of controls. This is broadly in line with results obtained by a rather different procedure for U.S. experience. For that country, changes in rates of interest on assets with various terms to maturity have been used to make inferences about the relationship between expectations about inflation and the length of time into the future about which expectations are held. Thus, for example, a person investing money for three months is thought to be concerned about (and have expectations about) the inflation rate three months in the future. Similarly for people investing for six months, two years, ten years and so on.

What emerges from these studies is that the short-term (three months ahead) expected inflation rate falls during a freeze but that longer-term expectations are little affected. These results are of course entirely in line with the notion that people form their expectations about economic phenomena in a rational manner using whatever information is available for the purpose. Controls have been seen to fail so often in the past in the U.K. that rational people's expectations are influenced little by their imposition.

III. SUMMARY OF EFFECTS — IMPLICATIONS FOR CANADA

We have now reviewed (though not reported in detail) the evidence on the effects of wage-price controls on the rate of inflation in the U.K. The central propositions which emerge from that are clear and simple. First, short-term freezes of wages, whether backed by the force of law or not, do lower the rate of wage inflation for the duration of the freeze. Second, prices do not respond as much as wages. Third, after the freeze, there is a catch up in wages which at least offsets the previous gain. The only exception to this pattern is the first postwar restraint period which had more prolonged effects on the rate of wage and price change but, even this period saw greater restraint on wages than on prices. Also, it must be emphasized again, this was a period in which various quantitative controls, such as points rationing schemes and other wartime regulations, were the primary means of allocating resources.

The question still remains however; what does all this imply for Canada? First, it should be remarked that although only U.K. experience has been reviewed above, similar, though less well-documented conclusions seem to emerge for other countries.¹⁴ Also, *the U.S. experience*, which has been very intensively studied, yields conclusions spanned by the two extreme views that *at worst controls had no effect on inflation or at best reduced its rate by a very small and economically and politically unimportant amount.*¹⁵

In the light of this, if it is to be claimed that what applies to all other countries does not apply to Canada, it is necessary to find special features about this country which make it unique in this particular respect. To a recent refugee from Britain, Canada's economy appears to have much in common with that of Britain. Of course, Canada is much richer but, in terms of labour relations, monetary policy, fiscal policy and state intervention the two economies are very similar. Also, in terms of interdependence with other countries, there are similarities. None of these guarantee that Canada's inflation will be as unresponsive to controls as Britain's was but they all point in that direction.

IV. THE SIDE EFFECTS OF CONTROLS IN THE U.K.

Four major side effects of controls were identified in the introduction to this chapter: resource misallocation, income redistribution, a deterioration in industrial relations, and an increasing disregard for the rule of law. We now examine those assertions more fully. Unfortunately, important though these areas are, they are less-easily documented and have been less-comprehensively studied than the effects of controls on the rate of inflation itself. However, there is a good deal that can be said.

On misuse of resources

First let us look at resource misallocations. The most clear and obvious resource reallocation that takes place when comprehensive wage-price controls are introduced is that involved with the very process of administration of the controls. First, a statutory agency of some kind is usually set up which typically takes the cream of the civil service and brings in talented people from industry and the labour unions as well as from the legal and accounting professions. This, however, is just the tip of the iceberg. Just as government has to set up its own statutory body to handle the controls so major unions and firms have to hire specialist services to plead with, argue with, and make cases to the statutory body. It is very hard to quantify the loss from this resource reallocation and it indeed has been variable. Some controls in the British case hardly used any resources of this type at all but others, most notably that set up in the middle 1960's under the National Board for Prices and Incomes, absorbed an enormous amount of scarce talent.

The classical economic analysis of resource misallocation, in the face of relative prices that do not reflect market conditions, probably does not apply very seriously to the operation of wage-price controls. If the controls were totally inflexible and made rigidly to stick then such misallocations would occur and possibly indeed they do occur on a relatively limited scale for those short periods (usually not longer than three months) when controls have been absolutely rigid. However, I suspect that the resources expended in evading the controls are sufficient to ensure that

relative prices do adjust to reflect underlying changes in supply and demand. Precisely how this is achieved will depend on the nature of the control regime.

Often it is possible to avoid the controls while remaining within the letter of the law. On the prices front this is most easily done by the skilful use of inventory and asset valuations designed to produce a particular impression concerning movements in unit costs. On the wages front there are sufficient possibilities for regrading workers so that, although the pay scales for particular jobs stay within the guidelines, the actual wages earned by any particular individual goes outside those limits. On occasions, however, it has been easier to avoid the controls by actions which are technically illegal. In these cases it is terribly hard, indeed impossible in the absence of court cases of which there have been very few, to provide documentary evidence. However, it was common knowledge (but based entirely on hearsay) that many British firms during the most recent phase of wage-price controls were evading the controls by writing invoices which sold output to subsidiaries overseas and then reimporting the material from the overseas subsidiary or agent at a price sufficiently high to ensure that their costs as a result of rising import costs were adequately large to justify the price which they wanted to charge for their output. In order to do this it was not necessary to incur the shipping costs of actually exporting and reimporting the goods. All that was necessary was to generate the documentation. This, of course, is a very simple procedure to pursue and almost an impossible one to police.

Although I have suggested that the classical resource misallocations arising from the fixing of disequilibrium relative prices are probably not serious in most cases, there is one aspect of the way in which controls were applied in Britain which appears at least in part to be a feature of the Canadian controls — a feature which probably did have an adverse effect on resource allocation. That is the tendency for wage controls to be written in such a way that they discriminate against the more highly-paid members of the community. In Britain there were often limits specified in terms of the flat rate of money increase. This of course would translate into a much smaller percentage increase for the

better off than the poorest members of the community. Canada has a similar clause in its wage control program in that it imposes a \$2,400 limit increase. This means that all people making more than \$24,000 per annum will be limited to a percentage rise which is less than the average. Of course, it is usually sought to justify this type of arrangement in terms of equity arguments. However, that misses the point. High wages are paid to those whose output is most valuable. If a government regulation tells employers that they may not pay their highly-skilled workers as much as they are worth, then firms will either have to find other ways of compensating those employees or run the risk of losing some of their services.

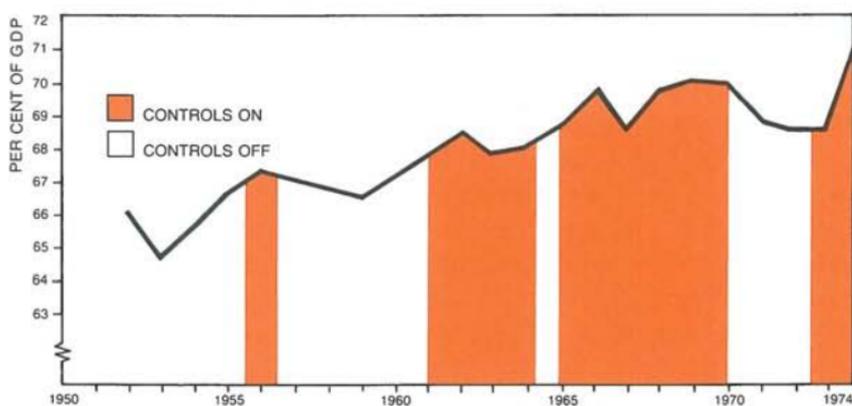
At the other extreme in the British case, although this does not appear at the present time to be a feature of the current Canadian policy, lower paid workers were more favoured than average workers. The permissible wage rise of the lower paid has been higher than the average, and has become the minimum as well as the maximum raise possible. This, of course, is exactly like a minimum wage law. It has the effect of pricing out of the labour market certain lower skilled and low marginal product workers. It therefore raises the unemployment rate amongst those classes of workers and carries with it the risk that the government will misread the resulting rise in unemployment and see it as a signal to stimulate aggregate demand, thereby generating even more inflationary pressures for the controls to attempt to contain.

A more serious consequence of the policy is the way in which price controls have been applied in the public sector especially during the recent 'social contract'. Government subsidies have been widely used in an attempt to hold down the price of public sector produced gas, electricity, public housing and public transport. Also, food has been subsidized. This has resulted in an enormous increase in the public sector deficit and borrowing requirement and far from reducing inflationary pressures has exacerbated them. This may be particularly relevant for Canada where oil is still being sold at too low a price relative to the world price.

On the redistribution of income

The second major area in which controls have side effects is in the arbitrary redistribution of income which they cause. The first feature worth looking at here is that between labour income on the one hand and profits on the other.

Chart 5 — Income from Employment as a Percentage of Gross Domestic Product, United Kingdom 1952-1974



Source: From U.K. Government Statistics.

