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WAGE AND PRICE CONTROLS:

**PANACEA FOR INFLATION
OR
PRESCRIPTION FOR DISASTER?**

Jack Carr



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Preface

This Study by Professor J. Carr of the University of Toronto is the first in a series of six on the topic of wage and price controls that the Fraser Institute is publishing. The other studies will be published in the coming weeks and a compendium of the studies will be released in book form late in February.

Each of the studies in the series is designed to deal with a particular aspect of inflation or wage and price controls. The present study was designed to investigate the causes of inflation in general and the sources of Canada's present predicament in particular. The study comes to conclusions in that regard and presents a point of view — a refreshingly different economic study on that account alone.

Wage and price controls suspend individual rights, impose a system of law that, by design, does not treat equals equally, and impose arbitrary bureaucratic control over people's lives. In view of these high 'fixed' costs, Professor Carr in the study has also attempted to ascertain the operational costs and benefits of wage and price controls. In other words, what side effects does the 'cure' produce other than its obvious effects on individual freedom of choice.

The Fraser Institute is publishing this study in the interest of encouraging careful public consideration of current anti-inflation policy. If Professor Carr's analysis is correct Canadians would do well to question the course currently being charted by their government. At the very least we should not be lulled into thinking that 'everything is under control'. We should be vigilant and we should be quick to object if the monetary and fiscal restraint promised by the government is not forthcoming.

January, 1976

M.A. Walker

THE AUTHOR

Jack Carr was born in Toronto in 1944 and was graduated from the University of Toronto in 1965 before taking his PhD. at the University of Chicago in 1971. In 1968 he joined the department of Political Economy in the University of Toronto and became Associate Professor in 1973. Professor Carr is also a Research Associate of the Institute for Policy Analysis at the University of Toronto. During the 1975-76 academic year he is a Visiting Scholar at the Department of Economics, University of California in Los Angeles.

Professor Carr's publications include: *The Money Supply and the Rate of Inflation*, a study prepared for the Prices and Incomes Commission in 1972; *Cents and Nonsense* (Holt, Rinehart and Winston), a book of popular essays on economic policy, and numerous contributions to scholarly journals.

Wage and Price Controls Panacea for Inflation or Prescription for Disaster?

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I. INTRODUCTION

On October 13, 1975 Prime Minister Trudeau addressed the Canadian public on national radio and television and announced the imposition of a comprehensive scheme of mandatory wage and price controls. The Prime Minister made it clear at that time that these controls were being imposed to attack the inflation problem in Canada. The use of wage and price controls by government to fight inflation is not a novel approach. The first recorded example of wage and price controls dates back to 301 A.D. At that time, the Roman Emperor Diocletian put a price ceiling on over 900 commodities, 130 different grades of labour and on a large number of freight rates.¹ Canada in the Second World War placed ceilings on a large number of prices and wages.² England and a number of European countries have imposed price and wage controls³ at various times in the 50's, 60's and 70's.⁴ More recently and closer to home the United States imposed wage and price controls starting August 1971 and ending April 1974.⁵ In fact, the controls just adopted by Canada are very similar to Phase IV of the U.S. control system.

The current Canadian controls limit wage increases, in general, to the 8 per cent to 12 per cent range and allow prices charged by firms to increase only when the firm's costs increase. Prices are allowed to go up only enough to enable firms to recover their increased costs. In this way the controls attempt to freeze in dollar amounts profit per unit of output of firms.

This volume will attempt to analyze the economic effects of the wage and price controls currently being placed on Canadians. Will these controls achieve their goal and reduce inflation in Canada? What is the price of these controls? Will these controls lead to shortages, inefficiencies in the operation of the Canadian economy, black markets, and perhaps even more controls? Before investigating these questions, there is one question that has to be looked at first. Since the controls are aimed at fighting inflation, before we can tell whether controls will succeed in their goal of reduced inflation, we have to understand what causes inflation in the first place. Let us now examine this question.

II. CAUSES OF INFLATION

What is inflation?

The word 'inflation' has acquired various meanings in recent years and as a consequence there is confusion over what economists mean when they talk about inflation. One hears about 'land price inflation', 'housing price inflation', 'food price inflation', 'oil price inflation' and so on. The traditional meaning of inflation⁶ and *the meaning of inflation* that will be used in this paper is that inflation represents a general increase in the price of all goods and services. Economists refer to the price of all goods and services as the absolute price level. Hence inflation is the increase in the absolute price level. When oil prices or food prices increase at a faster rate than other prices this will not be referred to as 'oil price inflation' or 'food price inflation'. Instead, we will say the relative price of food or oil has increased. It is necessary to bear in mind the distinction between the absolute price level and relative prices. When economists talk about prices they do not always make it clear whether they are referring to the absolute price level or to relative prices.

Absolute and relative prices

This confusion between absolute and relative prices leads to confusion about the causes of inflation. The causes of relative price changes always lie in changes in the demand for, or supply of, the particular good or service in question. Oil prices have increased because the producers have formed a cartel and have restricted the supply of oil. It is this phenomenon which is responsible for oil prices increasing relative to the price of other goods. Bad harvests in the recent past have reduced the supply of agricultural commodities and caused the relative price of food to increase. These individual supply and demand factors are responsible for the fact that the price of one commodity has increased relative to the price of another commodity. They do not explain why the price of all commodities has been rising.

Table 1 — Percentage Change in
Consumer Price Index, Canada

Year	Percentage Change in Consumer Price Index*	Average Change for Period
1960	1.3	1.4
1961	.2	
1962	1.6	
1963	1.8	
1964	1.9	
1965	2.9	3.9
1966	3.6	
1967	4.1	
1968	4.1	
1969	4.6	1.5
1970	1.5	
1971	5.0	
1972	5.1	7.9
1973	9.1	
1974	12.4	
July 1974-July 1975	11.0	

*The percentage change in the Consumer Price Index for any year is calculated as the percentage change between the Consumer Price Index of December of that year and the figure for December of the previous year.

Source: Statistics Canada: *Canadian Statistical Review*.

Measuring inflation

If inflation is the increase in the absolute price level, the next question to ask is how does one go about measuring this absolute price level? This problem has been considered for a long time and the conclusion is that there is really no ideal way to measure the absolute price level. The measure of the absolute price level that will be used in this paper is the Consumer Price Index (CPI) compiled and issued monthly by Statistics Canada. The Consumer Price Index is an average of prices of goods and services that the typical Canadian urban family purchases. The rate of inflation will be defined in this paper as the percentage change in the Consumer Price Index. Table 1 presents the rate of inflation in Canada during the last 15 years. The figures in Table 1 do not support the common belief that prices have steadily increased over the last 15 years. In fact one can divide the last 15 or so years into four distinct periods.

1. In the first part of the 1960's from 1960 to 1964 there was, for all practical purposes, no inflation.⁷ The average inflation rate for that period was 1.4 per cent.
2. In the second half of the 1960's, from 1965 to 1969, the inflation rate increased to just under 4 per cent.
3. In 1970, inflation fell back drastically to 1.5 per cent.
4. From 1971 on, inflation has been high and seemingly increasing year by year.

For the past couple of years the Canadian economy has been experiencing double-digit inflation. In response to this high and accelerating inflation rate the government has imposed wage and price controls.

Questions about the causes

What factor or factors have been responsible for this pattern of inflation in Canada during the last fifteen years? It is possible to get many answers to this question since economists have substantial disagreements among themselves on

the causes of inflation. It should be noted that this disagreement exists only with respect to relatively mild rates of inflation (say inflation rates under 20 per cent). For very high rates of inflation⁸ practically all economists would look to excessive growth in the money supply⁹ as the culprit. Because of this debate on the causes of inflation I will consider each theory in turn. For each theory I will first explore the theoretical arguments behind it and then see how well the theory explains the data for the Canadian economy over the last fifteen years. I firmly believe that only one of the explanations of inflation has a strong theoretical underpinning. In addition, this is the only theory that explains the data. I will present this theory at the end. Let me first present the theories that I consider to lack both theoretical underpinning and empirical confirmation.

1. Cost or price-push theories of inflation

This theory of inflation blames either greedy labour unions or greedy businessmen for the inflationary process. Inflation, according to this theory, starts *either* with a labour union negotiating arbitrarily high wages, causing firms to increase their prices, which in turn cause labour to ask for even higher wages and then the whole process is repeated again and again and again, *or* inflation starts with large business firms arbitrarily raising prices causing labour unions to seek higher wages which in turn cause the firms to raise prices even more. Then the whole process is repeated again and again and again. This theory has a number of supporters because it seems to appeal to common-sense and to the way the real world is actually run.

If you were to ask a Canadian businessman why is he raising his prices, he will invariably give you the same answer time and time again. He will explain to you that the prices of all his inputs are rising: the rental price of his office and factory space, the price of machinery and equipment, the price of new materials and the price of labour. The businessman will tell you he is raising his prices because his costs are increasing.

Wages the culprit?

In addition, it is likely the businessman will add that his major costs are wages (in Canadian manufacturing, labour costs represent about 70 per cent of total costs). Hence the major culprit in price increases is wage increases. It is not surprising, therefore, to find large numbers of businessmen who believe greedy workers (or more particularly greedy labour unions) to be the major cause of the inflationary process.

On the other side of the coin, if one were to ask a labour union leader why is he pushing for higher wages, invariably he will give you the same answer time and time again. He will explain to you that his is an elected position. If he doesn't do what the workers want, they will elect someone who will. He will go on to tell you that when workers spend their pay cheques they find the prices of practically all the commodities they buy have increased. The price of food, the price of clothing, the price of transportation, the price of housing accommodations have all increased. They need increased money wages just to maintain the same standard of living that they have been used to. Hence, labour groups blame the inflationary process on greedy businessmen who raise prices and start the wage-price spiral rolling.

Two flaws in the cost-push philosopher's stone

These arguments seem to make sense but have two fatal flaws. One flaw is a mistake that is often made in economics. This mistake is known as the *fallacy of composition*: what is true for the individual is not necessarily true for the community or economy as a whole. Consider the following example. Suppose you were in a crowd watching a parade. It is certainly true that if you were to stand on your toes you could see the parade better. It is not true that if everyone stood on his toes everyone watching the parade could see better. One can not generalize from the individual to the totality of individuals.

It is certainly true that individual businessmen raise their prices because costs increase. It is also certainly true that individual labour unions push for higher wages because the prices of the goods their members buy increase. But

what is true for individual businessmen and labour unions does not represent 'true' causes of inflation for the economy as a whole. Inflation is an increase in all prices, the prices of final goods and services and the prices of factors of production (e.g. the price of labour). It makes no sense to take one subset of these prices and argue that increases in these prices are causing the rest of the prices to increase. To explain inflation one has to explain why all the prices are increasing.

