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THE UNIVERSITY OF CALGARY

THE POLITICAL BUSINESS CYCLE
AND FISCAL POLICY IN CANADA

by

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A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF MASTER OF ARTS

DEPARTMENT OF ECONOMICS

CALGARY, ALBERTA

SEPTEMBER, 1991

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Abstract

This thesis investigates the premise that Keynesian fiscal policy is subject to the influence of political parameters that lessen its effectiveness as a stabilization tool. The premise is founded upon the assumption that policymakers are motivated by political goals, in particular electoral goals, rather than the social optima assumed by traditional macroeconomic policy prescriptions.

Theories of a deliberately engineered political business cycle emanate from a number of disciplines and economic schools, the most important of which is the interdisciplinary area of Public Choice. Earlier theories were based on Keynesian models and Phillips' Curve analysis. There have only recently been applications of rational modelling techniques to theories of political economy. Testing has been somewhat discontinuous and inconclusive due to the multitude of theoretical approaches.

In this thesis a multivariate reaction function for the Canadian federal budget balance is constructed for the period from 1953 to 1990. Countercyclical and electoral elements emerge as the most important factors in explaining fiscal policy. While the electoral factor represents a major constraint upon the practice of appropriate fiscal policy, the results tend not to support the premise of deliberate electoral engineering predicted by theory. Accordingly new

directions for empirical and theoretical research are suggested.

Acknowledgements

Thanks are due first and foremost to my supervisor, Dr. Frank Atkins. Dr. Atkins demonstrated both consistent interest and flexible accommodation while overseeing this work. He went to considerable pains to keep on track a difficult student who frequently had other pressing priorities. In this regard, Dr. Atkins can take a great deal of credit for the fact that this thesis was indeed completed.

I would also like to thank collectively all the staff of the Department of Economics at the University of Calgary who have shown such interest in my education during my undergraduate and graduate years. I hope none will be offended if I single out for thanks Dr. Robert Mansell, who originally encouraged me to undertake this project and who has been a great supporter of both my academic and non-academic pursuits.

Several individuals have made direct contributions to this project which are greatly appreciated. Messrs. John Hayward and Peter Devries of the Department of Finance, Ottawa, provided helpful documents and discussion of concepts and issues in this particular public policy field. Mr. Herb O'Heron, now of the Canadian Association of Universities and Colleges, Ottawa, provided his pioneering and unpublished work in this area. Finally Ms. Niki Brodie

was extremely forthcoming with historical data on behalf of Gallup Canada Inc., Toronto.

Acknowledgement is also extended to Ms. Darlene Chrapko and Ms. Lauren Teskey, who provided extraordinarily prompt and accurate assistance, as well as numerous corrections, in the preparation of this manuscript.

Last but by no means least is the recognition of the support given by my family and many friends. Special recognition is due to my brothers. Robert assisted in tracking down information not available in Calgary. Grant especially deserves great thanks for his financial and personal support as my roommate during this entire process.

Dedication

Dad and Mom, for all your love and support.

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Chapter One

1.1 Introduction

Fiscal policy since Keynes has been justified on three premises: that economic fluctuations are largely a consequence of systematic instability in market behavior; that it is desirable for governments to overcome these fluctuations; and that governments are capable of correcting such instability.

All three of these premises have come under increasing attack from economic "conservatives." Rational expectations theorists argue that markets have an inherent tendency toward stable behavior, and that any instability must be unexpected, unsystematic and therefore no basis for economic policy. Monetarists argue that fiscal policy is subject to unavoidable lags that make it inappropriate as a stabilization tool, even under the restricted circumstances for which it is suited. Public choice scholars argue that governments by their structural nature are inherently incapable of implementing correct fiscal policy.

It is the last set of objections that will be our primary focus. There have been growing questions across academic disciplines and schools of thought about the ability of governments to manage fiscal policy. These are not mere theoretical developments, but reflect the economic fluctuations and public policy dilemmas that have been the nature of things since the late 1960's.

Conventional fiscal policy analysis, even analysis of a critical nature, has generally treated inappropriate policy as the erroneous actions of a neutral and exogenous governmental actor. The most striking challenge to this view is the theory of the "political business cycle" (PBC). According to PBC theory modern governments may deliberately manipulate the economy not to dampen business cycles, but to create them in line with their electoral goals.

The PBC hypothesis is studied here as one of a number of competing hypotheses about the actual operation of macroeconomic fiscal policy. These hypotheses include both economic and political variables. Has fiscal policy in Canada been based on the Keynesian parameters by which it is rationalized, or is it demonstrably deviant in some systematic ways that reflect the institutional political environment in which it is formulated?

The answers to this question are critical to any analysis of fiscal policy as a public policy matter. For example, if the preferences of policymakers, whether electoral or otherwise, are distinct from technical optima, these should be endogenized in macroeconomic models. If they are not endogenized, then such models are likely misspecified (Crotty, 1973). More importantly, if government behavior has distinctive and predictable qualities, then the policy recommendations of economists should be adjusted to this context. If they are not then they are likely to

generate unintended outcomes. Keynesianism itself, for example, may not become a tool for stabilization purposes, but rather intellectual support for the unleashing of chronic deficit tendencies inherent in representative institutions. These concerns cannot be dismissed as mere ideological complaints. If Keynesian economic theory is correct, then the impact of such policy on the economy is in fact much greater than conservative economists believe.

Most of the balance of this chapter will briefly describe the policy record relevant to this study. This is the fiscal record of the (federal) Government of Canada in the postwar period. The focus of this study will be particularly on the long peacetime that has followed the Korean War.