Chart 5 illustrates the share of employment income in the post-war years. Here we see that income from employment as a percentage of gross domestic product fell between 1952 and 1953, then climbed to 1956, fell slightly down to 1959, then rose to a peak in '62 when it fell for one year, then rose to another peak in 1966 when it fell for one year, then, after peaking in 1968-69 took a prolonged slide down to 1973 after which it surged forward again. Taking the period as a whole there has been a tendency for the share of income from employment in national income to rise. That share in 1952 was a little over 66 per cent and by 1974 had reached almost 72 per cent.

The factors making for that trend increase in the share of employment income would take us beyond the scope of this study. Furthermore, there is still a good deal of controversy surrounding that question. It seems likely that at least one of the main contributing factors has been the increased market power of labour that arises from a persistent commitment to a full employment program. However, despite the fact that there has been a trend increase in income from employment, there have been five occasions on which labour's share has fallen. Four of those are associated with the application of wage-price controls. This suggests that controls bite more heavily on employment income than they do on prices of final output and than they do, therefore, on profit margins. This would not be surprising in view of the fact that it is possible to single out and widely publicize wage settlements in particular sensitive sectors. In contrast to this, outside a few key products in the public sector, it is very difficult to pin down one or two key products for high publicity and rigid control.

It would be foolish to claim that the connection between controls and the dips in labour's share in national income are at all strong. There are several continuations of the reduction in the share of income from employment which run beyond a control period and two which precede a control period. Thus there are periods outside controls when labour's share has fallen. However, what is noticeable is that whenever controls have been in operation, labour's share has also fallen. This is not to say that because controls apparently have some potential for curbing the rise in labour's share that they are therefore doing a good job. There are other ways in which labour's share could be controlled if indeed it was desirable to control it; most notably by generating a competitive environment in labour markets which made workers responsible for getting their supply price right rather than placing all the responsibility for employment on the aggregate demand management policies of the government.

Much less easy to document are movements of relative wages which result from controls. There must be a strong presumption that the weak will lose under a control regime despite clauses favouring low wage groups. Governments

usually try to avoid head-on confrontations with major and powerful groups of organized labour and therefore one way or another wage settlements for such groups are likely to be further from the guidelines and closer to the original claims than are those of weaker groups.

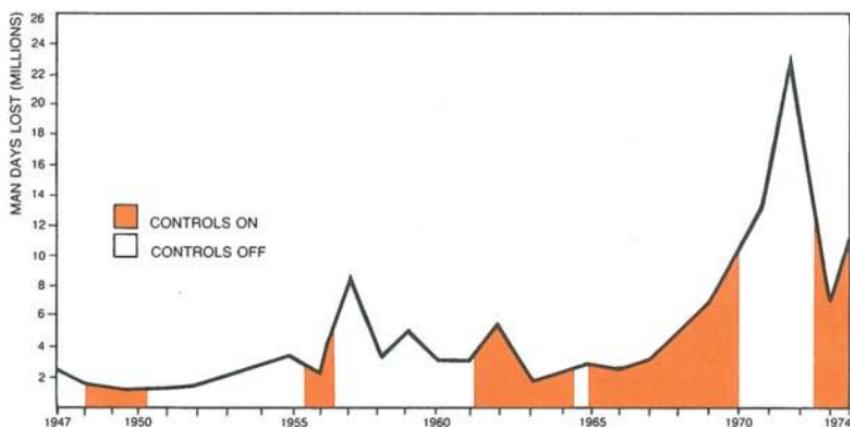
Also, not at all well-documented but highly likely, are redistributions within the corporate sector arising from the fact that some prices are more easily pegged than others. Highly-standardized products, for example, are easier to police than are highly-specialized items.

Possibly the most serious arbitrary redistribution of income in the British control experiments has been within the public sector and between the public and private sectors. Within the public sector there has been a great deal of wage disparity. As a rough approximation it seems reasonable to say that the private sector has probably on the average not been much affected by controls. In the public sector the administrators and those directly and indirectly involved in the administration of the state's increasing economic interventionism have done very well. Real wages of administrative civil servants in Britain have increased as rapidly as those of any group in the economy. However, other public sector employees such as doctors, nurses, refuse collectors, teachers, academics and the like have all lost out over the past few years. Thus, the general pattern is that the administrative civil servants have done best, private sector employees have about held their own, while other public sector workers lost.

On industrial relations and strikes

The third major area in which controls have had a clear and devastating effect on the British economy has been in industrial relations. The British strike record is one of the most widely-known facts about that country in the rest of the world. That strike record, in terms of number of working days lost each year, is set out in Chart 6. What is significant about that chart is the strong trend growth in working days lost all through the 1960's. The very high peak of almost 24 million working days lost in 1972 is due almost entirely to the introduction in 1971 of the 'infamous' Industrial Relations Act. That Act, introduced by a Conservative government, generated a great deal of hostility from the labour

Chart 6 — Strikes in the United Kingdom, Number of Working Days Lost Annually 1947-1974



Source: U.K. Department of Employment Gazette.

movement and industrial relations in the period were very bad for reasons completely unconnected with controls. However, apart from that peak it is clear that controls have been associated with a tendency for the frequency of strikes to rise. The only exception to this is the relatively placid period of the immediate postwar years, at a time when there was a certain euphoric support for the first postwar Labour Government on the part of the newly-demobilized labour force.

In the period of the middle 1950's and throughout the 1960's we see that the more controls were prolonged, the higher was the volume of strike activity. This also seems to have applied during the reintroduction of controls in 1973-74. Of course, correlation does not prove causation. There seem to be three possibilities: i) controls cause strikes, ii) strikes cause inflation which lead to controls, and iii) some third outside factor both generates controls and strikes. The obvious candidate in this latter case is inflation itself. That is, a rising inflation rate could be thought of as both bringing on controls and generating more strikes. Unscrambling these three alternative possible causation theories is not at all straightforward. However, if we try to explain the variability of the inflation rate using the conven-

tional hypothesis that the rate of inflation is higher the higher is the state of inflation expectations and the greater is the pressure on aggregate demand then we find that we can explain pretty well all of the variability of Britain's inflation rate and that there is no independent role left for strikes.¹⁶ Thus, it seems fairly safe to conclude that strikes do not cause inflation.

Does inflation cause strikes though? In a study of the determination of strike activity in the British economy, Pencavel¹⁷ has shown that there is a partial correlation between inflation and strikes. However, we must be very cautious how we interpret this correlation. *A priori* there seems no reason at all why a high rate of inflation should lead to high volume of strike activity. We would expect strikes to arise because of a mismatching of expectations about inflation between the two sides of industry. On the face of it, it is very difficult to see why the two sides of industry should take different views about the rate of inflation in a way that is systematically related to the degree of inflation. It seems much more likely that both sides of industry take broadly the same view but that because of government regulation labour unions need to demonstrate more strongly their determination to see their expectations given effect to.

Although one cannot be sure, it seems that the most plausible interpretation of the persistent increase in strike activity in the 1960's and the upturn again in 1973-74 is that it was caused by the government placing itself in a situation of confrontation with labour unions leaving them with the option of accepting a cut in real wages or using their market power, displayed through the strike weapon; faced with these alternatives, organized labour has opted for the latter.

On respect for the rule of law

This leads naturally into the final major and perhaps most dangerous side-effect of controls, namely the disrespect which they engender for the rule of law. The most effective way of ridiculing a legal system is to enact laws which have no way of being implemented. Perhaps the best example is that of King Canute standing on the beach and ordering the tide to stop. Although it looks less ridiculous it is in the same category of laws for a parliament to legislate that wages and prices will not rise or will not rise by more than a certain

amount. It is akin to attempting by statute to repeal the law of gravity. When, as would be predicted, the law begins to be ignored or worse, when strong and well-organized groups line up against the law, this raises questions concerning the sovereignty and authority of parliament. In Britain, especially during the most recent phase of controls in 1974, this reached the amazing pitch of leading to a general election campaign on the central theme "Who Governs Britain - Whitehall or the Unions?" That particular episode illustrates this point most vividly.

In the winter of 1973-1974 following the oil price rise of the fall of 1973 a major pay claim was put in to the Heath Government by the coal miners in the U.K. The miners had by that time suffered a relative fall in wages largely as a result of their weakening competitive position in a world of cheap alternative sources of fuel and of a declining industry. However, as a result of the oil price rise, coal became a more viable source of energy. Also, the miners union was somewhat more centrally and tightly organized by 1974 than it had been in earlier years. The combination of these two things enabled the coal miners to put in a large but, many would have judged, not unrealistic wage claim. The claim, however, was well outside the guidelines of the prices and incomes control program then in force. The Conservative Government dug in its toes, refused to meet the miners' demands and this led to a prolonged and very costly coal strike. The strike led to a massive reduction in electricity generation and eventually to most of the British economy moving onto a three day working week. This particular episode serves to illustrate, in fact, all four major side-effect arguments that have been advanced above. Here we have a clear case in which the controls led to a massive reduction in economic welfare as a result of lost output. They also were an attempt to force through an arbitrary distribution of income in opposition to undoubted market forces pointing in the direction of an increase in the relative wage of coal miners; they produced a crisis in industrial relations close to the proportions of the British General Strike of 1926 and finally brought about the fall of the Heath Government in February 1974.