The other flaw in the cost or price-push inflation argument is the theory on which it is based. The theory starts with either big business or big labour arbitrarily raising prices or wages. The theory argues that big business (and by big business they mean firms with monopoly power) or big labour (and again big labour means labour unions with monopoly power) have some discretion in the setting of the prices of the goods and services they sell. It is this discretionary power, it is argued, that allows these groups to arbitrarily raise prices. It is further argued that firms or workers in a competitive environment have no discretionary power in setting prices. They receive whatever prices prevail in the market. They are price takers rather than price makers. Hence it is concluded that it is the existence of monopoly power which is responsible for cost or price-push inflation.

Monopoly power the problem?

Let us consider the argument that monopoly power results in cost or price-push inflation. Price theory tells us that a monopolist (or any other economic actor) will be as greedy as he possibly can. He will attempt to obtain as great a profit as he can. Under most circumstances there is a unique price that will maximize the profits of a monopolist. If a price higher than this is charged, sales will fall off causing revenues to decline at a faster rate than costs decline and hence causing a decline in profits. Let us assume there is a greedy monopolist who is charging a price that maximizes his profit. What discretionary power does he have? If he changes price in any direction, profits will fall off. If nothing else changes, our greedy 'friend' will not change his price. Similarly, labour unions enjoying government-sanctioned

monopoly power will not arbitrarily raise wages.† To do so would be against their best interest.

It is possible to make a case for monopolists of either kind raising prices. If for some reason they didn't charge the monopoly price in the previous period it would make sense to raise prices in the current period. This argument isn't too appealing since it implies that a rather 'stupid' monopolist suddenly wakes up to the fact that he has unused market power and begins to use it. Another possibility is that the extent of monopoly power (in either the business or labour sector) increases. This will cause profit maximizing monopolists to raise their prices. Even this argument can not explain inflation in the economy as a whole. Increasing monopoly power will result in higher relative prices in the monopolized sector of the economy. These higher prices result from reductions in the supply of the monopolized product. The monopolized firms will thus employ fewer resources. These resources will flow to other industries causing wages and prices to fall there. There will be no general inflation. The existence of monopoly power (or increasing monopoly power) affects relative prices but not the absolute price level. What is true about monopoly power is that monopolists restrict supply and cause a higher price to prevail in the market than would be the case if the market were competitively organized. Monopoly power can be responsible for a higher relative price in the monopolized sector; it is not responsible for higher rates of increase in prices in the monopolized sector.

Does greed explain inflation?

It can be seen that there is no theoretical support for cost or price-push inflation. Is there any empirical support for this view of inflation? Let us go back to Table 1 and consider in-

†Editor's Note: Strictly speaking, monopoly situations in either labour or commodities can only arise to the extent that government provides the monopolist with the exclusive right to supply the commodity or service. Monopoly market power is effectively implemented by control over the supply of the commodity or service. For example, in the case of unions, the 'closed shop' provision gives the union exclusive power over the supply of labour services to unionized firms. Given the need that firms have for labour services, unions can control wages by changing the supply of labour services.

flation rates in Canada for the last 15 years. Can one use cost or price-push inflation to explain this pattern of inflation?

From 1960 to 1964 where were the greedy businessmen and greedy labour union leaders? Did they just learn to be greedy in 1965? Were they unaware from 1960 to 1964 and suddenly realized their monopoly power in 1965? Did they lose their greed again in 1970? All this seems highly unlikely. What one realizes immediately is that cost-push or price-push theories can not explain periods of stable prices. This theory can not explain periods of deflation. In the Great Depression in Canada the price level fell significantly from 1929 to 1933. Where were the greedy businessmen and greedy labour union leaders then? As can be seen, the existence of monopoly power can not explain the price inflation behaviour in Canada of the last 15 years. Studies by the Prices and Incomes Commission in Canada¹⁰ and Philip Cagan¹¹ in the United States failed to find a relationship between the pattern of price change and monopoly power that is predicted by cost or price-push theories.

Consider the sophisticated version of cost and price-push theories. This version contends that increasing monopoly power of business and labour unions causes inflation. For this to explain Canada's recent experience with inflation, monopoly power had to be increasing from 1965 to 1969, fall drastically in 1970 and then steadily rise from 1971 on. Although measures of monopoly power are difficult to come by, it is highly unlikely that monopoly power could fluctuate enough to explain periods of deflation, periods of stable prices and periods of inflation.

On the basis of the above discussion one would have to conclude that there is no theoretical or empirical basis for a belief in cost or price-push theories of inflation.¹²

2. Sociological theories of inflation

Sociological theories of inflation are very similar to cost or price-push theories. They make no pretense of having any theoretical foundations whatever. They blame inflation on the greed of economic units. They argue that inflation is the result of everyone trying to obtain a bigger share of the income pie. Since it is impossible for everyone to get a bigger share, inflation results. These theories do not consider how

prices and wages are determined in a market economy. They merely state that inconsistent demands of various groups in the economy result in inflation. These theories can blame almost anyone and everyone for inflation.

Since they do not blame the government for inflation, many governments espouse these theories. For example, it would appear that the present Canadian government believes in this theory. In Prime Minister Trudeau's address to the nation explaining the imposition of wage and price controls he stated that

“the basic cause of inflation in Canada is the attempt by too many people and too many groups to increase their money incomes at rates faster than the increase in the nation's wealth”.¹³

The problem with the sociological theories of inflation is that they seem only to explain those periods in history characterized by rising inflation. No one invokes these sorts of theories to explain slow downs in the economy or even periods of relative stability. Perhaps the reason these theories are not used to explain deflation — falling prices or prices growing more slowly — is that the explanation is fundamentally implausible.

If we use this theory to attempt to explain the last fifteen years of Canada's inflation record we find ourselves asserting what seem to be absurd sorts of behaviour. For example, we might find ourselves saying the following sorts of things: from 1960 to 1964 inflation grew at a modest rate — less than two per cent — owing to the fact that Canadian greed on average, grew at the modest rate of 5 or 6 per cent per year (the average rate at which the income pie grew). However, greed took a nasty turn in the 1965 to 1969 period as greedy workers and greedy capitalists fought for a limited income pie and as a result the inflation rate — reflecting the increased greed — rose to 4.1 per cent. 1970 was, however, a year of brotherly love and saw the inflation rate fall back to the two per cent range. 1970 proved a brief respite in the greed surge, however, and currently the inflation rate, fueled by a seemingly unlimited growth in greed, is at record levels.

It is truly difficult to have much confidence in a theory that asserts that a characteristic of a population such as greed could be so changeable from one year to the next. It

simply is not plausible that people would be very greedy one year and not at all greedy during the next year only to change again in the following year. Apart from this basic implausibility, greed is not capable of explaining an increase in all prices as was demonstrated in the preceding section.

The cause for inflation, it seems, is not likely to be found in a 'witch-hunt' for greedy people. The greed theory doesn't seem to explain past rates of inflation.

3. Phillips Curve theory of inflation

In the 1930's and 1940's, economists devoted most of their attention to the unemployment problem and hardly considered the problem of inflation at all. One reason for this is that many economists believed that as long as there was unemployment, inflation could not exist.¹⁴ In the 50's and 60's, inflation existed in a number of countries with substantial unemployment. Economists then turned to the task of explaining the co-existence of inflation and unemployment. The relationship between inflation and unemployment became known as the Phillips Curve.¹⁵

The relationship between inflation and unemployment was explained by Phillips in the following economic argument. When unemployment was very high, unemployed workers would compete for jobs and bid wage rates down. When unemployment was very low, firms would compete in their search for workers and bid wages up. It was argued that the percentage change in the wage rate was negatively related to the unemployment rate. The lower the unemployment rate the higher would be the percentage increase in wages. It is then argued that when wage rates are bid up, firms will have higher costs and will increase prices. Hence, the lower the unemployment rate the higher would be the percentage increase in wages and the higher would be the percentage increase in prices.

The trade-off

The Phillips Curve seemed not only to explain the *co-existence* of inflation and unemployment but also the *trade-off* between inflation and unemployment. This theory claimed that the only way an economy could move to a position of lower inflation would be to accept a position of higher

unemployment. The Phillips Curve hypothesis argues that a proximate cause of inflation is unemployment. A lower rate of unemployment implies a higher rate of wage and, ultimately, price inflation.

Fooling all the people all the time

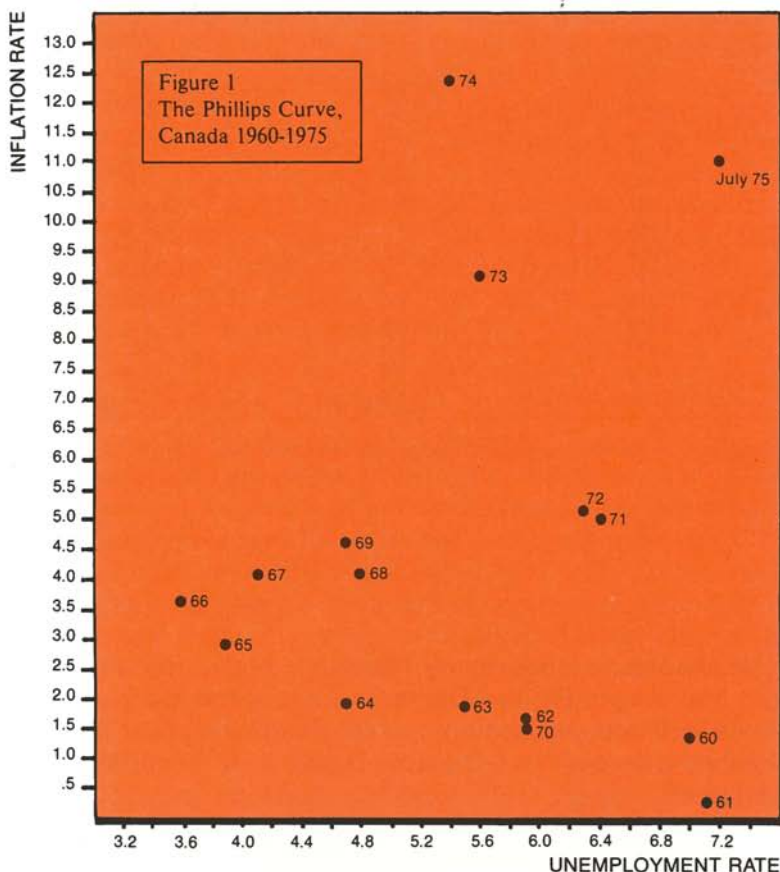
This theory seems to make a lot of sense but it too has one fatal flaw. The theory assumes that workers care about the dollar amount of their wages (i.e., the number of one dollar bills they receive in exchange for their labour) rather than the amount of goods and services that their wages can purchase (i.e., their real wages). If money wages double and the prices of all goods and services double, would anyone expect workers to supply more labour? The answer should be that when, and it may take some time, workers fully realize that all prices have doubled¹⁶ they will recognize the fact that they are not any better off with their higher money wages. Hence, they will not accept new offers of employment and hence the unemployment rate will not fall when the inflation rate increases. People are not long fooled by higher money wages especially in inflationary climates (i.e., workers do not suffer from money illusion).†

There is no theoretical support, apart from assuming that workers are easily fooled and suffer from money illusion, for a stable lasting relationship between the inflation rate and the rate of unemployment. (In a subsequent section I explore the notion of a temporary relationship of this form.) A Phillips Curve-type relationship could be derived between percentage changes in the real wage rate (where the real wage rate is defined as money wages deflated by the absolute price level) and the unemployment rate. But the theory would tell us nothing about inflation. A knowledge of what is happening to real wages in no way enables one to predict what is happening to the inflation rate.