1.2 Policy Record

Prior to World War II, fiscal policy was wholly a matter of government finance based on principles of rigid austerity and balanced budgeting. The view that fiscal policy could be used as an instrument to achieve broad macroeconomic objectives is a postwar phenomenon. It can be traced to the failure to alleviate the unemployment of the 1930's and to the success of governments in extensive economic management during World War II. This success had been based on Keynesian principles.¹

The formal shift in policy at the federal level can be dated from the publication of the White Paper on Employment and Income in April 1945. This document is a classic expression of the Canadian conceptualization and vision of Keynesian economics. While concentrating on immediate postwar demobilization and reconstruction it set down a path for future economic policy aimed at "a high and stable level of employment and income" (Department of Reconstruction, 1945, 1). This would be based on aggregate demand management with a high degree of reliance on the market and a low degree of coercion and structural change. This demand

¹This view, the conventional one, is presented by Pal (1981) and Campbell (1987) in the Canadian context. A different interpretation is provided by Buchanan and Wagner (1977) who in the American context argue that a distinctive Keynesian approach was not accepted by policymakers (as opposed to economists) until the mid-1960's. They argue that the actions of politicians until that time were largely consistent with prewar theory.

management would include a series of largely self-financing social safety nets to stabilize consumption (particularly at low income levels), limited and countercyclical public investment, liberalized international trade and monetary cooperation in the external sector, and federal fiscal policy.

On this last point, the document was clear:

The Government will be prepared, in periods when unemployment threatens, to incur the deficits and increases in the national debt resulting from its employment and income policy, whether that policy in the circumstances is best applied through increased expenditures or reduced taxation. In periods of buoyant employment and income, budget plans will call for surpluses. The Government's policy will be to keep the national debt within manageable proportions, and maintain a proper balance in its budget over a longer period than a single year. (Department of Reconstruction, 1945, 21)

Thus the White Paper explicitly articulated two characteristics against which future fiscal policy could be evaluated. Fiscal policy should be stabilizing in the short-run. The budget balance should run against the cycles in the economy. As well, fiscal policy should be stabilizing in the long-run. The overall levels of government debt should remain on a viable path.

The record has been mixed by both criteria. There have been many evaluations of postwar budgetary policy, often

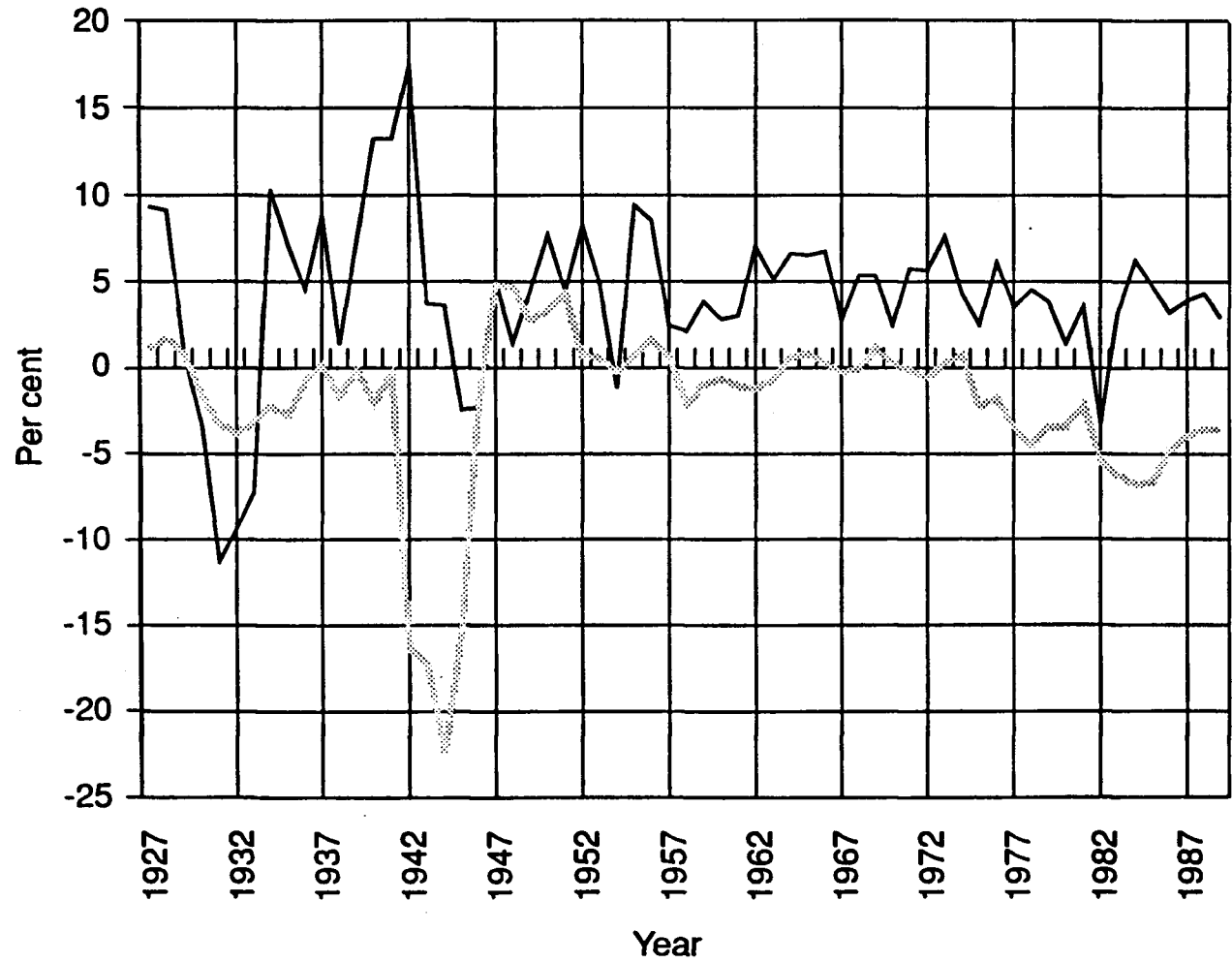
harsh.² The general themes are as follows. Until at least the mid-1960's, federal governments were excessively timid in their use of fiscal policy as a stabilization tool. There were often lapses of rhetoric into pre-Keynesian rationales. On the other hand, in the later part of the period, particularly in the 1970's, this policy was often overly expansionary, excessively interventionist, and tended to cumulative errors that ultimately resulted in a structural balance problem. Beginning with the Diefenbaker Government, budgets tended toward wider sectoral and supply-side objectives. The culmination of this was probably such major initiatives as the National Energy Program (NEP) and Scientific Research Tax Credits (SRTC). As well, budgets often ignored major aggregate demand management issues like inflation. Other major initiatives took their place, such as monetary policy (monetary gradualism) or incomes policy (the Anti-Inflation Board (AIB)).