Of course, it could be argued that the particular policies being pursued by that particular government at that particular time were very unfortunate and were not of the essence of wage-price controls but just one extreme example of them. True, that episode was extreme, but it is the extremes that most vividly illustrate the dangers in pursuing policies such as these.

It has been argued that controls are counter-productive and that they do not control inflation and in addition have damaging side-effects. It may be thought that Britain's current control program contradicts to some degree these conclusions since with the latest episode of controls in operation, the rate of inflation is reported to be moderating. However, it would be wrong to attribute that inflation moderation to controls. Monetary policy has been on a severely contractionary path since mid-1972 and it is that which has produced the present unemployment level of one million plus and has reduced the inflation rate. The lesson from the latest British experiment with controls is entirely in line with that of the previous episodes.

Notes

¹The title of the Policy Statement tabled in the House of Commons by Donald S. Macdonald, Minister of Finance, October 14, 1975.

²Among the earliest price and wage controls were those of Diocletian in the third century A.D.

³Arthur W. Marget, *The Theory of Prices*, Vol. 1, Kelly, New York 1966, Reprint of Economic Classics edition gives a superb and thorough history of the theory of money up to the middle 1930's.

⁴For a detailed survey of the debate on the question, see David Laidler and Michael Parkin, "Inflation: A Survey," *Economic Journal*, December, 1975; Michael Parkin, "The Causes of Inflation: Recent Contributions and Current Controversies," in Parkin and Nobay (Eds) *Current Economic Problems*, Cambridge University Press, 1975; and Michael Parkin, "Where is Britain's Inflation Going?," *Lloyds Bank Review*, July 1975, Number 117, p. 1-13. (Note that there are some discrepancies between the charts in the present chapter and in the Lloyds Bank Review article. Those in this chapter are correct.)

⁵The narrow money supply is used because there are good reasons to believe the broader definitions to contain serious distortions, especially in 1971-3. (See my Lloyds Bank Review article referred to in footnote (4) above.)

⁶The 1964 starting date is selected because Britain's money supply data were not compiled on a comparable basis prior to that year.

⁷For a convenient though somewhat technical summary source of much of that literature, see *Incomes Policy and Inflation* edited by Michael Parkin and Michael T. Sumner, University of Toronto Press, 1974.

⁸For a detailed survey see Parkin, "The Causes of Inflation," *op. cit.*

⁹To fit the facts of the late 1960's and 70's in both Britain and Canada, it is necessary to allow for the fact that the meaning of unemployment has changed as an indicator of labour market demand pressure due to considerable improvements in unemployment compensation rates relative to net wages.

¹⁰See Richard G. Lipsey and Michael Parkin, "Incomes Policy: A Reappraisal," *Economica*, May 1970, reprinted as Chapter 4 in Parkin and Sumner (Eds), *Incomes Policy and Inflation*, University of Toronto Press, 1974. See also for a survey of the econometric evidence on the effects of incomes policy-wage price controls, Chapter 1 of that volume.

¹¹Frank J. Reid, "The Rotation Hypothesis of Incomes Policy: An Empirical Test for the U.K., 1948-1973," University of Toronto, Department of Political Economy, 100 St. George Street, Toronto 5. (Mimeo)

¹²See Lipsey and Parkin, *op. cit.*, Figure 5 and discussion.

¹³John A. Carlson and Michael Parkin, "Inflation Expectations," *Economica*, May 1975.

¹⁴See especially Lloyd Ullman and Robert J. Flanagan, *Wage Restraints: A Study of Incomes Policies in Western Europe*, University of California Press, 1971.

¹⁵On the United States see Michael Parkin, "The 1973 Report of the President's Council of Economic Advisers: A Critique," *American Economic Review*, Vol. LXIII, No. 4, September, 1973 and the other works referred to in the bibliography of that article.

¹⁶See Laidler and Parkin, *op. cit.*

¹⁷See John H. Pencavel, "An Investigation into Industrial Strike Activity in Britain," *Economica*, N.S., vol. 37 (147) p. 239-56.

The U.S. Economic Stabilization Program of 1971-1974*

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INTRODUCTION AND SUMMARY

President Richard M. Nixon announced his Economic Stabilization Program (ESP) on August 15, 1971. This program — popularly termed price and wage controls — was initially immensely popular and similar programs were soon established in other countries. The program expired on April 30, 1974, after an election-year Congress refused to renew authorization. This paper examines the nature and effects of the program as it evolved over time.

The most surprising feature of the program was that nearly the only enforced restrictive ceiling was that on increases in wages in unionized firms. In effect, the ESP was little more than a scheme for regulating the monopoly power of unions. When this rein was relaxed in January 1973, the program became a shell imposing administrative costs on many industries and serious effects in a few, but mostly ‘full of sound and fury, signifying nothing’.

*This study summarizes, integrates, and extends the author’s earlier technical studies “Price and Wage Controls: The First Two Years” and “Price and Wage Controls: Further Evidence” in K. Brunner and A. Meltzer (eds.), *Carnegie-Rochester Conference Series*, Vol. II, Amsterdam: North-Holland, in press.

The ESP is generally credited with reducing the rate of inflation during the first eighteen months of its existence, but in the last fifteen months inflation was recorded at a higher rate than would otherwise have occurred as prices 'caught up'. Taken as a whole, the ESP did not appear to have any effect on the average rate of inflation from the second quarter of 1971 to the third quarter of 1974. The reported swings in the rate of inflation appear to reflect initial hidden reductions in the quality of products. Such reductions were undertaken to avoid administrative costs involved in making large explicit price changes. After January 1973, these administrative costs were reduced or eliminated and firms began to restore quality.

I. ORIGINS OF THE AMERICAN INFLATION

Price and wage controls were politically popular in the United States in 1971 because of widespread dissatisfaction with the rate of inflation then being experienced. Controls were popularly interpreted as strong political action to 'do something' about inflation.

The causes of inflation

Persistent inflation is always and everywhere a monetary phenomenon, as has been ably demonstrated by other essays in this series. That is, leaving aside year-to-year wiggles around the basic trend, the price level grows if, and to the extent that, money is created faster than the normal growth in the public's desire for money expressed in terms of the real goods and services that it can buy. The average price of goods and services must rise because until it does people will think that they have more cash than they desire and attempt to adjust their position by spending the 'excess'. This process will continue until prices rise and people's desire for cash correspondingly rises to absorb the available supply.

This relation is not perfect over any short period of time. In particular, prices and wages do not adjust immediately to an increased rate of money creation and so later must rise faster for a time — like a late starter in a race — to

catch up. This cyclical adjustment of the rate of inflation to a change in the growth rate of the money supply is the source of much confusion. At first, an increased rate of money creation induces increased spending and little increase in inflation so that real spending grows abnormally rapidly and unemployment falls. In time, workers increase their wage demands and inflation and unemployment rise while growth of real income and spending becomes abnormally slow. The growth rates of wages and prices seem disproportionate to the growth of money during this catch-up period and talk of 'cost-push inflation' becomes popular. When the catch-up is completed, the rate of inflation falls but to a rate higher than existed before the increase in the rate of money creation.¹

Pre-control monetary policy in the U.S.

As in all industrialized countries, the growth rate of the U.S. money supply is determined by the central bank — in the case of the U.S., the Federal Reserve System, popularly called the Fed. For complex reasons peripheral to this paper, the Fed's monetary policy from 1963 to the start of controls can be characterized as accelerating money creation, except for slow-downs in the second half of 1966 and in 1969. As a direct result, the trend rate of inflation also accelerated, to the protest of the populace and the discomfort of the politicians.

The wage-price spiral

Politicians of course denied blame for the results of government policy and instead encouraged myths attributing inflation to greedy businessmen and greedy unionists. Increased inflation implies more rapid growth in prices and wages, but these are symptoms not causes. Still, businessmen were quite willing to hang any charge on unionists and so popularized the myth with respect to their adversaries. Unionists were pleased to return the compliment. With so much propaganda laying blame for inflation to the monopoly power of business or unionists, the public and press largely overlooked the undramatic money supply data and the careful complaints of academics. So the pressure rose to do something about the supposed villains.

II. THE NATURE AND EFFECTS OF THE ECONOMIC STABILIZATION PROGRAM

On August 15, 1971, President Nixon announced the imposition of a 90-day freeze on all prices, rents, wages and salaries except for raw agricultural products and imports. This action, variously termed as Freeze I or Phase I, was taken under authority of the Economic Stabilization Act of 1970, as amended. The Act had been passed by a Democratic Congress in an election year to provide debating ammunition against the Republican President who had pledged not to use the 'standby' authority to control prices and wages.