†Editor's Note: In short, as Abraham Lincoln said, "You (politicians) may fool all of the people some of the time (*periods of inflation*); you (politicians) can even fool some of the people all the time (*unfortunately*); but you (*politicians*) can't fool all of the people all of the time" (*sustained inflation*).

Confronting the Phillips Curve

Let us now see if Canadian experience (presented in table 2) of the last fifteen years conforms to a Phillips Curve explanation. From 1961 to 1966 unemployment rates steadily



Source: Statistics Canada, *Canadian Statistical Review*

fell in Canada and the inflation rate exhibited a gradual rising pattern over this period. These years agree with the traditional Phillips Curve pattern. From 1967 to 1972 unemployment rates exhibited a rising trend but so did inflation rates. From 1973 to mid-1975 once again rising unemployment was accompanied by rising inflation. The

Table 2 — Inflation and Unemployment Rates.
Canada 1960-1975

Year	Percentage Change in Consumer Price Index	Unemployment Rate
1960	1.3	7.0
1961	.2	7.1
1962	1.6	5.9
1963	1.8	5.5
1964	1.9	4.7
1965	2.9	3.9
1966	3.6	3.6
1967	4.1	4.1
1968	4.1	4.8
1969	4.6	4.7
1970	1.5	5.9
1971	5.0	6.4
1972	5.1	6.3
1973	9.1	5.6
1974	12.4	5.4
July 1974-July 1975	11.0	7.2 (July 1975)

Source: Statistics Canada: *Canadian Statistical Review*.

Canadian experience clearly rejects the notion that there exists any simple Phillips Curve and any stable trade-off between inflation and unemployment. It would appear that the Phillips Curve is not a fruitful place to look for the cause of inflation.

4. Expectations theory of inflation

There are those who argue that 'expectations' of inflation are the main cause of inflation. It is claimed that if only people didn't expect inflation then inflation would disappear by itself. The problem with this theory is that it doesn't explain why people all of a sudden started to expect inflation in the mid 1960's. The answer is that people expect inflation when there is inflation. Expectations of inflation are an effect of the inflationary phenomenon, not a cause. When inflation ends, inflationary expectations disappear.

5. Profiteering theory of inflation

Since the time of Diocletian, nearly 1700 years ago, inflation has been blamed on profiteers and speculators. In a way, this theory is similar to price-push inflation. But rather than blaming producers of goods and services for the inflation, this theory tends to blame greedy middlemen who buy goods at a 'low' price and sell them at a 'high' price without in any way altering the basic character of the goods.¹⁷ The same criticisms against price-push inflation apply here. Middlemen may be responsible for higher relative prices of the commodities in which they deal but there are no theoretical arguments that they are responsible for a higher rate of increase in the prices of commodities. In a practical vein, is a period of price stability to be explained by a fall in the greed of middlemen? It appears that one cannot look to greedy middlemen for the cause of inflation.

6. Monetary theory of inflation¹⁸

Up to now we have rejected on theoretical grounds and on the basis of a casual review of the facts, five theories of inflation. Let us now consider a theory that has strong theoretical underpinnings and even stronger empirical support. The monetary theory of inflation argues that inflation is at all times and in all places a monetary phenomenon. This theory is not a new theory; it has certainly stood the test of time. It is at least 500 years old. It was first used to explain the inflation Spain experienced in the sixteenth century after the Spanish conquerors brought substantial amounts of gold back from the Americas. It is the theory that most economists advocate to explain periods of very rapid price rise or hyperinflation. I will argue that this theory, which explains periods of rapid inflation, also explains periods of mild inflation.

What the theory says

The monetary theory of inflation argues that when the money supply is increased at a rate faster than the rate of growth of real output in the economy then inflation will occur. The inflation rate may be approximated in the first instance by the rate of growth of the money supply minus the rate of growth of output. The term 'approximated' is used

above for a number of reasons. In the short-run, other factors (such as fiscal policy) may temporarily affect the inflation rate. In addition, as in most economic relationships, there are lags between the time when the money supply (or its rate of growth) changes and when the absolute price level (or the inflation rate) changes. These lags can be as short as a few months or as long as a couple of years.¹⁹ Also, high rates of inflation set up a predictable chain of forces which alters the relationship between money supply growth and the inflation rate. With these provisos aside, the monetary theory of inflation argues that substantial increases in the rate of growth of the money supply always lead to substantial increases in the inflation rate and that inflation will never end unless the excessive growth in the money supply is stopped. It will be noted that this theory is capable of explaining periods of stable prices and even periods of deflation.

Too many dollars

The basic logic behind this theory is that money performs a service for the people who hold it. Money facilitates exchange; that is, as compared to a barter situation, money reduces the nuisance costs involved in buying and selling. Because of the services that money yields, individuals in the economy maintain money balances. The amount of money balances individuals desire to hold is determined by several factors — principally the individual's income. In the Canadian economy in mid-1975 Canadians, according to the Bank of Canada, were on average holding money balances (including savings deposits) equivalent to about 19 weeks of income. This means an individual making \$100 per week would have in cash on hand and deposits in the bank about \$1900.

To illustrate how this theory works imagine, for simplicity, an economy where the output of goods and services is fixed (i.e., output is not growing).† Let us further imagine the situation in this economy if the government were to print more money and give it in equal amounts to every Canadian as, say, a Good Canadian Award. In-

†Editor's Note: The Canadian economy during the first half of 1975 closely resembled this case — output of goods and services fell slightly.

dividuals in the economy would soon find that they were holding money balances in excess of their desired holdings (e.g., our individual earning \$100 per week might be holding \$2100 in money balances — 21 weeks of income in money balances rather than the desired level of 19 weeks of income in money balances). What will people do with excess money balances?† The monetary theory of inflation argues that people will not put these excess money balances under their mattresses. Ultimately, individuals will attempt to spend these excess cash balances on goods and services.

Everyone in the economy has excess cash balances and everyone is attempting to increase his purchases. But we have supposed that the quantity of real output is fixed. Everyone can not obtain more goods and services. Everyone attempting to do so will merely drive all prices up. Hence an increase in the money supply with the quantity of output fixed leads to an increase in the absolute price level. One can easily modify the above example for the case of a growing economy. In such a case if the money supply increases at a faster rate than output is increasing, inflation results.

The above represents a brief and simplified summary of the monetary theory of inflation. To arrive at its conclusions the monetary theory of inflation did not have to assume that individuals in the economy were either stupid, easily fooled, irrational or suffering from money illusion. The monetary theory of inflation is derived using the traditional tools of economics.

Theory applied - four Canadian episodes

Table 3 presents figures for the rate of growth of the money supply, rate of inflation and rate of growth of real output for the last 15 years in Canada. To put these figures in proper historical perspective it should be noted that from 1926 to 1966 the rate of growth of the money supply in Canada averaged about 6 per cent per year, the rate of growth of real

†Editor's Note: Of course, people may decide to simply keep the excess cash. In the same vein, people may, for some reason, decide that they should keep 14 or 22 weeks of income in the form of cash or deposits. The theory being discussed here does not preclude these possibilities. It says, rather, that there is a strong element of habit built into people's behaviour and that people's attitude toward their cash holdings is unlikely to change unless there is a change in their basic economic circumstances.

Table 3 — Inflation, Money Supply Growth and Rate of Growth of Real Output, Canada 1960-1975

Year	Percentage Change in Consumer Price Index	Average for Period	Percentage Change in Money Supply*	Average for Period	Rate of Growth of Real Output	Average for Period
1960	1.3		4.6		2.9	
1961	.2	1.7	8.6	6.2	2.9	4.9
1962	1.6		3.8		6.8	
1963	1.8		6.4		5.2	
1964	1.9		7.4		6.7	
1965	2.9	4.1	12.0	11.9	6.7	5.7
1966	3.6		6.5		6.9	
1967	4.1		15.9		3.3	
1968	4.1		13.3		5.8	
1969	4.6	7.9	3.9	15.0	5.3	5.3
1970	1.5		10.8		2.6	
1971	5.0		14.9		5.8	
1972	5.1		15.9		5.8	
1973	9.1	12.4	18.3	16.8	6.9	2.8
1974	12.4		16.8		2.8	
July, 1974-July, 1975	11.0		17.1		-1.3†	

*Money supply is defined as the sum of currency in circulation outside banks plus all Canadian dollar deposits privately held.

†Output growth rate is for second quarter 1975 over second quarter 1974.

Source: Statistics Canada: *Canadian Statistical Review*.

output averaged about 4 per cent per year and the rate of increase of prices averaged about 2 per cent per year.²⁰ The first thing to note is that for this long period in Canadian history the monetary theory of inflation provided a fairly accurate prediction of the inflation rate. Previously it was argued that the monetary theory of inflation is not a mechanical formula for predicting inflation. In the short-run, the inflation rate will not exactly equal the rate of growth of the money supply minus the rate of growth of output. For this reason let us look at sub-periods of the last 15 years in Canada and see what was happening to money and prices. In looking at the last 15 years we can find four sub-periods each with a distinct monetary policy.

Sub-period one

From 1960 to 1964, the money supply grew at an average rate of 6.2 per cent per year. This figure is approximately equal to the long-term average growth in the money supply (i.e. the average growth rate in money from 1926 to 1966). One can label this period as one of moderate monetary expansion. With moderate monetary expansion in the early 60's the Canadian economy experienced a moderate increase in the price level in that same period.²¹ From 1961 to 1965 the inflation rate averaged 1.7 per cent. With moderate monetary expansion, Canada experienced practically no inflation. However, this moderate policy turned out to be short-lived.

Sub-period two

In the latter part of the 1960's monetary policy took a sharp swing upward. From 1965 to 1968 the Canadian government was following an expansionary monetary policy allowing the money supply to grow on average 11.9 per cent per year. The monetary theory of inflation would predict that this expansionary monetary policy would lead to inflation. This is exactly what happened. From 1966 to 1969 the inflation rate averaged 4.1 per cent. Increases in the rate of growth of the money supply led to increases in the inflation rate.