While fiscal policy has often been erroneous in its economic application, it is also widely acknowledged that budgetary policy was frequently the product of political pressures, both within and outside the government. The Bank

²Detailed evaluations and references for Canadian budgetary policy can be found in Pal (1981) for the period 1945-1963, Campbell (1987) for the period 1945-1975, and Purvis and Smith (1986) for the period 1963-1984. The Canadian Tax Foundation annuals and the Budgets also contain evaluations. Robinson and Courchene (1969) and McCallum (1983) are statistical studies. Doern, Maslove and Price (1988), Hartle (1988) and Savoie (1990) are studies of Canadian budgetary processes.

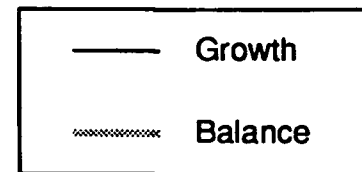
of Canada has been identified in budgetary pressures, particularly before the Diefenbaker-Coyne confrontation of 1961, as have individual bureaucracies. Elections have been identified as a budgetary factor. Sometimes third-party pressures, especially in minority Parliaments, have been important. Regional impacts and regional coalition-building have been issues. In addition, with the expansion of specific supply and sectoral programs, and the aging of safety nets into "entitlements" and "rights," distinctive patterns of political support and political punishment have emerged to restrict fiscal latitude.

It is always important to remember, however, that budgetary policy is only one part of macroeconomic fiscal policy. Budgetary analysis focuses almost exclusively on discretionary fiscal policy; that is, on the year to year changes in government spending and taxation. Just as important are automatic stabilizers, the built-in countercyclical changes that dominate many taxation and transfer programs. Although automatic stabilizers have frequently been modified, there can be no doubt that they have been an ongoing feature of federal fiscal policy during the postwar period. Despite the many changes in this period, there have been no systematic attempts to reverse or eliminate their operation. In fact, both theory and experience stress the role of automatic stabilizers, given the problems inherent in discretionary "fine-tuning."



Graph 1.1

Real GDP Growth Rates and Federal Relative Budget Balances
for Canada, 1927 – 1989



A rough evaluation of fiscal policy can be made here with reference to Graph 1.1. This graph shows the real growth rate of gross domestic product (GDP) and the federal budget balance in relative terms (i.e. as a share of GDP) for the period 1927-1989.³ Again the results are mixed. While the economy has been more stable in the postwar period, instability has been present and appears to be increasing in recent years. While budgetary balances appear broadly countercyclical (i.e. they move in the same direction as economic growth), it is not obvious that they have been any more so than in the prewar period.

It is also interesting to consider, from a short-run Keynesian perspective, the pattern of obvious "errors" in stabilization policy. From Graph 1.1, eleven years of significant perversity can be identified. Ten of these are years where policy moved in a substantially wrong direction given growth. One year, 1954, policy moved in the correct direction but was clearly aberrant in magnitude. In 1949, 1952, 1962, 1971, 1983, and 1984 fiscal policy appears to have been wrongly expansionary. These were all election years or pre-election years. In 1951, 1954, 1963, 1974, and 1986 fiscal policy appears to have been wrongly contractionary. Three of these were post-election years or

³In this study, the term "budget balance" is used in the literal sense, i.e. surpluses appear as positive magnitudes; deficits appear as negative magnitudes; a larger surplus is a higher balance; and a larger deficit is a lower balance.

mid-term years. In 1963, an election was called when the Government was defeated in the Commons, an event it clearly did not expect. In 1974, the Government wanted the expansionary budget that was presented and defeated in the Commons. After campaigning and winning on that budget, it brought in a more expansionary version later in the year. Prima facie then, an electoral influence is quite plausible.

Graph 1.1 provides an even more cautious evaluation of the success of long-run stabilization. The budget balance has slipped from being in surplus in the immediate postwar period, to being in balance from the 1950's to the mid-1970's, to being in substantial deficit since that time. In fact, the postwar period can be divided into two distinct phases. From 1945 to 1974, the Government of Canada was extraordinarily successful in reducing the high wartime debt:GDP ratio and maintaining it at low levels. Since then the ratio has risen, and the Government of Canada has been extraordinarily unsuccessful at reversing this trend. While these trends have been a global experience, Canada's behavior as a nation has tended to the extremes in both cases (Roubini and Sachs, 1989b, 906-907). It is also important to remember that, unlike most Western nations, Canada's fiscal position deteriorated in the period following the first OPEC oil price increase despite its position as a significant oil producer!

In the context of understanding postwar fiscal policy,

particularly as economic objectives interact with political considerations, these long-run trends warrant interest.

First, the flexibility of short-run fiscal policy to deal with cyclical fluctuations is partly determined by the government's long-run financial soundness. Second, long-run debt is ultimately a cumulation of short-run deficits. Therefore, a better understanding of cyclical and discretionary fiscal operations should evolve some possible explanations of these critical longer-run problems.

The most recent period, that of the Mulroney Government, reflects these various phenomena. Since 1984, discretionary budgetary actions have been dominated by concern over Canada's long-term fiscal position. However, the debt:GDP ratio continues to rise, and stabilizers have been allowed to function during the period's booms and recessions. Sectoral and supply-side issues have also been periodic subjects of budgetary policy. Political pressures have been evident as well. Regional conflict has been high. Major reductions in spending, particularly transfer payments, have been strongly resisted. In one case, the proposed 1985 partial deindexation of Old Age Security (OAS) payments had to be withdrawn, overturning a major element in the Government's long-term austerity plans.