Phase I (Freeze I) was followed by Phase II, Phase III, Freeze II, and Phase IV, each with significantly different rules and regulations. The essential features and effects of each phase will be considered separately below.

Leaving aside the brief freezes, the basic philosophy of the controls was a cost-plus theory of pricing. A typical statement was:

"The standards announced by the Pay Board and the Price Commission imply the following arithmetic: If compensation per hour of work rises by 5.5 per cent per annum, and if output per hour of work rises by 3 per cent per annum, labor costs per unit of output will rise by approximately 2.5 per cent per annum. If prices rise in the same proportion as labor costs, which are the largest element in total costs for the economy as a whole, then prices will also rise by 2.5 per cent, a rate within the range of the goal set by the CLC."²

Price and wage rules were set relative to historical base periods for individual firms and there was no uniformity in permissible prices or wages between firms.

Exemptions were granted based on the size of firms (for prices), on the number of employees (for wages), on the industry, and on the level of wages.³

Phase I

The initial Freeze was a surprise action aimed at avoiding strategic price and wage increases while a more sophisticated control program was formulated and implemented.

Just prior to the Freeze, the rate of inflation was running about 4.5 per cent per annum; so after the end of a 90-day freeze the level of prices would be about one percentage point below the level that market forces would have produced if the market price level had continued to grow at about the same rate as previously. Even this is a high estimate of the difference between what we might call the 'ceiling' and the 'market' price levels however. Since the growth rate of wages normally exceeds the growth rate of prices by the amount of productivity growth, a successful freeze on wages might cause the price level to fall over time. If this is to happen, the freeze on wages must not result in labor shortages. In fact, firms were able to hire increased quantities of labor at the frozen wage scales and employment grew at the rapid rate of 4.2 per cent per annum from August to November, 1971.

Wages the target

The major economic rationalization for the ESP was that the wage demands of nonunionized workers⁴ and the agreed wages in union contracts included a substantial adjustment for expected inflation. It was argued that the ESP could speed the adjustment to a lower rate of inflation by reducing inflationary expectations and abrogating union contracts. Thus the temporary increase in unemployment that would have been associated with a decrease in the growth rate of the money supply would be reduced or eliminated. As will be shown below, the Fed increased money supply growth to new heights during the Freeze instead of reducing it. Nevertheless, during the brief life of the Freeze the hoped-for reduction (or perhaps postponement) of wage increases seems to have occurred.

The price freeze restricted most prices only trivially if at all; the market price for some goods actually rose significantly because of increased demand or cost conditions. This was especially true for restaurant meals and processed foods as prices of raw agricultural products were exempt from controls. Where it was difficult to conceal reductions in quality or portions, products became unavailable except in new higher priced 'deluxe' versions (the cherry-on-the-top phenomenon).

Phase II - Wage and price controls?

The Phase II program (November 14, 1971 - January 10, 1973) bore little resemblance to standard ideas of price and wage controls. No economy-wide regulations were issued as to maximum permissible prices for certain products or maximum permissible wage rates for certain types of labor. Instead regulations were applied on a firm-by-firm basis. Subject to exceptions and exemptions, there were three key constraints imposed on firms: (1) Profit margins were limited to the average of the best two of the three fiscal years preceding Phase I. (2) Wage scales were limited to a 5.5 per cent per annum rate of growth. (3) Large firms had to obtain prior approval for any increase in prices (firms with sales of \$100 million or more) or wages (firms with 5000 employees or more). These constraints, as well as other subsidiary regulations, were supposed to be enforced by a staff of less than 4000 people.⁵

The price formula

The general standard for price increases was that prices could increase proportionately to increases in costs. But this is exactly what happens in any pure inflation and so provided no real constraint for most firms. Only where major shifts in relative demand or supply increased the market return to factors of production owned by the firm — notably in the lumber, oil, and leather industries — was the profit margin rule a serious limit. Most firms required only a little creative accounting⁶ to meet the profit margin ceiling.

With prices essentially uncontrolled — so long as they rose in normal proportion to costs — the program could affect the rate of inflation only by reducing the rate at which costs were growing. This was the role of the wage controls.

Wage controls

Generally wage controls are very easy to evade as long as employer and employee both find it advantageous to do so. For example, the number of hours worked can be over-reported or a spurious promotion made with no real change in duties. It will be in the interest of employers in competitive labor markets to evade the controls as otherwise they will lose employees to those who do so.

Unions the target

This is not true for unionized firms. U.S. labor laws in effect give unions the power to impose considerably higher wages than required to obtain the number of employees that the firm is willing to hire at those wages. Under the ESP, the maximum wage demands that firms would be required by the courts to meet were limited to a 5.5 per cent per annum increase. Nearly all unionized firms could still hire all the employees they desired under the controlled wage rate and so had no incentive to evade the wage controls. In effect, the government imposed a price regulation on the unions who had previously been granted monopoly power. It may not be surprising that the Nixon administration should use the Economic Stabilization Act to benefit the owners of unionized firms at the expense of union leaders and members⁷ given the general support of the former and opposition of the latter in the 1968 and 1972 Presidential elections.

Generally, firms in competitive markets could and did easily evade the wage ceiling where it was less than the market wage. Unionized firms were quite willing to abide by the reduced wage scales. The only real enforcement of the wage ceiling was the unwillingness of the courts and the ESP administration to approve union contracts which exceeded it by much. Little actual evasion was required by non-unionized firms as low-wage and small-firm exemptions excluded most private nonfarm workers from any controls.⁸ Significantly, the small-firm exemption did not apply to the heavily-unionized construction industry regulated under the Pay Board's Construction Industry Stabilization Committee.

Effects on wages and employment

The impact of the controls on union wages was to increase the number of workers which unionized firms were willing to hire. As a result some workers were shifted from less productive work in non-unionized forms to more productive work in unionized firms and total output increased. Unfortunately, there is no satisfactory way to estimate the precise net increase in total output which resulted. Earlier estimates of the reduction in U.S. real output due to unions' monopoly power to set wage rates were approximately 0.3 per cent of gross national product at most.⁹ So although the precise in-

crease in output due to the reduction in union power is unknown, it must have been at most about one quarter of one per cent. Even if the demand for money in terms of real goods and services were increased proportionately,¹⁰ this would imply at most a 0.25 per cent decrease in the price level compared to what it would otherwise have been. So the increase in real output and the reduction in the price level due to Phase II wage controls were both relatively trivial.

Prices up, quality down

About 1700 large firms were required to obtain prior approval from the Price Commission in order to raise prices. In granting increases, the Price Commission did not adhere to the general regulations. For example, the excess of wage increases over 5.5 per cent per annum even where approved by the Pay Board due to some provision of law might not be included in allowable costs. Historical averages of industry productivity growth were substituted for firm-by-firm experience. However 'cost justified' large price increases were not approved. Firms could and did avoid the administrative costs of separate applications by entering into 'term limit pricing' agreements permitting them to raise prices at an average rate of, say, 1.8 to 2.0 per cent per annum with no single price to be increased by more than an agreed amount such as 8 per cent.

Although stated prices were controlled, there was no staff on the Price Commission to attempt to control the quality of goods. So firms which would otherwise have increased prices by 4 per cent were free to increase prices by the approved amount, say 2.5 per cent, and to make up the difference by reducing quality so that unit costs fell, in this case by 1.5 per cent. So long as the quality reduction was covert and profit margins did not exceed the firm's allowable limit, no penalties were incurred.

Government statistical agencies find it difficult to correct for quality changes in normal times; it is therefore not surprising that they should miss most such covert deterioration in quality. As a result, the reported price index appears to have fallen steadily below the 'true' price level — the price level adjusted for the changing quality of goods — during Phase II. Section III below presents estimates of the true changes in the price level adjusted for such omitted changes

in quality. These estimates indicate that the reported price index rose about 0.2 per cent per month or 2.5 per cent per annum less than the true price level.

Phase II controls were generally quite popular except with unionists. The President had taken apparently dramatic and effective action which reduced the apparent rate of inflation with virtually no allocative ill effects.¹¹ Nevertheless, with the Presidential election over in November 1972 and increasing popular doubt about the reported low rates of inflation, the program had outlived its political usefulness by the end of the year and change was in order.

Phase III

The Phase III program (January 11, 1973 through June 12, 1973) removed the requirements for prior approval of price increases except in a few listed industries. The profit margin limitation remained in force as did the 5.5 per cent per annum standard for wage increases. Prior approval of wage increases was largely discontinued as well.