Sub-period three

At the beginning of 1969 the Canadian government started to get worried about the economic consequences of inflation and decided to do something about it. From March 1968 to March 1969 money supply growth reached a peak rate of growth of 17.1 per cent. From March 1969 to March 1970 there was a complete turnaround in monetary policy. During this period the money supply grew only 0.3 per cent per annum. This contractionary monetary policy led to a fall in the inflation rate (and in addition to the recession of 1970).²²

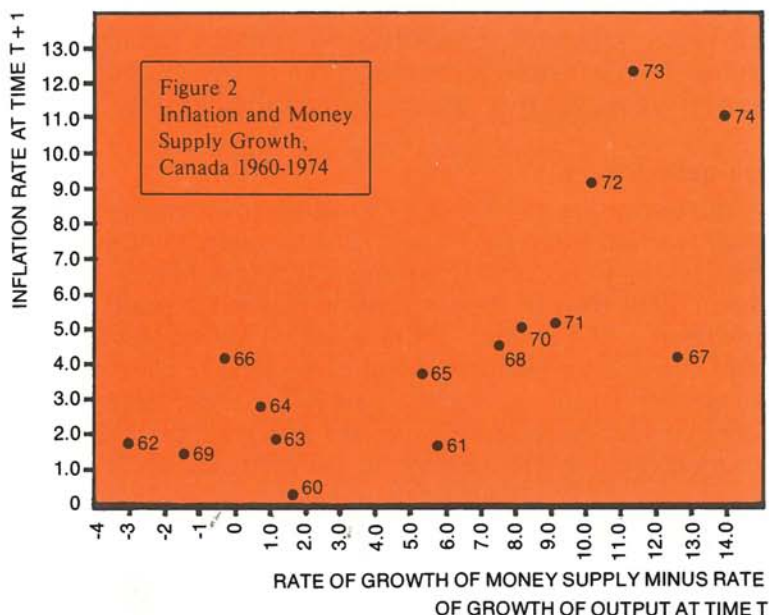
Sub-period four

From April 1970 to the present, Canada has experienced very high rates of growth of the money supply. Money supply growth reached a peak in excess of 18 per cent per year

and averaged about 15 per cent per annum for the first four years of the 1970's. This figure should be compared to the 6 per cent long-term average growth rate in the money supply. High growth rates in the money supply inevitably led to high rates of inflation. From 1971 to 1974 inflation averaged 7.4 per cent per year and reached into double-digits in the last part of this period.

The last fifteen years of Canadian experience have (unfortunately) provided a very good set of 'experiments' to test the monetary theory of inflation. *With moderate monetary growth there was no inflation in Canada. With expansionary monetary growth there was relatively mild inflation. When the monetary growth rate fell, the inflation rate fell. When monetary growth rates reached into the sky, Canada experienced double-digit inflation.*

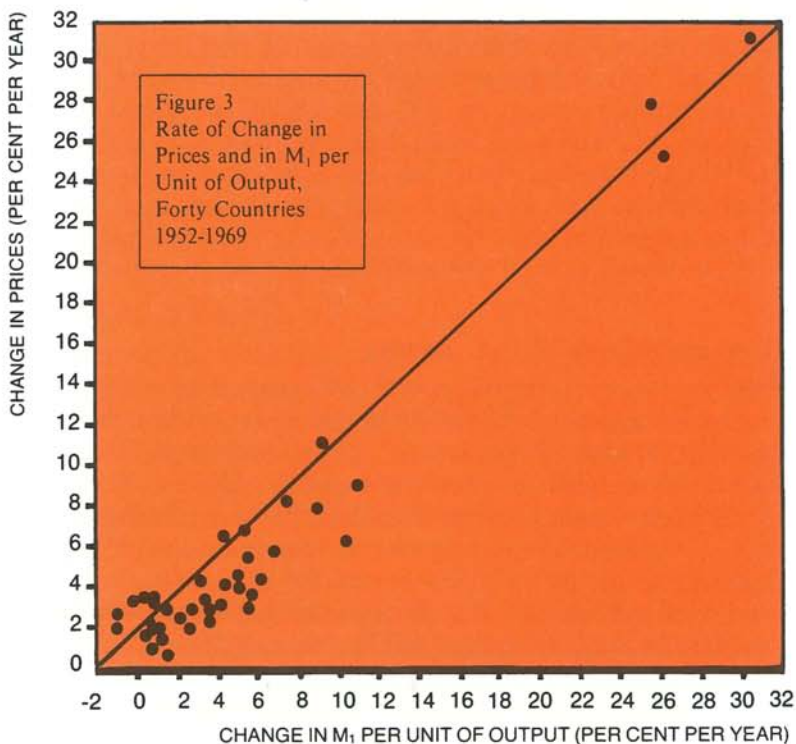
At the end of the period of moderate monetary expansion in 1964 the money supply was growing at 7.4 per cent per annum and prices were increasing at 1.9 per cent. By mid-1975 money supply growth had increased by 9.7 percentage points and the inflation rate had increased by 9.1 per-



Source: Statistics Canada, *Canadian Statistical Review*

centage points. These last 15 years of data are consistent with the monetary theory of inflation. This is the only theory up to now which can adequately explain this period in Canadian history.

Although it is not as meaningful to look at year by year changes, Figure 2 plots for Canada values for the rate of growth of the money supply minus the rate of growth of output against the rate of inflation for the following year. It can be seen from this chart that, in general, as money supply growth increases, inflation increases. Empirical support for the monetary theory of inflation not only exists for Canada over the last 15 and the last 50 years, support also exists for this theory using the data from a large number of countries.



Source: Anna Schwartz, "Secular Price Change in Historical Perspective," *Journal of Money, Credit and Banking*, February 1973.

Global evidence

Anna Schwartz²³ has examined the rate of growth of money in excess of the rate of growth of output for the period 1952 to 1969 in 40 countries and has compared these figures to the rates of inflation in these countries. Anna Schwartz's data are plotted in Figure 3. Again, one can see how closely these data conform to the monetary theory of inflation. With this evidence it is not hard to see how an economist like Milton Friedman concludes that "inflation is always and everywhere a monetary phenomenon."²⁴

Why increase the money supply?

The monetary theory of inflation identifies the money supply as the proximate cause of inflation. It does not concern itself with the reasons why the Federal government manipulates the money supply in the way it does.²⁵ In looking at recent Canadian experience it is natural to ask the question why the government increased the rate of growth of the money supply in the mid-1960's? Previous to that Canada followed a sensible, moderate monetary policy. To understand the answer to the above question one has to understand the nature of international linkages under which Canada operates and the nature of the fixed exchange rate regime which existed in Canada from 1962 to mid-1970.

The crucial role of U.S. dollars

Foreign trade is very important to Canada. Exports (spending by foreigners on Canadian goods and services) generally account for about 25 per cent of total spending (or Gross National Expenditure) in Canada. The United States of America is Canada's largest trading partner. About 70 per cent of Canadian exports go to the United States. What was happening in the United States in the 1960's? In the mid-1960's the rate of growth of the money supply started to increase in the United States. (One can ask the question why the U.S. money supply started to increase. One contributing factor may have been America's increasing involvement in the Vietnam War. Historically, wartime expenditures have been financed by the government printing money. It is for this reason that wars are associated with inflationary

periods.) The increase in the U.S. money supply resulted in inflation in the U.S. economy. U.S. inflation increased relative to Canadian inflation. With prices rising faster in the U.S. than in Canada, Americans found Canadian goods more attractive and Canadians found U.S. goods less attractive. This tended to increase Canadian exports to the U.S. and decrease Canadian imports from the U.S. — a trade pattern which had implications for the Canadian money supply.

Whenever Canadians export to the U.S. they earn a supply of foreign exchange (i.e. U.S. dollars) and whenever they import from the U.S. they use up foreign exchange. Rising Canadian exports and falling Canadian imports imply an increase in the supply of foreign exchange and a decrease in the demand for foreign exchange. With the price of foreign exchange (i.e. the exchange rate) staying constant there will be an excess supply of foreign exchange. In free markets when excess supplies exist the price will fall to restore a balance in supply and demand. The price in the exchange market could not adjust in the 1960's since Canada was on a system of fixed exchange rates. For Canada this meant that the Canadian government was responsible for maintaining a fixed price of the U.S. dollar in terms of the Canadian dollar.

Imported inflation?

To maintain the fixed price of the U.S. dollar, the Canadian government in the mid-1960's was forced to purchase the excess supply of U.S. dollars. The Canadian government purchased these U.S. dollars with newly-printed Canadian dollars. Hence the Canadian government was forced to increase monetary expansion. One of the lessons of fixed exchange rates is that under them a country can not run an independent monetary policy. Canada should not blame the inflation of the late 1960's on the U.S. but on the nature of the exchange rate system. Canada could have avoided increasing monetary expansion if it had chosen a system of floating exchange rates (i.e. a system where the price of foreign exchange adjusts whenever there is excess supply or demand rather than a system where the government intervenes to prevent price movements).

Biting the bullet

In 1969 the Trudeau government desired to end inflation. *At that time the government knew where the blame for inflation lay.* It didn't stop greedy businessmen or greedy labour unions from acting in their own self-interest. *It stopped the printing presses* instead. Such action is very difficult under a fixed exchange rate regime. In April and May of 1970 the money supply in Canada grew at very large rates. I believe it was the desire to maintain a policy of 'tight' money²⁶ that convinced the government to abandon fixed exchange rates and adopt a system of floating exchange rates. The irony of the situation is that Canada adopted floating exchange rates in order to maintain a policy of minimal monetary growth. However, the resulting recession in 1970 was more severe than the government had expected. It seems that because of this, Canadian monetary policy turned around again in 1970. Since mid-1970 the money supply has been growing at very high annual rates; rates inconsistent with price stability; rates consistent with double-digit inflation.

Once burnt

One postscript should be added to this story of Canadian monetary policy. It has significance in answering the question why a reduction in monetary growth was not used to fight inflation in 1975 but instead comprehensive wage and price controls were imposed on the economy. In 1972 the Trudeau government fought an election and almost lost. The Liberals lost their parliamentary majority and received the smallest of pluralities. It seems that this Liberal near-defeat was interpreted by the Trudeau government as a repudiation of its 'tight' money policy of 1969 which resulted in high unemployment in 1970. It seems the government has learned its lesson. From its actions it would appear that the Trudeau government has foresworn the only effective tool in fighting inflation, i.e. reducing monetary growth. It would appear that the Trudeau government views that the political costs of reducing monetary growth are too high to warrant such action.