Even a glance at the budgets of the most recent period provides some indication of a significant electoral pattern. The third column of Table 1.1 shows the net dollar value of

Discretionary Budgetary Actions
of the Mulroney Government
1984-1991

<u>Fiscal Year</u>	<u>Budget</u>	<u>Budgetary Actions</u> (\$billions)	<u>Adjusted Amount</u> (\$billions)
1984-85	-----	---	+0.1
1985-86	May 23, 1985	+2.1	+4.4
1986-87	February 26, 1986	+2.1	+2.1
1987-88	February 18, 1987	+0.9	+0.9
1988-89	February 10, 1988	0.0	-1.2
1989-90	April 27, 1989	+5.2	+6.5
1990-91	February 20, 1990	+3.0	+3.3
1991-92	February 26, 1991	+1.2	+1.2

first-year discretionary changes to taxation and expenditures estimated for each budget of the current Government. In the fourth column these figures are adjusted to include the actions taken through two related Department of Finance initiatives, the Economic Statement of 1984 (on fiscal years 1984-85 and 1985-86) and the Tax Reform of 1987 (on fiscal years 1988-89 through 1990-91).

Even with the caveats that must be applied to such a simple table -- the omission of multiple-year future and past budgetary impacts, the biased and shifting accounting presentations in Government budgets -- these numbers are striking. The largest fiscal impulses appear to have occurred immediately following the 1984 and 1988 elections, while deficit reduction actions appear to have progressively diminished thereafter. With the temporary tax cut included the government may even have engineered a bigger deficit for the 1988 election despite an economic boom and the ongoing debt problems. The discretionary fiscal cycle is clearly electoral rather than economic. The dollar magnitudes are also very large, cycling above the equivalent of a full percentage point of GDP.

All things considered then, the policy record provides much that is worthy of further study. There is clear evidence of stabilization, both short-run and long-run, both successful and unsuccessful. There is also clear evidence of both underlying economic and political influences.

1.3 Overview

Chapter Two of this study reviews the relevant literature. This includes a brief discussion of standard Keynesian-based fiscal theory, political and economic revisions to this theory, and some of the previous tests of these hypotheses. In Chapter Three a series of multivariate reaction functions of fiscal policy for the Government of Canada are tested. These tests, for the post-Korean War period, are designed to expose the major empirical influences on fiscal policy suggested by theory. Chapter Four summarizes these findings, the current state of theory, and suggestions for further research.

Chapter Two

2.1 Standard Theory of Fiscal Policy

Before looking at politico-economic theories of fiscal policy and the related empirical research, it is necessary to review briefly some relevant essentials of standard economic theory. More detailed discussion of the measurement of fiscal policy is contained in Appendix A.

As has been noted, prior to World War II government fiscal policy was believed to be strictly a matter of government finance. The belief that fiscal policy could have macroeconomic consequences is a postwar phenomenon. Major theoretical developments provided support for this change in thinking.

Prewar economic analysis had been dominated by Classical economic theory. This theory viewed the economy as composed of a series of microeconomic markets. Each market was thought to be composed of demand and supply regulated by a price mechanism. A freely-operating price mechanism would ensure an equilibrium balance of the demand and supply of any given good. Through this series of markets, the Classical economists believed that aggregate supply resources would be efficiently allocated, that they would create their own aggregate demand, and that the supply and demand of all goods would tend to equilibrium. The economy would regularly experience either the full employment of resources or a strong tendency toward it.

John Maynard Keynes challenged these fundamental beliefs about the market economy. He believed that the circumstances of the Great Depression indicated that the economy could experience a chronic underemployment of resources. Keynes postulated some profoundly different assumptions about the nature of the economy. These assumptions questioned the functioning of markets according to basic price mechanisms. As a consequence he believed that monetary liquidity traps, the hoarding of money and savings, downwardly rigid wages and aggregate demand multipliers were possible and could both create and sustain low levels of economic activity. The picture painted by Keynes was that of an economy held down by an unresponsive and low use of critical resources, exacerbated by self-fulfilling pessimistic expectations of the future state of affairs, and subject to economic movements capable of feeding on themselves.

According to Keynes, the only possible way of resolving such difficulties would be to ensure the mobilization of unused resources, in particular, the unused savings created by low economic activity and uncertain evaluations of the future. By ensuring that such resources would be either consumed or invested not only could the level of economic activity be raised, but the chain of pessimism could be broken as well. Furthermore, raising the level of economic activity would itself stimulate future rises in the level,

through the effects of the multiplier. Because the market could not do this, the government would have to.

Thus the macroeconomic theory of fiscal policy was justified. It consists broadly of two elements. First, by borrowing, by running a deficit, government can raise low levels of economic activity without displacing productive investment and without generating inflationary pressures, i.e. without any cost to the economy. Second, by increasing its relative size in the economy, government can reduce the "leakages" a market economy experiences due primarily to private savings. This would reduce the size of multipliers and increase economic stability. Thus Keynesian theory presented arguments not only for deficits in the budget balance, but also for larger levels of government expenditure and taxation per se.