The main change was the removal of the requirement that large firms receive prior — and arbitrarily limited — approval of price increases. As a result, these firms were free to increase their prices not only in proportion to the increase in costs required to produce a unit of given quality but also in proportion to the increased costs necessary to restore the previously degraded quality. So whereas in Phase II the rate of inflation had been consistently *underreported* in the official price indices, with the beginning of Phase III the rate of inflation was *overreported* because of a failure to correct for the restoration of quality.

For these reasons, the consumer price index rose at a rate of 9.0 per cent per annum from January to June 1973 as compared to 3.5 per cent per annum from July 1972 to January 1973. In something of a panic Phase III was abandoned.

Freeze II and Phase IV - opposition becomes unanimous

Freeze II (June 13, 1973 to August 11, 1973) was imposed to permit reformulation of stricter controls. All prices except rents and raw agricultural products at first sale were frozen at their June 1-8 levels. Wages, however, were allowed to rise as under Phase III. So, unlike the first freeze, firms faced price ceilings which fell relative to the market level of prices.

Shortages and outright cheating became more common. Food shortages in grocery stores forced the administration to begin Phase IV food regulations on July 18, 1973.

The fiasco which was Freeze II was soon replaced with Phase IV (August 12, 1973 to April 30, 1974). Phase IV continued the relaxed Phase III wage controls and reinstated Phase II requirements for prior notification and approval of price increases by the largest firms, with the exception that applications not acted on in 30 days could be implemented. This permitted the ESP administration to allow price increases where required to avoid shortages without any explicit approval. The profit margin limit was replaced with a limit on the dollar amount of net income per unit — profits were permitted to increase only in proportion to unit sales.

The unit profit limit was hard to enforce but was sufficiently restrictive that most remaining supporters of controls on the business side joined unionists in opposition. Much of the general public had also lost its naive faith in the efficacy of controls.

Besting the bulge

The main thrust of Phase IV, however, was gradual decontrol. At the end of Phase II, owing to its failure to account for the decline in quality, the government price index underreported the 'true' price level by about 4 per cent. By the end of Phase III, this difference was reduced to about 2.5 per cent.¹² The main objective of Phase IV was to spread the 'bulge' in the reported rate of inflation over as long a period as possible. The idea is a simple one; if the true rate of inflation were a constant 6 per cent per annum and the 2.5 per cent gap between the reported and true price indices were eliminated over a year, then the reported rate of inflation for that year would be 8.5 per cent per annum. If instead the gap was eliminated over six months, the price index would rise in those six months 5.5 per cent or 11 per cent per annum which would look much more alarming.

In the first four months of Phase IV, industries were selected for decontrol primarily to eliminate or prevent shortages of basic materials. As it became increasingly unlikely that an extension of the Economic Stabilization Act would pass Congress, the pace of decontrol accelerated in 1974. The Cost of Living Council (the ESP administrative body)

devised a technique for spreading the inflation bulge beyond the expiration of controls. This was to exchange decontrol for an agreement by the major firms in an industry as to pricing policy for some months after control. As the April 30th expiration date became a certainty, the Council's ability to persuade firms to enter such agreements dried up.

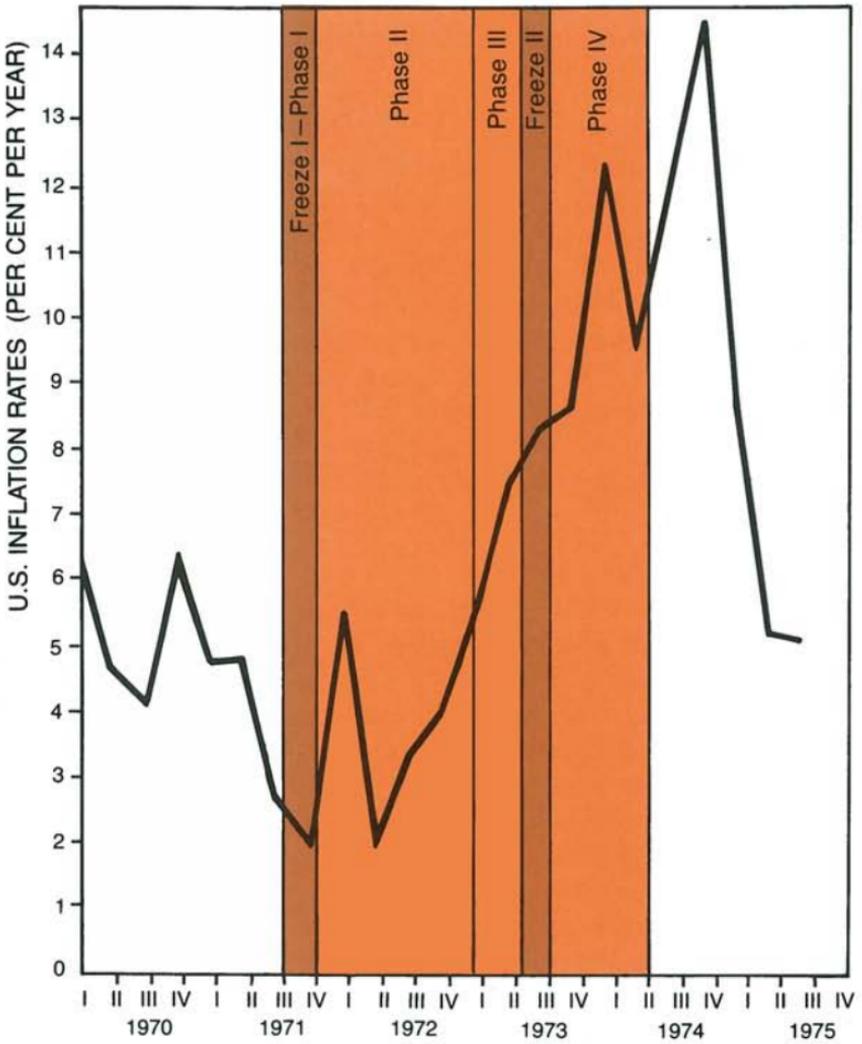
III. PRICES AND OUTPUT UNDER THE ESP

Now that we have set out the main features of the various phases and freezes, we can examine the impact on prices and output of the Economic Stabilization Program as a whole. In doing so, we are necessarily comparing what *did happen* with our best estimate of what *would have happened* in the absence of the ESP. No conclusive answer can, of course, be given as to either what was or what might have been, but reasonably good approximations seem possible. In view of the experimentation now underway in Canada, it seems much more than an academic exercise to engage in such speculation.

Reported inflation rates

Let us first examine what *did* happen. Figure 1 shows the rate of inflation as measured by the 'price deflator for gross national product (GNP deflator)'. This price series is calculated for each quarter by the government as the ratio of two numbers. The number in the top of the ratio is the government's estimate of total spending in the economy during the quarter. The number in the bottom of the ratio is the government's estimate of the value of total spending in terms of prices that prevailed in some base or benchmark period. Calculated in this way, the price series has a value of 1. in the base period and values in subsequent periods that reflect movements in the prices of goods away from their level in the base period. The price series calculated in this way is called a 'deflator' because it can be used to deflate or translate current spending estimates into spending estimates at base year prices. The GNP deflator is the U.S. price series with the broadest coverage and includes price information about the whole range of spending in the U.S. As is evident from Figure 1, the reported growth rate of the GNP deflator during Freeze I and Phase II (third quarter 1971 through

Figure 1 — U.S. Inflation rates as estimated by the GNP Deflator, 1970-1975



Source: U.S. Department of Commerce.

fourth quarter 1972) dropped to 3.2 per cent per annum compared to an average inflation rate of 5.2 per cent per annum in the preceding six quarters. Shortly after the advent of Phase III during the first quarter of 1973, inflation, as estimated by the GNP deflator, rose above the previous average and did not return to the 5 per cent per annum range until the second and third quarters of 1975. It is therefore quite easy to understand the popular impression that Phases I and II were effective in reducing the rate of inflation whereas the rest of the ESP was not.

Inflation rates corrected for quality changes

The earlier discussion of Phase II showed that there were considerable incentives for large firms to evade the administrative limits on price increases through covert reductions in the quality of their products. In later phases relaxation of prior approval and decontrol permitted restoration of previously degraded quality. The nature of the ESP thus leads us to suspect that price increases (corrected for quality changes) were *underreported* through the fourth quarter of 1972 and thereafter *overreported* until the decontrol process was complete.

Fortunately, there is a way to obtain estimates of the inflation rate (the GNP deflator) corrected for changes in quality. Before considering how I actually did that I want to give an example of how it is done using a more everyday example. Suppose that we were interested in measuring the rate of increase in the price of hot chocolate mixes from 1973 to 1974. Suppose that we knew the total number of boxes sold in 1973 and the total dollar amount spent on chocolate mixes; by dividing total dollars spent by the total number of boxes sold we would get the average price of a box of hot chocolate mix. Assuming that the information was available, we could perform the same calculation for 1974 and then calculate the percentage increase.