World-wide excess

The story that has been told of Canada in the last half of the 1960's could be told again and again for countries such as France, Germany, Japan and many others. With rising U.S. inflation rates in the 1960's these countries exported more to the U.S. and imported less from the U.S. They all faced excess supplies of U.S. dollars. They all were on a fixed exchange rate system. France bought up their excess supplies of U.S. dollars with newly- printed francs. Germany bought up U.S. dollars in exchange for newly-printed marks. The same sequence of events caused the Japanese to print more yen. The nature of the fixed exchange rate regime forced increases in money supplies in response to the U.S. increase in its money supply. This resulted in world-wide inflation. The monetary theory of inflation is not only capable of explaining inflation in Canada but it also explains the world-wide inflation of the late 1960's and early 1970's.

7. Government expenditure theory of inflation

It is sometimes argued that whenever government expenditures exceed government revenues this puts inflationary pressure on the economy. In one sense this theory can be viewed as a refinement of the monetary theory of inflation. Government expenditures can be financed in one of three ways: from tax revenues, from borrowing from the public (i.e. issuing government bonds) or by 'printing' money.²⁷ If government expenditures in excess of revenues are financed through money issue then inflationary pressure will result. The theory viewed in this way becomes an adjunct to the monetary theory. It answers the question why the money supply increases when it does.

There are those who argue that government deficits (i.e. expenditures in excess of revenues) no matter how financed will result in inflation. They argue that continual government deficits result in permanent inflation. The theory behind this argument lies in the proposition that government expenditures on goods and services add to the overall demand pressures in the economy. This increase in aggregate demand results in an increase in the price level. There

would be no quarrelling with this argument in the case where deficits were financed by money issue. However, consider the case where deficits are financed by government borrowing. When the government borrows from the private sector, the ability of the private sector to maintain its level of consumption has correspondingly been reduced. Government demand has gone up and private demand has decreased. There is no reason why total demand need increase and why the price level should rise.²⁸

Table 4 presents recent inflation rates and levels of balance in Canada's Federal government budget. A casual look at the table will show that inflationary periods have existed with both government surpluses, and government deficits. Looking at figure 4 will also convince one that money supply growth is not determined solely by the level of government deficits or surpluses. Periods of surplus have existed with

Table 4 — Inflation and Federal Government Surplus or Deficit, Canada 1960-1975

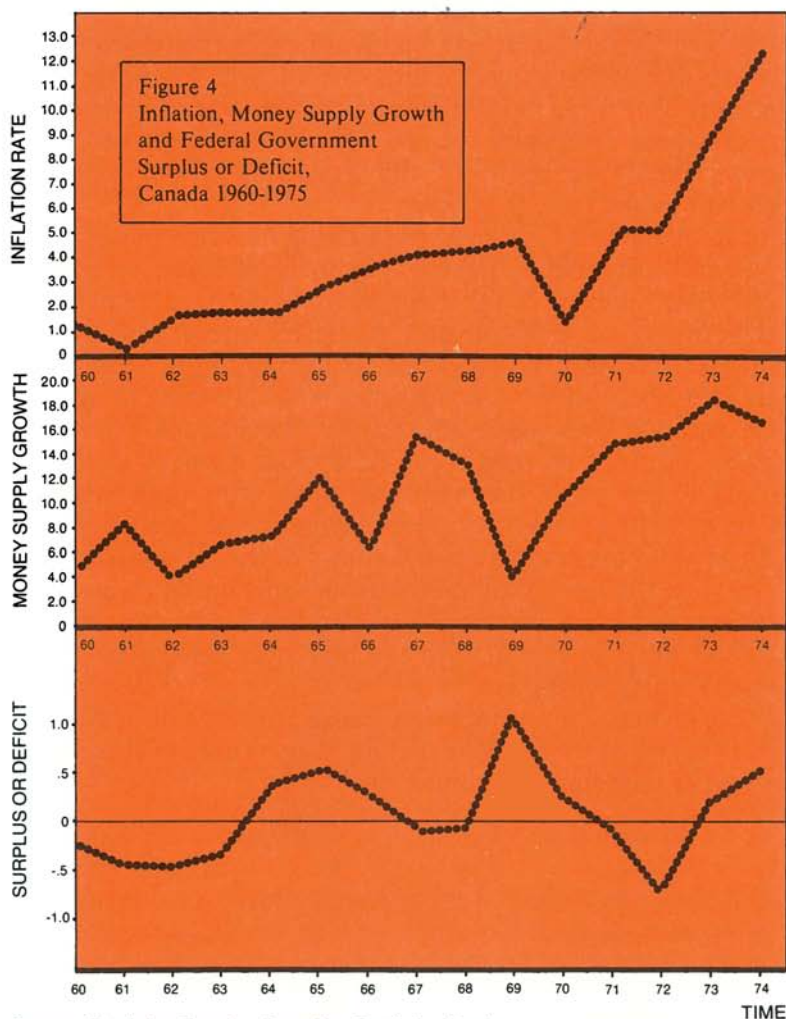
Year	Percentage Change in Consumer Price Index	Federal Government Surplus (+) or Deficit (-) ^a
1960	1.3	-.229
1961	.2	-.410
1962	1.6	-.507
1963	1.8	-.285
1964	1.9	.337
1965	2.9	.551
1966	3.6	.294
1967	4.1	-.085
1968	4.1	-.033
1969	4.6	1.021
1970	1.5	.264
1971	5.0	-.095
1972	5.1	-.701
1973	9.1	.222
1974	12.4	.593
July 1974-July 1975	11.0	-5.265 ^b

a) Surplus or deficit is measured on a national accounts basis in billions of dollars.

b) Second quarter figures seasonally adjusted at annual rates.

Source: Statistics Canada: *Canadian Statistical Review*.

high rates of growth of the money supply. The evidence would seem to indicate that the state of the government balance alone is not capable of explaining inflation in Canada over the last 15 years.†



Source: Statistics Canada, *Canadian Statistical Review*

†Editor's Note: The correlation between the money supply (and hence the inflation rate) and the government deficit measured on a cash requirement basis would be much closer than this analysis suggests. The cash requirement is probably a more meaningful measure of deficit since it includes all expenditures and revenues of the federal government.

Labelling the theories

Before leaving the subject of inflation one postscript should be added. Most textbooks in economics distinguish between two types of inflation: demand-pull and cost-push. This distinction has not been made here since not only do I not view this as a useful dichotomy but also I think it leads to much confusion on the subject matter of inflation. I believe there is only one type of inflation. Inflation is anywhere and everywhere the same disease. Inflation is anywhere and everywhere the result of the same cause: an excessive growth in the money supply.

For those accustomed to thinking in terms of demand-pull and cost-push let me try to apply these labels, where appropriate, to some of the theories discussed here. The monetary theory of inflation and the government expenditure theory may both be classified as demand-pull. They both concern themselves in some sense with an excess of aggregate demand over aggregate supply. The Phillips Curve explanation may be considered as a cross between demand-pull and cost-push. It contains elements from both theories. One can either view the unemployment rate as a proxy for the level of excess aggregate demand in the economy or one can view the unemployment rate as some crude measure of monopoly power of labour unions. The other theories discussed here do not fit into the nice neat categories of demand-pull or cost-push.

The main proposition that arises from the discussion in this section of the paper is that inflation is always and everywhere a monetary phenomenon.

III. INFLATION AND WAGE AND PRICE CONTROLS

In the previous section we concluded that there was no basis for the belief that greed in general, or greed in particular on the part of business or greed on the part of labour, had anything whatever to do with the problem of inflation. It was concluded that inflation was caused by excessive growth in the money supply. This being the case one can immediately

see that wage and price controls do nothing to combat the basic cause of inflation.²⁹ Wage and price controls attack the symptoms of inflation without doing anything about its basic cause. The arguments advanced to support the position that wage and price controls reduce inflation depend crucially on the existence of cost or price-push inflation. Since there is no support for these theories of inflation there is no theoretical support for the proposition that wage and price controls will reduce the true rate of inflation.³⁰

Two studies in this series examine the operation of economies under wage and price controls. Michael Darby in examining the U.S. economy in the 1970's under wage and price controls concludes that "the major direct effect of the Economic Stabilization Program (ESP) was to impart a significant bias to price indices such as the average price of total National Expenditure. . . . When the data are corrected for quality changes, only Freeze I was 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 of 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."³¹ Darby finds no evidence that wage and price controls in the U.S. reduced the inflation rate for the period 1971 to 1975. Michael Parkin in examining the British experience with controls concludes that "whatever their superficial attractiveness, they simply do not work. They do not control inflation".³² This view is consistent with an earlier study of Lipsey and Parkin where they concluded that for Britain ". . . the data are not inconsistent with the view that wage and price restraints have usually been ineffective in restraining inflation. . . ."³³

There is no theoretical basis for the belief that wage and price controls reduce the inflation rate and all recent experiences with controls seem to confirm this theoretical conclusion.

An argument for controls

If wage and price controls don't reduce the inflation rate why then are they enacted? The arguments in support of U.S. controls were not based on the premise that controls

would reduce inflation. Similarly, when the Prices and Incomes Commission in Canada recommended, in 1972, compulsory wage and price controls they did not do so because they believed controls would reduce inflation. The Prices and Incomes Commission specifically disavowed cost or price-push inflation, the one possible theory capable of supporting the proposition that controls reduce inflation.

“The Commission’s view that a temporary program of direct controls over prices, wages and other incomes could be helpful in certain circumstances does not arise from a belief that the root of the inflation-unemployment dilemma lies in the ability of powerful unions and corporations to continue to push up costs and prices regardless of demand conditions”.³⁴

The Commission gave a novel and rather sophisticated argument for the implementation of controls.

The Commission discussed inflation in terms of excess aggregate demand without ever addressing the question of the source of this excess aggregate demand. Without altering any of the substantive points of the Commission’s arguments we will talk in terms of excessive monetary growth as being the source of the excess aggregate demand. The argument then proceeds as follows. To illustrate the argument consider an economy where the money supply is growing at 15 per cent per year, output is growing at 5 per cent per year and the rate of inflation is 10 per cent per year. In addition, suppose this economy has experienced 10 per cent inflation for quite a long period of time. As a consequence everyone expects an inflation rate of 10 per cent. These expectations of inflation are built into all contracts negotiated in this economy.

In any economy, inflation can only be reduced if the rate of growth of the money supply is reduced. Suppose that in our hypothetical economy the growth in the money supply is unexpectedly reduced to 10 per cent per year. Initially the reduction in monetary growth will not lead to a reduction in the inflation rate. In any economy there are some prices and wages which are negotiated on a basis of long-term contracts. These prices and wages will be slow to adjust. Also, wages and prices will be set on the basis of expectations of inflation of 10 per cent. In the short-run, wages

and prices will be rigid (i.e. will be little affected by changes in monetary growth). Consequently, a reduction in monetary growth will lead to a reduction in the rate of real economic activity.