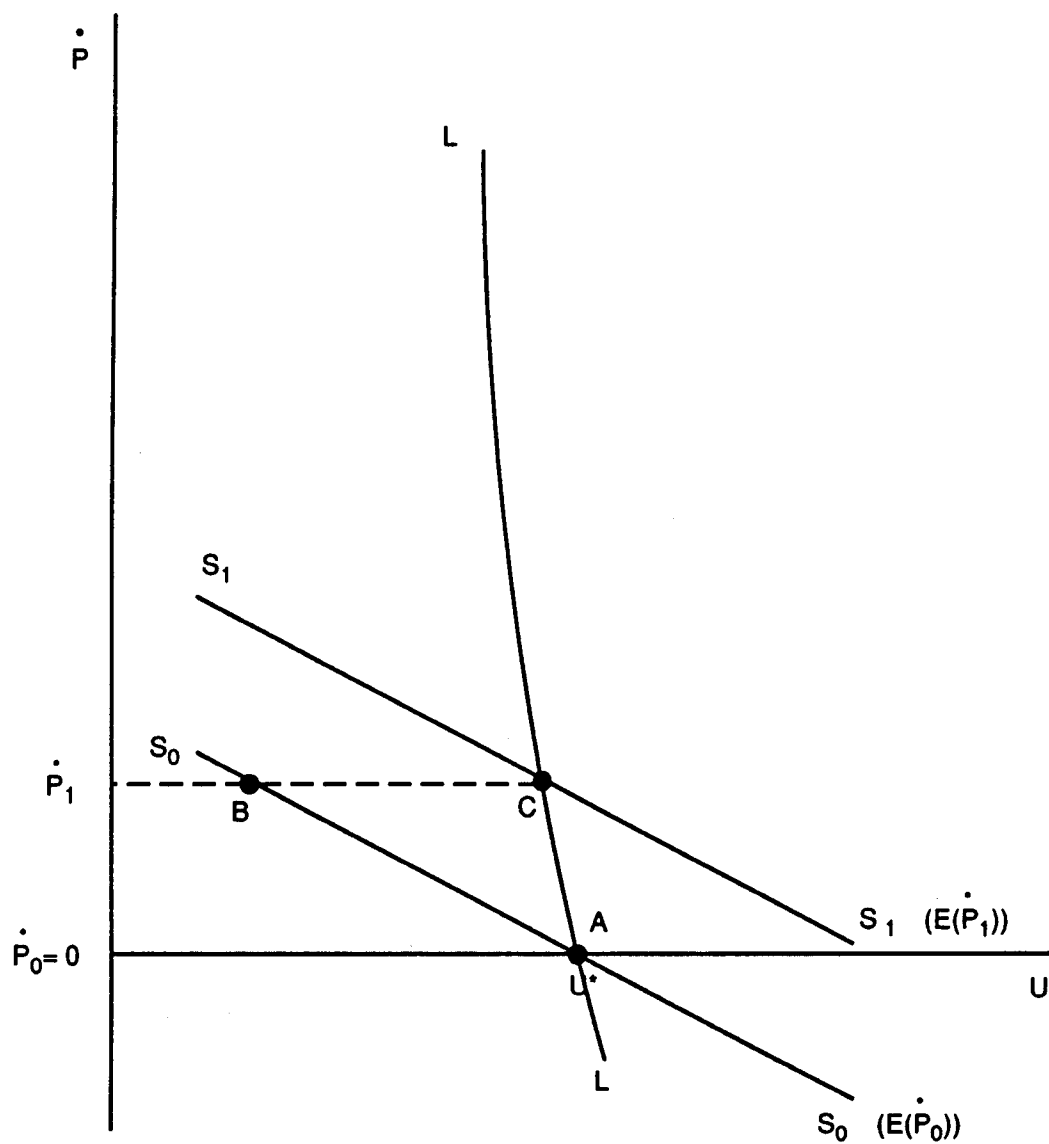
It is probably the case that such "pure" Keynesian economic theory was never the true working basis of Canadian fiscal policy. From the beginning there was a recognized need to understand and to analyze inflation and inflationary pressures as an economic phenomenon. The White Paper certainly recognized such possibilities. This is not surprising, given that the Keynesian managers of World War II were not only concerned with the underutilization of resources, but also with their overutilization and the inflationary pressures a wartime economy generates.

This marriage of Keynesian and Classical concerns was

to be consummated in the view of the macroeconomy represented by the Phillips' Curve. This is the belief that unemployment and inflation are inversely related. Inflation is associated with excessive levels of aggregate demand, with an aggregate of overconsumption and overinvestment relative to economic output. High inflation is thus associated with high employment of resources and with low unemployment. Conversely, inflationary pressures are low or absent when unemployment is high.

This relationship reflected empirical observation during much of the early postwar period and as such it provided a useful guide for fiscal policy. Deficits should be used to bring the economy to a low level of unemployment. However, the presence of inflation would be a warning sign of overstimulation and the desirability of budget surpluses. This would be consistent with the White Paper objectives -- "a high and stable level of employment and income" through alterations between budgetary deficits and budgetary surpluses necessary "to keep the national debt within manageable proportions."

In the late 1960's rising levels of inflation began to break down the stability of the unemployment-inflation tradeoff. As a consequence, a more formal theory was developed by the monetarists. This is the theory of the "expectations-augmented Phillips' Curve," which is depicted in Graph 2.1.



Graph 2.1

The Expectations-Augmented Phillips' Curve

According to this theory, the position of the traditional Phillips' Curve (S_0S_0) is determined by inflationary expectations. Suppose this was the Phillips' Curve of the early 1960's. Suppose further that the economy was frequently at or near point A. This would be some low level of unemployment, U^* , an inflation rate of near zero, and no expectation of inflation ($E(\dot{P}_0)=0$). Now suppose some aggregate demand policy, say a budgetary deficit based on new government expenditure, shifted the economy to point B along the S_0S_0 Curve. This would be a point of lower unemployment and higher inflation than previously. Why does such a policy work? At point A the economy is already experiencing a high level of employment without inflation. This would imply an economy already at or near full employment. The argument is that such a policy can be successful only because workers believe that their incomes are rising and are willing to provide more labour at apparently higher wage rates to accommodate the new demand. Only later do they become aware that inflation (now \dot{P}_1) has reduced the real value of their wages. Given this realization they begin to withdraw their additional labour from the market. However, now they will work as before only at higher nominal wages based on the expected higher inflation rate ($E(\dot{P}_1)$). Thus the economy shifts to point C. By implication, the Phillips' Curve has shifted upward and rightward to S_1S_1 , which has the same relationship between

unemployment and inflation as before, except at a higher level of inflationary expectations.