The situation would be made more complicated if we had reason to believe that the quality of the mix had changed from one year to the next. Suppose, for example, we found that 1.5 teaspoons of the 1974 vintage were required to brew an excellent cup whereas only 1 teaspoon of the 1973 mix was required — a difference caused by the percentage of cocoa in the mix. We would have to conclude that

the quality of the mix had fallen. As a result, our price calculation would have to be adjusted to reflect the decline in quality. One method of making the adjustment that parallels the method of adjustment that I use later to correct the GNP deflator can be described as follows.

The nature of the ordinary calculation described above is essentially that of dividing a total spending number (dollars spent on chocolate mixes) by a measure of quantity or output (number of boxes of mix sold). By simply using a different, quality-adjusted measure of output with the same total spending number we arrive at a quality-adjusted price of chocolate mix in 1973 and 1974. In the present case, it would be appropriate to use the number of ounces of raw cocoa used in the preparation of one box as an adjustment factor to derive an adjusted output number. Having done this we would find that hot chocolate mix had increased in price by a larger amount than the simplistic calculation — based on the assumption of unchanged quality — had led us to believe.

In the case of total spending in the economy (GNP) and the associated price (GNP deflator) the adjustment procedure is the same as that just described. However, because a quality-adjusted output number is not readily available, the procedure is more complicated. In calculating the price of total output for the economy, government divides total spending in the economy by an estimate of total output. To calculate the quality-adjusted or 'true' price of total output I divided total spending by my own estimate of total output.¹³ In the case of hot chocolate mix we would have been able to use input of raw cocoa as an adjustment factor. In the case of total output, for reasons discussed below, I have used the input of labour to make the adjustment.

First, I estimated the growth rate of quality-adjusted real output (GNP). I made this estimate using a trend or normal growth rate adjusted for the quarter to quarter change in the percentage of the labor force unemployed. This procedure is derived from a well-established relationship between output and employment known as Okun's Law.¹⁴ Since the Law is based on statistical regularity and the period of controls was not 'regular' in that sense, our estimates are subject to two sources of error. To the extent that

the controls reduced union power, the relationship between output and employment imbedded in Okun's Law would tend to underestimate real output. On the other hand, shortages and administrative costs may have reduced the amount of output forthcoming from a given amount of effort and therefore the output estimate would tend to overestimate actual output. Since both of these sources of error were of trivial magnitude and offsetting in their effect on the output estimate I did not attempt to adjust Okun's Law to take them into account.

Having calculated a quality-adjusted growth rate for total output it was a simple matter to use this growth rate to calculate estimates of the level of total output and hence a quality-adjusted price of total output.

The statistical illusion

Table 1 — Actual and Quality-Corrected
Inflation Rates, U.S. 1970-1975

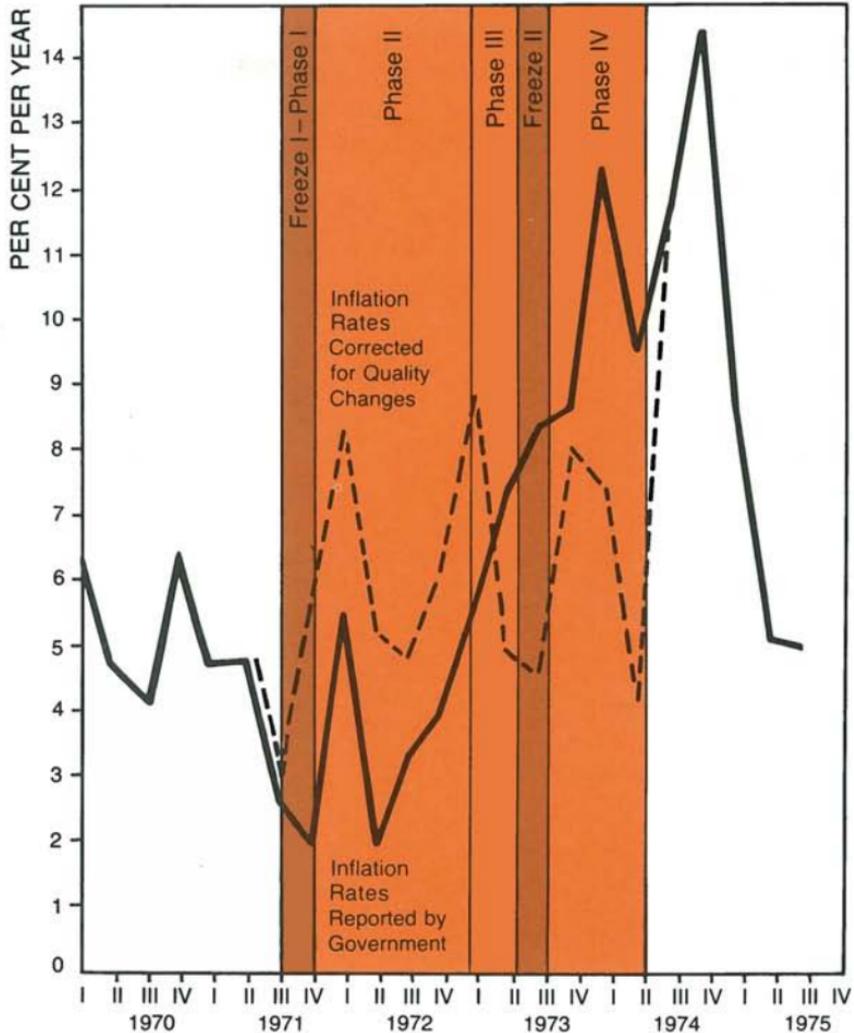
Periods	Average Rate of Inflation	
	Government Data	Corrected for Quality Changes
1970-I — 1971-II	5.2	5.2*
1971-III — 1972-IV	3.2	5.4
1973-I — 1974-III	9.0	7.0
1974-IV — 1975-I	11.4	11.4*
1975-II — 1975-III	5.1	5.1*

Compounded annual rates of change over previous quarter in GNP deflator (per cent per annum). Corrected data for periods not affected by the ESP (marked with asterisks) are identical to the government data.

Sources: See Figure 2.

Table 1 shows that the apparent sharp decline in the rate of inflation during Phases I and II was a statistical illusion. Indeed, the average rate of inflation corrected for quality changes rose slightly during the first six quarters of the ESP. Nor do the corrected data show such a dramatic increase in the average rate of inflation during the latter part of the control period.

Figure 2 — Reported rates of inflation compared with rates corrected for quality changes, U.S. 1970-1975

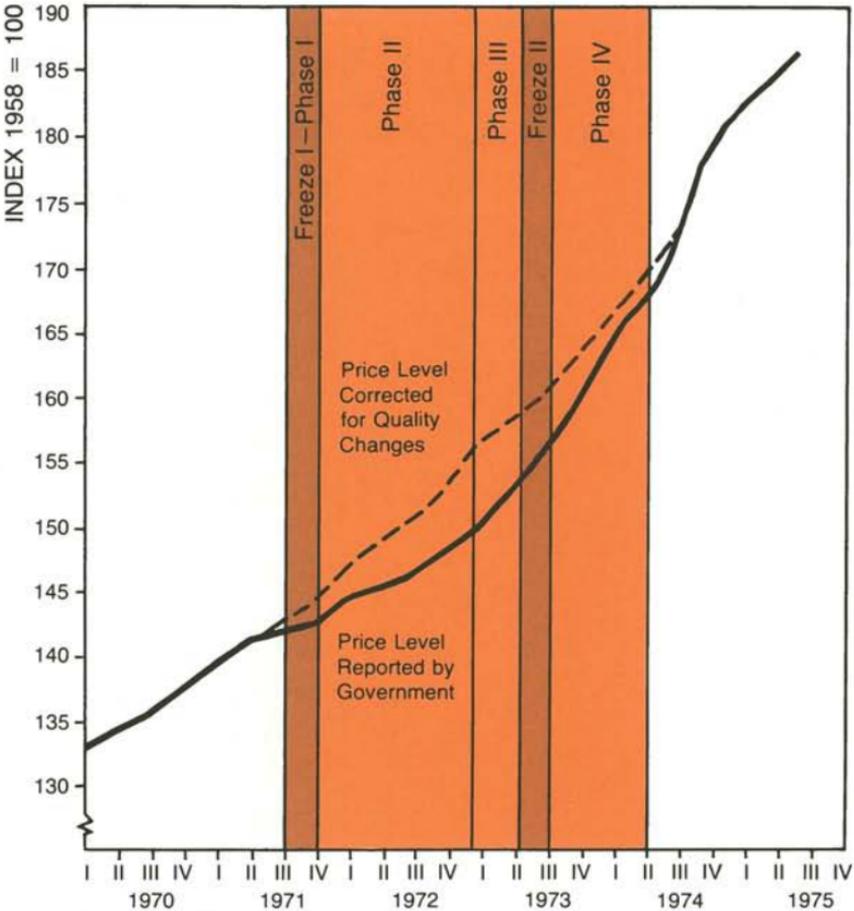


Source: Reported data — U.S. Department of Commerce.
 Corrected data — Computed from data in M.R. Darby, "Wage and Price Controls: Further Evidence," in K. Brunner and A. Meltzer (eds.) Carnegie-Rochester Conference Series.