Firms will find that sales are falling short of their expected level and hence they will reduce their rate of output. This in turn will cause the demand for labour to decrease. If wage rates were perfectly flexible, the lower demand for labour would cause lower wage rates. In the short-run wages are not flexible and the reduced demand for labour results in less workers being employed (i.e. results in unemployment). Wages are inflexible in the short-run for the same reason that prices of final products are inflexible. Some wages can not adjust in the short-run since they are negotiated on the basis of one or two year contracts. In addition, workers in setting and negotiating their wage demands assume a 10 per cent inflation rate. With the new lower demand for labour in the economy, wage demands by workers, incorporating a 10 per cent premium for expected inflation, will prove too high for all workers to find employment. As a consequence, unemployment will result.³⁵

This unemployment is, however, only temporary. Eventually old contracts expire and new prices and wages will be negotiated and these new prices and wages will be more in line with the new, reduced rate of monetary growth in the economy. Since expectations about future inflation are based largely on the current and past behaviour of inflation in the economy, as the inflation rate falls, gradually expectations of inflation will also fall. With a fall in expectations of inflation, wage demands of workers will be reduced and more workers will find employment. Unemployment will fall. Full employment will occur when expectations of inflation are revised down to the equilibrium inflation rate of 5 per cent. One factor which influences the extent and duration of the temporary unemployment is the rate at which expectations of inflation are revised. The faster expectations of inflation are revised, the quicker will wage demands be revised and the less will be the temporary unemployment.

In the short-run, reducing the rate of growth of the money supply results in an increase in the unemployment rate. In the long-run, there is no relationship between infla-

tion and unemployment. (Another way of phrasing this is to say there is a short-run Phillips Curve but no long-run Phillips Curve). These results could be seen very clearly in the performance of the Canadian economy in the late 1960's. We have already seen that from March 1968 to March 1969 the money supply grew at 17.1 per cent. From March 1969 to March 1970 there was a sudden turnaround and the money supply grew at 0.3 per cent. This sudden reduction in monetary growth was responsible for the recession of 1970. Unemployment increased and the rate of growth of output fell. This recession was relatively short-lived; by the end of 1970 the recession had, in fact, ended.

Reducing the cost

One can see that there is a cost to fighting inflation. This cost is in terms of the temporary increase in unemployment that results when monetary growth is slowed. The Prices and Incomes Commission has argued that this economic cost translates into a political cost (losing office) which many politicians view as so high that they are unwilling to fight inflation. Anything which can be found to reduce the costs of fighting inflation should be given serious consideration. The Commission advocated price and wage controls because, they thought, controls reduce the cost of fighting inflation. Wage and price controls alone do not fight inflation. But it is argued that when wage and price controls are introduced along with a policy of slower monetary growth, the inflation rate will be reduced and the resulting temporary increase in unemployment will be less than the unemployment that results when reduced monetary growth is the only policy used.³⁶

Create the illusion

It is argued that the announcement of a policy of comprehensive and mandatory wage and price controls will convince the public that the government is serious in its fight against inflation. In turn, this will lead the public to believe that the government will, in fact, reduce the inflation rate and as a consequence the public will revise downward its ex-

expectations of inflation. When reduced monetary growth is also accompanied by reduced expectations of inflation there will be a reduction in the temporary increase in the rate of unemployment that occurs whenever monetary growth is reduced. In this way wage and price controls reduce the costs of fighting inflation. In the eyes of the Commission, wage and price controls must be introduced along with a policy of reduced monetary growth. "It is our view. . . that temporary price and income controls should only be used as part of a longer-run policy aimed at maintaining underlying demand conditions both during and after the control period consistent with the target rates of increase in average price and income levels."³⁷

Expectations

The arguments of the Prices and Incomes Commission can not be dismissed off hand. They do not depend upon any faulty theoretical framework. The crux of their argument lies in the effect of the announcement of wage and price controls on the expectations of inflation. The crucial question to ask is: why does the announcement of wage and price controls affect expectations of inflation? Wage and price controls do not affect inflation, why should they therefore affect expectations of inflation? It is the reduced growth in the money supply that reduces the inflation rate. If the government desired a positive announcement effect the solution would be easy. The Prime Minister could go on coast-to-coast radio and television and announce that the government was going to follow a policy of reduced monetary growth. If the public believes the government, expectations of inflation will be reduced. This policy would have a tremendous advantage over wage and price controls. It would not entail all the costs of controls. (A discussion of these costs appears in Section IV.) Suppose it is argued that the public does not understand the underlying cause of inflation. Should they associate wage and price controls with reduced inflation? The answer is obviously no. In the previous section we saw that wage and price controls have never been successful in fighting inflation. If they never have worked is it reasonable to believe, that the Canadian public will assume

controls will work now. There is no reason to assume this and no reason to believe controls will reduce expectations of inflation.†

Fooling whom?

In fact, there is some evidence to believe that controls may ultimately lead to higher rather than lower inflation rates. Controls take the government's attention away from the use of monetary policy to fight inflation. If the government is fooled by the illusionary success of wage and price controls they may not feel it necessary to follow a policy of reduced monetary growth. They may thus allow a higher monetary growth rate than they would have if there were no controls. Darby argues that this was the case with the U.S. experience with controls. During and after Phase II, money supply grew at excessive rates and this subsequently resulted in higher rates of inflation in the U.S. economy. If this phenomenon generally occurs when controls are enacted, then controls may result in higher rather than lower expectations of inflation.

The results of this section are fairly straightforward. Controls can not affect the inflation rate. It is highly unlikely that controls reduce inflationary expectations. As a result, controls will not reduce the costs of fighting inflation. Wage and price controls are a policy that yield no substantial benefits to the economy as a whole. The main problem with controls is not their ineffectiveness in dealing with the inflation problem; the main problem lies in the potentially high costs that controls impose on a free market economy.

IV. WHAT PRICE WAGE AND PRICE CONTROLS?

The main problem with controls is that they interfere in a detrimental way with the determination of individual prices³⁸ and wages. How much interference takes place and how much damage is done depends crucially on a number of factors: how comprehensive the control system is, how rigidly the controls are enforced and how monetary policy is behaving while controls are being imposed.

†Editor's note: The study by Professor Michael Parkin in this series concludes, on the basis of experience in the U.S. and the U.K., that "... inflation expectations ... are not influenced by the presence or absence of controls".

First, let us consider the case where controls are imposed along with a policy of reducing the rate of growth of the money supply. Suppose controls allowed prices and wages to increase by 8 per cent per year and the money supply was growing at a rate consistent with 5 per cent inflation. The controls in this case would not matter for most prices. For most goods and services the ceiling increase in wages and prices would be greater than the increase that would be determined by the operation of free markets. As such, for most goods, the controls will not be binding and will not affect the determination of individual prices. However, there will be some goods whose equilibrium prices would increase by more than 8 per cent if free markets were allowed.

In a dynamic economy, demand for, and supplies of, goods and services are constantly changing and therefore relative prices are constantly changing. In an inflationary world this means that some prices will be increasing at rates faster than the economy-wide inflation rate and some prices will be increasing at rates slower than this rate. For those commodities needing price increases greater than 8 per cent, the controls will be binding causing distortion in the allocation of resources and distribution of output. This distortion will be investigated in detail shortly. For now all that needs to be said is that in this case the distortion is likely to be small since controls are only binding for a small number of commodities.

In the case where controls are imposed in conjunction with a policy of reduced monetary growth the costs of the controls are likely to be minor. The question to be asked in this case is what is the purpose of having the controls? It is the reduction in money growth that reduces inflation. Controls offer no benefits and involve minor costs. In this case controls have no *raison d'être*. The reduction in monetary growth is the only useful policy tool.

The Canadian case

Now let us consider the case where excessive monetary growth has caused inflation. Let us assume that in this environment the government imposes binding controls and does not change monetary policy. Before investigating this case it should be noted that it is highly likely that current

Canadian controls will fit into this scenario. In Prime Minister Trudeau's speech to the nation, on October 13, 1975, announcing wage and price controls he emphasized again and again the need for every group in the economy to reduce their money income demands. Nowhere did he state that the monetary policy of the government would change. In fact, he didn't even indicate any significant change in fiscal policy. From this speech it would appear that wage and price controls are the government's sole weapon in its fight against inflation and that the government does not intend to change monetary policy in the foreseeable future.†

For controls to affect individual prices they must be binding: i.e. the controlled ceiling price must be below the price that would be set in the free market. The Canadian control scheme allows wages to increase by 8 per cent per year in the first year of a contract to compensate for inflation. In successive years the allowable wage increases will diminish. With inflation currently running around 11 per cent, and likely to continue at that level for the foreseeable future, Canadian controls will be binding on wage contracts. As time goes on the controls will become more and more severe since allowable wage increases will diminish. Prices under the Canadian scheme will, for a number of companies, be allowed to go up only enough to enable firms to recover increased costs. In this way the dollar amount of profits per unit of output will be frozen. With inflation continuing in excess of 10 per cent per year this fixed dollar amount of profits per unit of output will be worth less and less in real terms. Hence, allowable price increases will be less than would have taken place in the free market. On the whole it would appear that the Canadian control system is binding and will become more and more severe as time goes on. Hence, the following analysis would seem to be relevant for the Canadian case.

†Editor's Note: On September 22, 1975 the Governor of the Bank of Canada, G.K. Bouey indicated that the Bank of Canada intended to pursue a contractionary course. As ever, it was difficult to penetrate the cloud of Bank of Canada-ese in which the message was contained, but the message was certainly there. The key question is whether the government in fact understands and agrees with Mr. Bouey's position.

The matzo ball — fringe benefit syndrome

Let us proceed with the case where binding controls are imposed on an economy following an inflationary monetary policy. The first thing to notice is that controls interfere with the rights of individuals to receive income. Controls attempt to limit wage income, profit income, dividend income and so on. The first response of individuals and firms will be to try to legally evade the controls, where possible. In a number of cases this will be possible. In any transaction there is a large number of dimensions. Price controls only fix price to the quantity of goods. The other dimensions are left free to respond to economic conditions. Quality is one of these dimensions; the imposition of price controls often leads to a deterioration in quality. The imposition of rent controls inevitably causes the landlord to reduce maintenance expense on rented accommodations. Restaurants can easily alter recipes or reduce the size of their portions. Manufacturers can reduce the quality of their product. George Meany claimed that when price controls were introduced in the U.S. a well known manufacturer of matzo-ball soup reduced the number of matzo balls from four to three.† In the U.S. control period service station attendants started charging for putting air in tires and for cleaning windshields.

There are a number of dimensions of wage contracts that can be altered in response to wage controls. Not all fringe benefits are included in wage controls; instead of wage increases firms can increase fringe benefits. The number of hours in the working week can be altered. The number of hours of overtime (at higher rates) can be increased relative to the number of standard hours. Promotions with higher pay are almost always allowed under controls. Firms can make Grade B mechanics Grade A mechanics. Universities can make associate professors full professors.