This analysis gives rise to the view that there is a longer-run Phillips' Curve (LL), which is much more vertical than the SS curves and which implies little or no tradeoff of unemployment and inflation. According to monetarists there is in fact a "natural rate of unemployment" determined by the supply structure of the economy. Attempts to lower unemployment below this level by aggregate demand policy lead only to a rise in inflation and inflationary expectations. Attempts to keep unemployment below this level must lead to accelerating inflation and accelerating levels of inflationary expectations. Thus U^* is also known as the non-accelerating-inflation rate of unemployment (NAIRU). Also implicit in this theory is the view that the 1970's increases in unemployment reflected some permanent changes in the structure of the economy.

The general thrust of the theory still has fairly wide acceptance although the size of the underlying parameters is hotly debated. In many ways, it is the culmination of attempts to establish a "Keynesian-Classical synthesis." The critical points are as follows. First, there is a return to the Classical emphasis on full employment and market-clearing, but this is viewed as a long-run phenomenon. In some significant short run, allowance is made for the operation of the economy in line with Keynesian ideas.

Developments in theory since the early 1970's have reflected to some degree further problems in macroeconomic policy. Despite the theoretical refinements reviewed here, policy in the late 1970's was continually over-stimulative in many countries, and experiences of both rising unemployment and accelerating inflation became the norm. Ultimately this would raise questions about some fundamental theoretical aspects of the Keynesian-Classical synthesis. However it also raised serious questions about the genuine motivations of governments. It was these that would lead to "political" revisions of macroeconomic theory.

2.2 Theories of the Political Business Cycle

In this section we shall review various political revisions to the model of the Keynesian-Classical synthesis. We shall stress those aspects most relevant to fiscal policy, as well as significant points of convergence and divergence between theories.

There is no single or accepted theory of the political business cycle. PBC theories span across political science, sociology, and every major school of economics. PBC theory is inherently interdisciplinary, and at stake are often differences between fundamental paradigms with alternative assumptions, varying degrees of sophistication, and shifting emphases in control variables and subject matter. Indeed there is not even an accepted name to such theories. In some cases "political business cycle" is displaced in the literature by such terms as "political policy cycle," "political budget cycle," "electoral cycle," or simply "political influence" -- such new terms related to the broader context of alternative theories.

In this regard, it is necessary to remember that the differences in PBC theories are not usually questions of mere detail or specifics. They are based on wider disagreements over economic models and ideological beliefs.

In the discussion that follows PBC theories are organized in a rough historical order. PBC developments have tended from marginal Marxist theories, to formulations based

on the orthodox Keynesian-Classical synthesis, to critiques from a conservative politico-economic perspective, to recent revisions consistent with New Classical and rational expectations modelling techniques. A further analysis of the nature of and differences between theories is provided in the summary. General references to various politico-economic theories can be found in Frey (1978), Pal (1981, 32-44), Winters *et al* (1981), Hibbs (1981, 1987), Delorme and Ekelund (1983), Dillon and Willett (1988), Hartle (1988, xiii-xxvii), Mitchell (1988), Willett and Banaian (1988b), Alesina (1989, 57-64), Nordhaus (1989, 2-6 and 8), and Haynes and Stone (1990, 442-444).

2.2.1 Marxist Theories

The first use of the term "political business cycle" came out of the Marxist school and Polish economist Michael Kalecki (1943). Kalecki had little problem accepting Keynes' analysis of chronic underemployment, and was even sympathetic to his recommendation of budget deficits as a solution. However Kalecki believed that the institutional politics of a market economy would produce business cycles regardless of the merits of Keynesian economics.

According to Kalecki, capitalists would be resistant to optimal Keynesian budgetary policy on three grounds: dislike of government activism per se; dislike of the likely direction of government involvement, including both the increase in public investment and the subsidization of mass

consumption; and dislike of likely political and social consequences of the maintenance of full employment. As a consequence, capitalists would lead governments to pursue Keynesian policies only with reluctance, and with heavy reliance on the stimulation of private investment where feasible.

However it would be the social consequences of successful Keynesian policy that would prove the greatest concern of capitalists. Ongoing full employment must inevitably undercut the bargaining position of the captains of industry and lead to relaxed control and undiscipline among the workers. Thus, regardless of the economic advantages of full employment even to entrepreneurs, some retention of the cyclical fluctuations of the market economy would be desirable. The removal of all such fluctuations would entail economic, political, social, and moral results incompatible with their interests. Full removal could be desirable only under a politico-economic system that was under the full control of capitalists in all respects, as in the market-oriented corporatism of fascism.

Marxist theory is a broad sociological approach to analysis. Consistent with this, Kalecki did not dispute Keynesianism on technical economic grounds. He doubted instead the ability of governments to pursue Keynesianism within the social parameters under which they operate. This reflects the Marxist view that the technical requirements of

industrial production are ultimately incompatible with the social relations inherent in capitalist ownership and control of the means of production. Likewise, the economic approach of Keynesian policy would prove to be incompatible with the nature of a government inevitably dominated by capitalist interests.

The Marxist theory differs from all other variants of PBC theory by placing the fundamental source of economic instability exclusively in the private sector. There are no policy recommendations in this theory in the narrow sense. Marxists believe that the problems of capitalism cannot continue. The ongoing underemployment of resources and political tensions engendered by such a system are viewed as leading to its eventual extinction.

More recent writers continue to emphasize this point. The debt and deficit dilemmas of the 1970's welfare state are also viewed in this context. These problems are not analyzed as problems of the welfare state, but rather problems of capitalist industrial and social structures which invariably require more public and private consumption than they can finance. Thus Neo-Marxists have developed a "chronic deficit" theory to complement the cyclical theory of Kalecki (Doern, Maslove and Prince, 1988, 85).