Figure 2 shows the estimates of the inflation rate corrected for quality changes together with the inflation rate reported

in the government data. As would be expected from the detailed examination of the ESP regulations, the initial freeze involved little evasion, but the government data underreported inflation during Phase II and then overreported inflation in the succeeding Phases.

Figure 3 — Reported price level compared with price level corrected for quality changes, U.S. 1970-1975

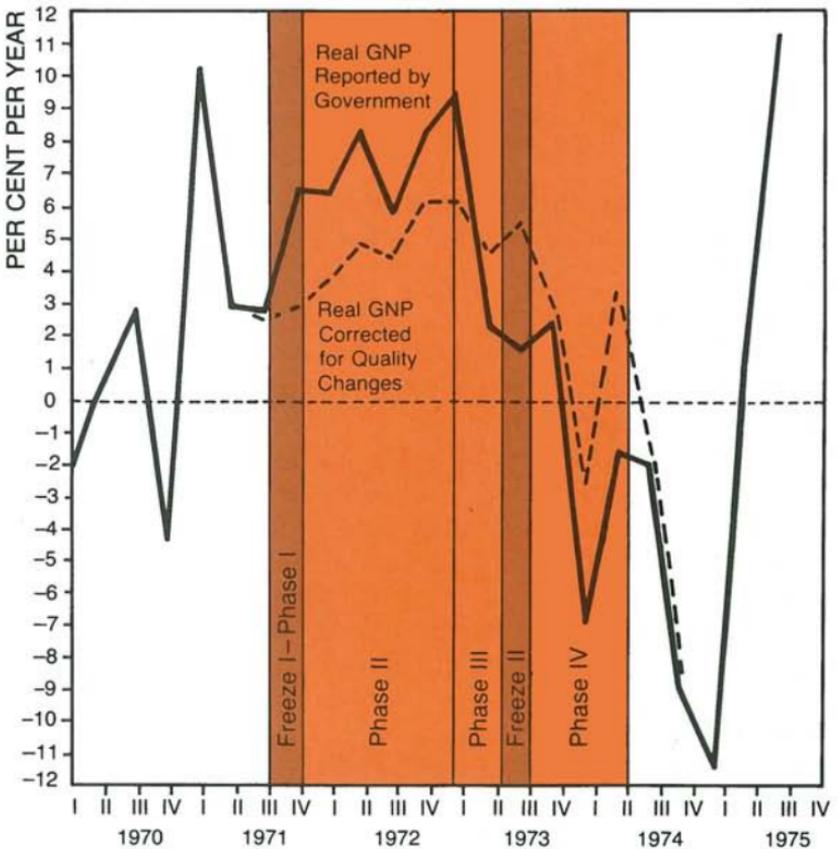


Sources: See Figure 2.

An alternative way of illustrating the effects that quality variation has on the reported price of total output is by comparing the reported and corrected estimates of the national price level. This is done in Figure 3. The difference between

the reported and corrected price level represents the accumulated effect of quality degradation. This difference grows during Phase II and is thereafter reduced. The trend of the corrected price level appears little affected by the ESP.

Figure 4 — Reported growth rates of real Gross National Product compared with growth rates corrected for quality changes, U.S. 1970-1975



Sources: See Figure 2.

Output changes

As we saw earlier, if the assumption is made that quality has not changed, but it has in fact changed, then calculations based on that assumption will yield an overestimate of real GNP. Figure 4 compares the growth rates of real output as reported in the government data with those of the corrected data implied by Okun's Law. Figure 5 does the same for the reported and corrected estimates of the level of real GNP.

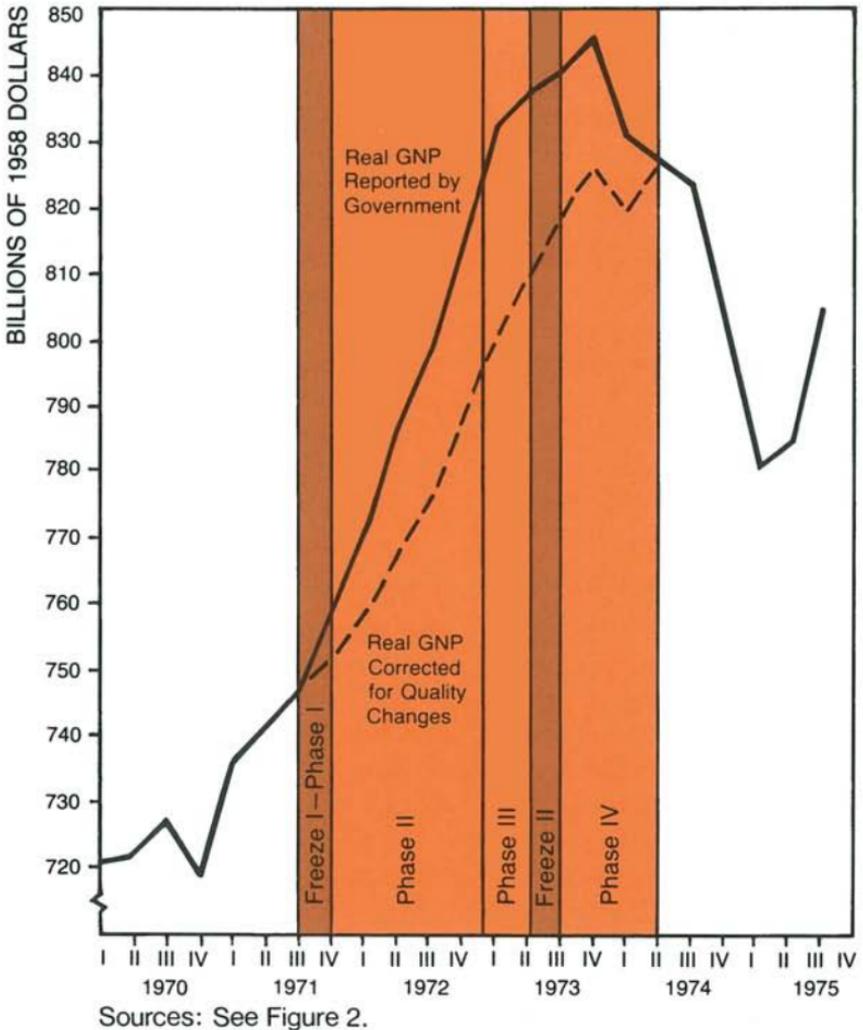
The corrected data show slower growth rates through the first quarter of 1973, and faster growth rates thereafter. Some confirmation for the correction procedure is provided by the much closer agreement of the corrected data during 1973-1974 with the behavior of such physical unit series as industrial production, employment, and railway box car loadings. These series did not seem to fall nearly as much as would be expected from the reported fall after the fourth quarter of 1973 in real GNP. Indeed, employment continued to rise through September 1974. Thus the corrected data show about the same effect from the October 1973 - March 1974 Arab oil embargo as would be expected from a major strike of similar duration.

Monetary policy during the ESP

The dominant influence on the behavior of prices and output — at least over periods of several quarters — is monetary policy. So to discover whether the (corrected) price and output behavior was different because of the ESP, it is necessary to make some assumption as to what monetary policy would have been in the absence of the ESP. There is no obvious alternative monetary policy that one may suppose the Fed would have followed in the absence of the ESP; so the discussion will assume that monetary policy would have been the same in the absence of ESP as it was in its presence.

This assumption may be unduly favorable to controls because the growth rate of the money supply was sharply increased to 8.0 per cent per annum from December 1971 through June 1973 as compared to the previous trend of about 6.0 per cent per annum. It may well be that the effect of the ESP on the reported data reduced the Fed's concern over inflation. The ESP was supposed to reduce the expected rate of inflation and hence ease the adjustment to

Figure 5 — Reported real Gross National Product compared with GNP corrected for quality changes, U.S. 1970-1975



lower rates of money supply growth and inflation. Apparently the Fed did not get the message since it increased the money supply growth rate when it should have reduced it. So previous progress against inflation — achieved at a cost

that included the 1969-1970 recession — was thrown away and the U.S. had to suffer another deceleration of money supply growth from July 1973 through January 1975.