Round-trip rump roast

Also, under controls, there is always a list of products which are exempt from the controls or there are products on which

†Editor's Note: This allegation was subsequently refuted by Dr. Jackson Grayson, then Chairman of the Price Commission in the U.S., and a contributor to this Fraser Institute series; the point made in the allegation is, nevertheless, well-taken.

the controls are not binding. This being the case, firms can use tie-in sales to get around the controls. They will only sell the controlled item provided the uncontrolled item is purchased too. The total price charged for the package is the price that would have prevailed in the free market. Again firms can attempt to transform items from the controlled list to the uncontrolled list. In the U.S. control system exports of cattle and imports of beef were exempt. As a consequence, U.S. cattle ranchers sold their cattle to slaughterhouses in Canada at free market prices. The slaughtered cattle were then shipped from Canada to the U.S. at free market prices. This device enabled cattle ranchers to sell cattle at prices above the control prices.

As one can see there are a large number of legal ways of getting around the controls. With any new set of controls, I have no doubt that individuals will find new and ingenious loopholes. Canada's new system of controls, I am sure, will provide its own stories of evasion for future generations of economic professors to tell their students.

When controls are evaded, transaction prices for the same quality good will have risen but measured prices will not change. The official statistics will unwittingly underestimate the true inflation in the economy. The controls will merely suppress the symptoms of inflation. Evasion of controls prevents the distortion in allocation of resources and distribution of output that normally comes with controls. The problem is that this evasion is not without cost. It takes ingenuity to figure out ways around the controls. It takes resources to have cattle go on a round-trip journey from the U.S. to Canada. This resource cost is due solely to the imposition of wage and price controls. Without controls these resources would be free to provide additional goods and services.

Shortages and queues

There will be goods and services for which the evasion costs will outweigh the benefits from evasion. For these goods and services the controlled prices will prevail. The controlled price will be less than the price that would exist in the absence of controls. The low control price will encourage consumption and at the same time discourage production of

the good.³⁹ At the low controlled price the quantity demanded will exceed the quantity of the good supplied. Under free markets the price would rise to balance supply and demand or clear the market. As the price rose demand for the good would decrease and supply would increase. The price would rise until the amount of the good people desired to purchase would just equal the amount of the good firms desired to sell. It is in this way that the market clears. Under price controls, however, price can not clear the market. Some other mechanism must be used to ration the existing supply of goods to those desiring to purchase them.

In the absence of other methods, products will be rationed on a first come, first served basis. Not all customers will get the quantity of the goods they want. Shortages will develop. People will line up to purchase goods. Time costs in making transactions will increase substantially. Transactions which formerly were taken for granted will now require substantial amounts of time. The increased transaction time will either reduce time spent in leisure activities or time spent producing goods and services.

A most stunning example of queues comes from the recent U.S. experience with controls on gasoline prices. At the controlled price of gasoline there was a shortage. As a consequence of this shortage people filled up with gasoline whenever they could. Many gasoline stations rationed supplies by limiting gasoline purchases to five gallons. As a result of all this, queues for gasoline became intolerable. People had to wait upwards of two hours to purchase five gallons of gasoline. If it takes two hours to purchase five gallons of gasoline at 50 cents per gallon and if people's time is worth \$5.00 an hour then the total cost of gasoline (including time cost) was \$2.50 per gallon. Under controls, the total cost of gasoline was probably at an all-time high for the U.S. economy. It shouldn't be surprising to learn that some individuals went into the business of waiting in line and filling up cars with gasoline. While the true cost of gasoline skyrocketed the measured price showed no change. This is just another case where the official price has no meaning whatever. Imagine if every product were marketed like gasoline. Individuals would spend all their time in making transactions and very little time in producing new goods and

services. The phenomenon of queuing is wasteful of resources and as a consequence causes output to be less than it would be in the absence of controls.

Rationing

When queues become so long and so wasteful of resources, the government inevitably introduces formal rationing schemes. By some method the existing output is allocated to the consumer. Since the allocation is done by government officials, the allocation procedure is formulated under great political pressure. Under formal rationing, each of the 22 million Canadians will argue that they are 'special' cases and they deserve generous quotas. Everyone will act in a way that makes it very difficult to ration the existing quantity of output. Under the price system, the price will rise and provide an incentive for individuals to cut back on consumption of this good and provide an incentive for firms to increase production. Under the price system, all 22 million Canadians have an incentive to act in such a way that the market is cleared. Under formal rationing, groups with large amounts of political power will receive relatively large amounts of the rationed goods. Formal rationing schemes generally involve the issuing of ration coupons. These ration coupons are valuable commodities and in a short time a market in these coupons is established (whether it be legal or not). Prices will be established for ration coupons of various types. In this case the price of any good is equal to the money price of that good plus the price of the ration coupon needed to purchase the good. Again, in this case measured prices will underestimate true transaction prices.

It should be noted that when shortages develop, be there a formal rationing scheme or not, there will be consumers who do not get all the quantity of the good they want. Those unsatisfied consumers will search for substitute products. If any of the substitute products are not subject to controls then these products will experience higher than normal price increases. In this case excess demand pressure shifts to the non-controlled items.

Black markets

Inevitably shortages lead to the development of black markets. At the controlled price there will be a group of un-

satisfied buyers; i.e., buyers who were unable to purchase their desired amount of the good. Some of these buyers will be willing to pay a price higher than the controlled one. Sellers will soon discover this and if this price is high enough to warrant engaging in illegal activities, black markets will be formed. Black markets existed in Canada during the control period of the Second World War. Black markets are common in the Communist countries of Eastern Europe. In Russia the penalty for economic crimes (i.e. black market transactions) is death. In spite of this penalty there is an active black market in Russian rubles in Austria. Black markets are almost impossible to eliminate. Of course, black market transactions do not get into the official statistics. Again, this is a case where measured prices underestimate actual prices.

In the above discussion we have seen that even with controls most people and firms will manage to buy and sell in a way that best suits them. Suppliers will manage to get a price for their products that is very close to the market price. Buyers will somehow get the products that they want. Economists summarize this by saying that even in the presence of controls the market will clear — supply and demand will balance.

The market always has to clear. But the crucial question is how this clearing takes place. Under the price system, price is the instrument which balances the supply and demand sides of the market; price rations the goods. Under controls the market may be cleared in a variety of ways. With legal evasion of controls, it is changes in dimensions of goods other than quantity (quality, for example) which clear the market. Of course when quality falls the effective price rises and accordingly, quality variation is really disguised price change.

When shortages develop, goods may be rationed by waiting or by formal rationing schemes. With black markets price rations the goods but the costs of dealing in black markets are different than the costs of dealing in free markets. Both in free and unfree markets, market forces always balance. The question to be answered is why should one system of market clearance be preferred over the other? To answer this question we first have to investigate the role

that prices (and wages) perform in the free market economy.⁴⁰

The role that prices play

In the free market system consumers spend their money income according to the relative importance they attach to the various goods.⁴¹ In the free market system it is assumed that the individual knows his own tastes best. Individuals will be willing to offer high prices for goods that rank high in their preference scale and low prices for goods ranking low on their preference scale. Firms will compete with one another to produce goods whose price gives them the largest return over the value of the productive resources required to produce them. Firms which produce goods that are not in demand will be unable to sell them. In this way firms are compelled to produce goods which are in demand. "Producers therefore find it profitable to utilize productive power to make the things the public needs or wants, in the correct proportions."⁴²

In this free market economy, suppose consumer tastes change and people place more value on a particular good than they used to. Effectively, the demand for the good increases. At the existing price, demand for the good will exceed its supply. This will cause prices to rise: the rising price will reduce demand somewhat but in addition it will make it more profitable to produce this good. This higher profitability will enable producers of this good to pay higher prices for labour, material, etc. and attract these resources away from their alternative uses. These additional resources will enable firms producing this good (whose demand has increased) to increase their production. In this way "the preferences of consumers will pull (reward) resources to the uses of highest value, indicated by the higher prices (as signals) in the favored market."⁴³ Price thus directs production and resources according to the wants and the needs of the public.

The price system also dictates that goods should be produced as efficiently as possible. Firms compete with one another in the production of goods and in the acquiring of resources. Those firms who can produce the greatest output with a given amount of resources can afford to pay the highest prices for these resources. They can thus force their com-

petitors out of business or force them to use efficient methods also. "Thus every detail in the production process is constantly subjected to a ruthless process of selection in a struggle for existence, and an irresistible pressure is brought to bear toward the use of productive power both in the 'best direction' and in accord with methods of the highest possible efficiency."⁴⁴

Double-barrelled signals

In the price system, goods are produced according to consumer wants and in the most efficient ways possible. To achieve this result prices (including the prices of resources such as labour) play a crucial role. They serve a dual function. In one role, prices transmit information. They serve as signals from consumers to producers directing firms to the production of those goods which consumers desire. They serve as signals from producers to owners of resources. Resources are directed to those goods in which they are needed the most. In their second role, prices provide an incentive for people and firms to act on the basis of the information inherent in the price signals. Firms that produce products not in demand, with a price low in relation to the costs of production, will lose money and eventually go out of business. Firms that produce products in demand will be rewarded with profits and will be allowed to stay in business. Owners of resources sending those resources to their most productive uses will be rewarded with high prices for these resources.

Short-circuiting the mechanism

In this way prices play a crucial role in the efficient allocation of resources and the distribution of output. How is this role affected by the imposition of wage and price controls? When goods are rationed by waiting or by formal rationing schemes the crucial role that prices play in the economy is suppressed. When demand exceeds supply the wants of consumers are dictating that more of this good should be produced. If price is not allowed to go up, more of this good will not be produced. With price controls, goods will not necessarily be produced according to the wants and needs of the public. When demand exceeds supply for a particular product this indicates that resources can be more produc-

tively used in the provision of that product rather than some other products. Since prices of resources are not allowed to be bid up, resources will not flow to the goods in which they are needed the most. In addition, since efficient firms can not bid resources away from the inefficient firms, there is no guarantee that resources will be used as productively as possible.

Breaking the thermometer

Milton Friedman in looking for an analogy for wage and price controls, makes the point that

“An analogy is often drawn between direct control of wages and prices as a reaction to inflation and the breaking of a thermometer as a reaction to, say, an overheated room. This analogy has an element of validity. Prices are partly like thermometers in that they register heat but do not produce it; in both cases, preventing a measuring instrument from recording what is occurring does not prevent the occurrence. But the analogy is misleading. Breaking the thermometer need have no further effect on the phenomenon being recorded; it simply adds to our ignorance. Controlling prices, insofar as it is successful, has very important effects. Prices are not only measuring instruments, they also play a vital role in the economic process itself. A much closer analogy is a steam-heating furnace running full blast. Controlling the heat in one room by closing the radiators in that room simply makes other rooms still more overheated. Closing all the radiators lets the pressure build up in the boiler and increases the danger that it will explode.”⁴⁵

Wage and price controls waste and misallocate resources. Resources are wasted in waiting when queues are used to ration supplies. Resources are wasted on administering and enforcing the controls. Resources are wasted in attempting to get around the controls either by legal or illegal means. Resources are misallocated. All of this causes a reduction in output. How great a reduction in output will take place in response to any particular control system is difficult to predict. The extent of the reduction in output depends on how much lower the control price is than the true equilibrium

price, how rigidly the controls are enforced, how easy it is to get around controls and whether any formal rationing scheme is implemented along with the controls. The case of Germany after World War I and after World War II provides an interesting example of the costs of controls.