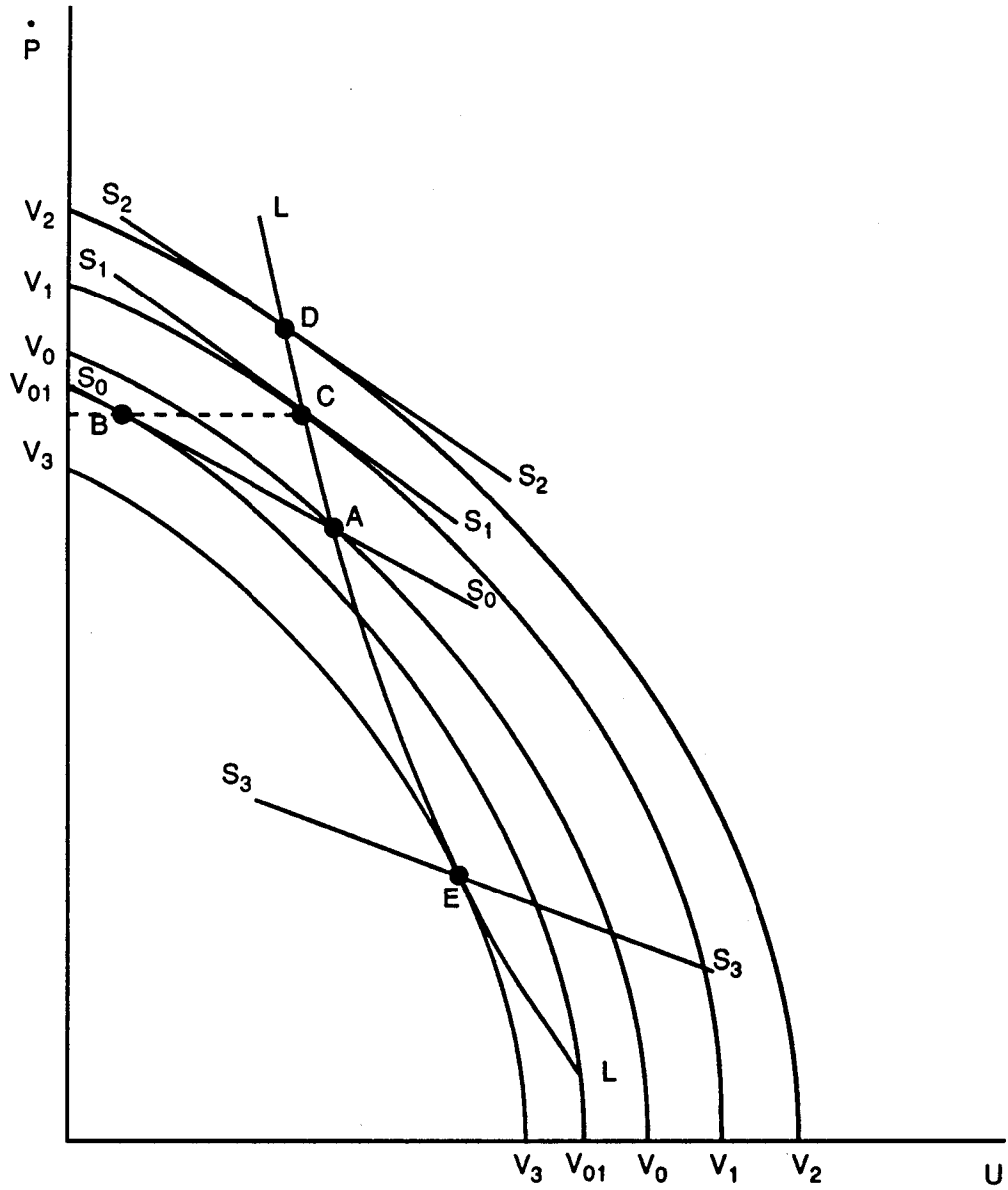
2.2.2 Orthodox Formulations

The interest of mainstream economists in the political business cycle began with the publication of articles by

William Nordhaus (1975) and Duncan MacRae (1977). These were mathematically rigorous formulations of an electorally-timed PBC based squarely on the theory of the expectations-augmented Phillips' Curve. There are essentially three elements to this theory, which are depicted in Graph 2.2.

The first element is a set of (usually convex) voter utility functions (VV 's), which are decreasing in inflation (\dot{P}) and unemployment (U), and represent government popularity levels. Voters are generally assumed to have short or decaying memories, and in MacRae these functions are explicitly quadratic. The second element is a downward-sloping (sometimes concave) long-run inflation-unemployment tradeoff (LL). The third element consists of a series of (sometimes concave) short-run tradeoffs (SS 's) based on expected inflation levels according to standard adaptive expectations. Together these imply voter, societal, and governmental welfare functions, based on short-run utility, long-run utility, and reelection-probability maximization respectively.

The arguments, presented graphically and algebraically, run as follows. At point A on LL , the government can maximize the voter function at point B on S_0S_0 in the short run by inflating the economy and lowering unemployment, even though less of both is generally preferred (i.e. V_0V_0 to $V_{01}V_{01}$). However, at B, there will be a rise in expected inflation, causing a shift to S_1S_1 , a fall in utility to V_1V_1



Graph 2.2

Nordhaus-MacRae Electoral Theory
of the Business Cycle

and a long-run tendency to point C. A stable equilibrium for such pure short-run behavior is D, where S_2S_2 is tangent to V_2V_2 . At D it is no longer possible to raise utility, even in the short-run, through expansionary policy. This implies the social discount rate is infinite. This is clearly a level of lower unemployment, higher inflation, and lower utility than the welfare optimum E, the tangency of LL and V_3V_3 . At E utility is at a maximum in the long-run, implying a zero social discount rate. It is easy to see that the theory is basically not violated by a vertical LL, except to the extent that in the long run lower unemployment is never possible and positive inflation never optimal.