IV. LASTING EFFECTS OF THE ESP

The first question is whether the ESP had any lasting effects on prices and output or whether any early effects were washed out after the policy ended? We can answer this question by using government data for pre-ESP and post-ESP magnitudes with little concern about a bias arising from the effects of controls. At this writing, the latest available data is for the third quarter of 1975 which would seem sufficiently past the end of ESP to be free of reporting problems.

On prices

From the second quarter of 1971 through the third quarter of 1975, the GNP deflator rose by 31.9 per cent.¹⁵ Allowing for the usual lag of 1.5 years for price changes behind money supply changes, this is to be compared with a 31.0 per cent increase in the money supply from the fourth quarter of 1969 to the first quarter of 1974. Now the trend growth rate of the real quantity of money demanded over the last several decades is between 0 and 0.5 per cent per annum depending on the method of calculation used. So over 4.5 years the increase in the price level should be between 0 and 2 percentage points less than the increase in the money stock over the corresponding period. So the fact that the actual growth in prices *exceeded* that of money by 0.9 percentage points would indicate that the overall effect of the ESP on prices was either nil or to slightly increase them relative to what they otherwise would have been.

On output

From the second quarter of 1971 to the third quarter of 1975 real GNP increased by 8.4 per cent.¹⁶ However, the unemployment rate was 2.4 percentage points higher in the third quarter of 1975 than in the fourth quarter of 1971 and

this had a depressing effect on output growth. In order to abstract from the effect that this change in the unemployment rate had on the growth of output, I used Okun's Law to predict what output would have been had the unemployment rate been the same. By my calculation, if the unemployment rate had not changed then real output would have risen 15.6 per cent (or 3.5 per cent per annum) had unemployment been the same. This growth rate is a bit higher than the trend growth rate of 3.1 or 3.2 per cent per annum over the last century but less than the 3.7 per cent per annum trend of the 24 postwar years before the controls. So, except to the extent that the unemployment rate in the third quarter of 1975 was influenced by the ESP, there is, in the case of output as well, no evidence of a lasting effect of the ESP.

Short-run effects of the ESP

There are no models which can consistently predict the rate of inflation in any particular quarter with an accuracy of, say, plus or minus one percentage point. Because it is difficult for us to ascertain what prices would have done in any particular quarter in the absence of controls it is correspondingly difficult to ascertain what the effect of controls was in any particular quarter. As we have just seen, this does not preclude an assessment of the overall effect, but does render difficult the assessment of particular short-run periods like Freeze I which lasted for only one quarter.

On the basis of my research I would have to conclude that the quality-adjusted price data behave very much as would be expected from the behavior of money supply growth and that controls had no discernible effect in particular quarters except in two instances:

- (1) Freeze I reduced the level of prices relative to the predicted level by about 1 per cent during the third quarter of 1971 and the fourth quarter of 1971, but this was mostly caught up during the next two quarters.
- (2) The very high rate of inflation during the fourth quarter of 1974 was considerably higher than would be expected but this appears to have been largely offset by the reduced rates of inflation during the second quarter of 1975 and the third quarter of 1975.

The effects of Freeze I were seen in Section II to reflect a brief increase in the number of employees who could be hired at the frozen wage because of reduced expectations of inflation. The temporary real reduction in the price level was reflected in a temporary increase in employment and real output.

The 14.4 per cent per annum rate of inflation in the fourth quarter of 1974 was about 6 percentage points higher than would be expected from past monetary policy. This anomaly may have been caused by strategic price increases due to widespread fear that controls would be reimposed and to an illusion that such price increases were possible; an illusion fostered by a naive public acceptance of the over-reported rates of inflation during the decontrol period. While this price behavior undoubtedly worsened the recession caused by the July 1973 - January 1975 deceleration of money supply growth, it is too tenuously related to be fairly attributed to the ESP.

V. EVALUATION AND CONCLUSIONS

The major direct effect of the Economic Stabilization Program was to impart a significant bias to government price indices such as the GNP deflator; inflation was underreported during Phase II and overreported thereafter through the decontrol period. America is blessed with statistical bureaus staffed by diligent, honest civil servants who would never go along with fudging the data. The ESP's combination of arbitrary price ceilings on large firms and a tiny enforcement staff induced firms to provide 'prefudged' data to the statistical bureaus which in turn used it in all good faith to compute the price indices. Given the difficulties which these bureaus face in correcting for overt changes in quality, they can hardly be blamed for missing such covert changes.

When the data are corrected for quality changes, only Freeze I seems to have been successful at the stated goal of reducing the rate of inflation. Even that success was balanced by more rapid inflation in the next few quarters. The growth in the price level from the last pre-ESP quarter to the latest post-ESP quarter was certainly no less rapid than would have been anticipated in the program's absence. Simi-

lar, real income growth was stimulated during Freeze I, but any such effect soon washed out. So, as a means of reducing inflation and increasing real income, the ESP was a failure.

Early defenders of the ESP had argued that while the program could not reduce inflation of itself, it could ease the adjustment to a lower rate of inflation brought about by monetary policy. The idea was to reduce inflationary anticipations by a bold political stroke so that the temporary increase in employment associated with reduction of inflation rates would be moderated. Unfortunately, the Federal Reserve System instead of reducing the growth rate of the money supply significantly increased it and hence the inflation rate. This may have reflected a naive acceptance of the underreported Phase II inflation rates or simply a feeling that the ESP relieved the Federal Reserve System of responsibility for controlling the inflation rate. It is a nice question whether it is politically feasible for the central bank to continue monetary restraint after the imposition of such a program.

Phase II in effect subjected unions to regulation of their monopoly power. But the lost output due to union power is normally a trivial percentage of total output so any reduction in union power could only result in a trivial percentage gain.¹⁷ Against this gain must be weighed the loss of output due to the administrative costs of the program and misallocated resources in the industries restrained at one time or another by controls. It would be difficult to conclude that benefits significantly exceeded the costs.

In sum, the Economic Stabilization Program was little more than a huge public relations scheme. Some were hurt, some were helped. A few quarters showed lower inflation rates than would be expected, others showed higher inflation rates. Many people still believe that Phase II was a success and if such a program were implemented without the mistakes of Phases III and IV, a controls program would be effective. This conclusion was seen to rest on biases in the data reported by the government. For little economic gain if not a small loss, people's civil rights to own property and enter into exchanges with consenting adults were limited. The resulting deterrent to future investment may well be the only important and lasting effect of the program.

Notes

¹For a complete analysis, the interested reader should see Michael R. Darby, *Macroeconomics: The Theory of Income, Employment, and the Price Level*, New York: McGraw-Hill, 1976, especially Chapter 7.

²U.S. Council of Economic Advisers, *Economic Report of the President 1972*, Washington: Government Printing Office, 1972, p. 96.

³Low-wage employees were exempted by statute.

⁴Note that only 20 to 25 per cent of the U.S. labor force belong to unions.

⁵U.S. Council of Economic Advisers, *Economic Report of the President 1973*, Washington: Government Printing Office, 1973, p. 66.

⁶Such as 'conservative' valuation of end-of-period inventories so as to increase the reported cost of goods sold and reduce the reported net income.

⁷Workers in nonunionized firms and consumers also benefited — while owners of nonunionized firms were hurt — from the regulation of the unions' monopoly power, but the dollar amounts *per individual* in these much larger groups was much smaller than for those directly involved with unionized firms.

⁸Fifty six per cent were exempted as of July 1972 according to U.S. Cost of Living Council, *Economic Stabilization Program Quarterly Report, Covering the Period July 1, 1972, through September 30, 1972*, Washington: Government Printing Office, 1972, p. 33-34.

⁹Albert Rees, "The Effects of Unions on Resource Allocation," *Journal of Law and Economics*, October 1963, 6: 69-78. Rees estimated that there might be a similar reduction in real output because of wasteful work rules, but these were not covered by the ESP.

¹⁰Money demand in fact increases less than in proportion to short-run changes in output.

¹¹The lumber, oil, and leather industries (accounting for a bit less than 2 per cent of gross national product) were the only ones with significantly restrictive profit margin ceilings. Evasion was nevertheless quite easy in the multiproduct and de-concentrated lumber and leather industries and added little to the consumers' cost of those products. Oil was relatively easy to control as to both price and quality and shortages of fuel oil arose.

¹²See Section III below for more detail on these estimates.

¹³By the method of calculation, growth in real GNP will be overreported to the extent that the rate of inflation is underreported; so an independent estimate is necessary.

¹⁴Arthur Okun, "Potential GNP: Its Measurement and Significance," *1962 Proceedings of the Business and Economic Statistics Section of the American Statistical Association*, p. 98-104.

¹⁵Or 6.7 per cent per annum.

¹⁶Or 1.9 per cent per annum.

¹⁷The dollar amount is nonetheless on the order of \$2 billion which is not trivial in itself.