The German case

After World War I, Germany had an episode of hyperinflation. There were periods in the hyperinflation when prices were doubling every day. Throughout this hyperinflation individual prices were determined by market forces. Wage and price controls were never imposed. In spite of the large number of problems that hyperinflation caused, the amazing thing is that real output never declined until the last six months of the hyperinflation. One can attribute this to the fact that throughout the period resources were allocated using the price system. After World War II, Germany again experienced substantial inflation. This inflation, although considerable by Canadian standards, was mild in comparison to the hyperinflation experienced after World War I. In this second period of inflation, Germany imposed very severe wage and price controls which were rigidly enforced. In this period of German history when inflation was suppressed, output fell in half.⁴⁶ For Germany, the price of controls was indeed very high.

V. SUMMARY AND CONCLUSIONS

The following are the conclusions reached in this paper:

1. Inflation is the result of excessive growth in the money supply. Inflation is at all times and in all places a monetary phenomenon.
2. Wage and price controls will not reduce the true inflation rate. Controls do not get at the central cause of inflation. Controls merely mask the symptoms of inflation.
3. Controls confuse the issue as to the true cause of inflation and make the application of the correct policy to fight inflation (reducing the money supply) less likely.

4. Controls will not aid in reducing the costs of fighting inflation.
5. Controls waste and misallocate resources. This inefficiency results in a loss of output. The severity of the loss in output depends on the severity with which controls are applied and enforced.

Wage and price controls are a policy which offer no long-term benefits to the economy as a whole.⁴⁷ The cost of the controls can vary anywhere from that of a minor nuisance to that of a major economic disaster. From an economic point of view a policy that yields no benefits and potentially high costs is a policy that should be rejected out of hand. This clearly has not happened in Canada. The enactment of wage and price controls by the Liberal government of Pierre Trudeau is an economic mistake. The irony of the current situation is that the current policy represents a complete turnaround for the Liberal government. In the election campaign of the summer of 1974 the Liberals correctly weighed up the costs and benefits of controls and firmly opposed compulsory wage and price controls. The inflation rate in the fall of 1975 was the same as in the summer of 1974. The arguments that were valid in 1974 are equally valid today. The Liberal party in the election campaign of 1974 argued that “wage and price controls aren’t new. They aren’t innovative. They aren’t magic. They have been tried and tried and always found wanting. Wage and price controls do not work. The distortions they create, the shortages they develop and the pent-up pressure for wages unleash more serious problems than those the controls set out to solve.”⁴⁸

Notes

¹For a discussion of this period in history see H. Michell, "The Edict of Diocletian: A Study of Price Fixing in the Roman Empire," *Canadian Journal of Economics and Political Science*, February 1947, p. 1-13.

²For a description of these controls see K.W. Taylor, "Canadian War-time Price Controls, 1941-6," *Canadian Journal of Economics and Political Science*, February 1947, p. 81-99.

³In England and on the continent these controls go under the name 'incomes policy.'

⁴See M. Parkin, "Wage-Price Controls: The Lessons from Britain," in this series for a discussion of wage and price controls in England. For a discussion of controls in Europe see L. Ulman and R. J. Flannagan, *Wage Restraint: A Study of Incomes Policy in Western Europe*, Berkeley and Los Angeles, 1971.

⁵For a discussion of the various phases of U.S. controls see M. Darby, "The U.S. Economic Stabilization Program of 1971-1974," in this Fraser Institute series.

⁶Fifty to one hundred years ago 'inflation' referred to inflation of currency and not to the resulting inflation in prices.

⁷Economists generally do not worry about inflation rates below 2 per cent. Since quality changes tend to be underestimated in calculating the C.P.I., an increase in the measured C.P.I. of less than 2 per cent could well indicate no change or a decrease in the true C.P.I.

⁸When the inflation rate reaches a level say around 50 per cent per month economists call this 'hyperinflation.' Germany after the First World War is an example of an economy in hyperinflation.

⁹The definition of the money supply that will be used throughout this paper will be currency in circulation plus all Canadian dollar deposits in chartered banks excluding Federal government deposits.

¹⁰*Final Report*, Prices and Incomes Commission. Information Canada, 1972, p. 60-63.

¹¹P. Cagan, "Inflation and Market Structure, 1967-73," *Explorations in Economic Research*, Spring 1975.

¹²It should be noted that there are many variants of cost or price-push inflation. One can almost find a variant of cost-push theories corresponding to every type of cost. In addition various types of price-pushes have been identified in the literature (e.g., administered price inflation, mark-up inflation and so on).

¹³Text of Prime Minister Pierre Trudeau's radio and television address to the nation as reported in the *Toronto Globe and Mail*, October 14, 1975.

¹⁴Keynes adopted this proposition and it was advocated by the Keynesian economists of the period. For support of this proposition see J.M. Keynes, *The General Theory of Employment, Interest and Money*, Macmillan, Co., London, 1961, p. 295-6.

¹⁵A.W. Phillips, "The Relation between Unemployment and the Rate of Change in Money Wage Rates in the United Kingdom, 1861-1957," *Economica*, November 1958.

¹⁶Workers may temporarily supply more labour if they have not yet realized that prices have doubled. In the short-run when inflation increases and this increase is not recognized by all workers, the unemployment rate may temporarily decline.

¹⁷It should be pointed out that middlemen perform valuable services in reducing the costs of acquiring information about products and in reducing other buying costs, like transportation, of consumers. Even pure speculators provide a valuable service by transferring a good from a time of plenty where society doesn't value it highly to a time of scarcity where the value of the good has increased. See ch. 3 for an example of beneficial speculation in India.

¹⁸The monetary theory of inflation generally goes under the name of the 'quantity theory' of inflation.

¹⁹For a discussion of these lags in Canada, see J.L. Carr, "The Money Supply and the Rate of Inflation," in *Essays in Monetary Aspects of Inflation*, Nold, Carr and Winder, Information Canada, 1973.

²⁰Also during these periods the average number of weeks income in money balances that people desired to hold changed 14 of one per cent per year.

²¹Since there are lags in the effects of monetary policy the period used to look at the inflation rate will start and end one year later than the period used in defining monetary policy.

²²Advocates of the monetary theory of inflation, in general, do not believe in the concept of a Phillips Curve in terms of permanently trading-off more unemployment for less inflation. However most would agree that when a reduction in the money supply occurs, in the short-run, inflation will be reduced and unemployment increased. Hence they believe in a short-run Phillips Curve but not in a long-run Phillips Curve.

²³Anna Schwartz, "Secular Price Change in Historical Perspective," *Journal of Money, Credit and Banking*, February 1973.

²⁴Milton Friedman, "What Price Guideposts," in *Guidelines: Informal Controls and the Market Place*, ed. by G.P. Shultz and R.Z. Aliber, University of Chicago Press, 1966, p. 18.

²⁵In Canada the money supply is controlled by the Bank of Canada. The Bank of Canada can not for very long follow a monetary policy which is contrary to the wishes of the government of the day. It is for this reason we speak of the Federal government controlling monetary policy.

²⁶By 'tight money' I mean a policy of relatively small rates of increase in the money supply.

²⁷In Canada only the Federal government has the power to issue money. As a consequence this avenue of finance is not open to provincial and municipal governments.

²⁸A case may be made why government deficits financed by debt issue may lead to a once and for all increase in the price level. Government debt issue may increase interest rates. This leads to a decrease in the demand for money. People attempting to spend excess money balance will cause the price level to rise. It should be noted that this will only cause a once and for all rise in the price level and not continual inflation.

²⁹It should be noted that the argument that controls are ineffective in combatting inflation does not depend on the validity of the monetary theory of inflation. If we believed in demand-pull inflation, that increases in nominal aggregate demand, no matter what the source, are responsible for inflation then the argument could still be made that controls are ineffective in reducing inflation.

³⁰A case can be made that wage and price controls may reduce the reported inflation rate in the short-run. This issue will be discussed in Section IV of this paper.

³¹M. Darby, *op. cit.*

³²M. Parkin, *op. cit.*

³³R.G. Lipsey and M. Parkin, "Incomes Policy: A Re-appraisal," in *Incomes Policy and Inflation*, ed. by M. Parkin and M.T. Sumner, Manchester University Press, 1972, p. 85.

³⁴*Final Report*, Prices and Incomes Commission. Information Canada, 1972. Appendix B, p. 7.

³⁵It should be noted that this is only one possible reason why unemployment results when the rate of growth of the money supply is reduced. For other possible reasons why this may occur see E. Phelps, "The New Microeconomics in Employment and Inflation Theory," in E. Phelps, *Microeconomic Foundations of Employment and Inflation Theory*, W.W. Norton & Co., New York, 1970.

³⁶In technical terms it is argued that wage and price controls make the short-run Phillips Curve steeper.

³⁷*Final Report*. Prices and Incomes Commission. Information Canada, 1972. Appendix B., p. 48.

³⁸The term individual prices and relative prices is used interchangeably in this study.

³⁹This statement is not entirely correct for the case where controls are imposed on a monopolized product. In this case it is possible that initially when controls are imposed output will increase not decrease. As time progresses and the controlled prices changes more and more from the market price, it becomes more and more likely that output of the monopolized good will decrease.

⁴⁰For a discussion of this issue see F. Knight, *The Economic Organization*, Harper & Row, 1965.

⁴¹Consumers rank relative importance at the prices for which the various goods are offered.

⁴²F. Knight, *op. cit.*, p. 34.

⁴³Roger Weiss, *The Economic System*, Random House, New York, 1968, p. 28.

⁴⁴Frank Knight, *op. cit.*, p. 34.

⁴⁵Milton Friedman, *op. cit.*, p. 19-20.

⁴⁶It should be admitted that not all of this fall in output can be attributed to price controls. Germany suffered greater war damage in the Second World War than in the first.

⁴⁷One may ask how a policy with no benefits to the economy as a whole can be enacted by government. The answer must lie in the fact that some groups in the economy expect benefits from controls. If these groups have enough political power they can get controls enacted.

⁴⁸Boyd Upper, Ontario Liberal party policy chairman, Speech to Ontario Liberal Candidates' College, May 18, 1974, York University.