It is reasonably simple to see how the PBC emerges from this. As an election approaches there is a clear incentive for politicians to inflate the economy. However, post-election, this causes an accelerating inflation which, if unchecked, would endanger the government's reelection chances in the new period. To maximize its chances under short or decaying voter memory, it will want to shock the economy into decelerating expectations as quickly as possible so that a high enough VV curve remains attainable. The pattern that emerges is inflation that continually worsens, and unemployment that continually improves, over the electoral cycle, with an abrupt turnaround immediately following an election. Clearly the flatter the short-run tradeoffs, the stronger are the cycles.

This model has been extended by other authors. Frey and Ramser (1976) extended the model to the case where politicians worry about subsequent elections. With non-myopic governments, cycles may still occur but Nordhaus' result of a long-run welfare suboptimum no longer holds. Fassbender (1981) demonstrated that such politico-economic models can generate stable equilibria in the policy context of a standard IS-LM aggregate demand model. Lachler (1982) and Ginsburgh and Michel (1983) showed that endogenous elections, as in a parliamentary system, will tend to dampen PBC's compared with the fixed-date case. This is both because elections may occur unexpectedly and because it is easier for governments to build exogenous economic events into their political strategies.

Lachler also demonstrated formally that under certain circumstances governments may be under ongoing pressure to create inflationary situations given this type of PBC model. This is true if a parliamentary government faces a badly divided legislature, as in the case of minority or coalition government. Thus both an "electoral deficit" theory and a "chronic deficit" theory can be postulated from orthodox economic models.

Nordhaus suggested a range of policy options to deal with the alleged problems of electoral cycles. These included shortened electoral periods and social planning in the form of incomes policies, politically independent

agencies for stabilization policy, and multipartite sectoral negotiations. However these would admittedly only reduce such cycles, not eliminate them. Both Nordhaus and MacRae dismissed one real "solution," infinite electoral periods, as inherently undemocratic. Their strong preference was the reduction of cycles through processes of social learning.

This theory can, of course, be criticized on all its assumptions. This includes the hypothesized stability of voter preferences and of the underlying relationships of the Phillips' Curve. There have been specific criticisms of the mechanical optimality of the Nordhaus-MacRae cycle. It has even been suggested that the assumption that elected officials are in charge of macroeconomic policy is unrealistic.⁴

Of all the criticisms, however, two in particular stand out. First, in the context of fiscal hypotheses, the electoral theory implies not only that fiscal policy is effective, but that it can be subject to an extreme form of fine-tuning. This idea is now discredited and is simply not plausible.⁵ Second, the informational content of these models is controversial because of the myopic behavior necessary to sustain PBC's. Only this allows the deviations

⁴These types of general criticisms can be found in Golden and Poterba (1980), Alt and Chrystal (1981c), Dinkel (1981), Pommerehne and Schneider (1983), Renaud (1989, 19) and Whynes (1989).

⁵See Monroe (1980, 1983) and Winters et al (1981, 78-80 and 103-106).

between short-run behavior and welfare optima.

The problem of agent information will be discussed again below because it is so central to recent theoretical development in macroeconomics; however, a few comments can be made here. It can be argued that myopia is a plausible assumption if it is backed by behavioral research, including research into voting behaviour. In fact this is done by Nordhaus (1989, 28-39). However, such defences are complicated by apparent contradictions in the assumption. As we have noted, Frey and Ramser (1976) believe that voters are myopic but governments are not. Nordhaus himself argues that voter myopia will decline with experience and will reduce PBC's to irregular events (1989, 6). This raises questions about the consistency of the myopia assumption for agents across both their economic activity and their voting behavior. As well, it is not clear that this concept of a "political business cycle sometimes" generates a research procedure (Neumann and Lohmann, 1987).

Phillips' Curve theory has been used to develop a partisan politico-economic model as well. Douglas Hibbs (1977) proposed that the unemployment-inflation tradeoff of the Phillips' Curve indicated that macroeconomic policies and outcomes could be systematically dependent on partisan political considerations.

The reasoning behind this theory is as follows. Inflation and unemployment are not simply general

macroeconomic outcomes. They also represent both the subjective preferences and objective interests of the typical partisan coalitions of advanced Western societies. The former can be demonstrated by survey data. The latter is consistent with both economic theory and empirical evidence. Hibbs noted that the effects of growth cycles exert opposite influences not only on inflation and unemployment but also on profits and wages, with the latter being more clearly procyclical.⁶ Thus, along with more obvious concerns of creditors and debtors, there are clear macroeconomic preferences among politico-economic sectors. Low income earners, wage earners, and blue-collar workers will have preferences for high employment and high growth even in the presence of inflation. These tend to be the support bases of "left" or socialist political parties. On the other hand, high income earners, capital owners, and white-collar workers will tend to have preferences for price stability and are less susceptible to the effects of high unemployment or constrained growth. Likewise these tend to be the support bases of "right" or conservative political parties.

The partisan model has no clear policy implications although Hibbs is clearly a supporter of the "left." He believes that "left" governments can and do improve economic

⁶Hibbs (1977, 1469) notes that this finding with regard to wages is contrary to Keynes' theory where wages are countercyclical. This serves to illustrate some of the eclectic tensions present in some versions of the Phillips' Curve-type synthesis.

welfare through activist Keynesian policies that reduce unemployment and improve growth.

The central criticism of the partisan model is that it rests on a narrow range of possible partisan alignments in a democratic system i.e. alignments around critical socio-economic cleavages. If clear cleavages are not present, then all political parties will tend toward the preferences of the median voter. Likewise if the wrong cleavages are present, say cleavages of an ethnic or regional nature, then there may exist no clear basis for major partisan differences in macroeconomic policy.⁷ Of course, the partisan theory is also subject to all the same theoretical criticisms as the electoral theory as regards the fiscal policy hypotheses generated by Keynesian-type macroeconomic models.

Broadly speaking, none of the theories studied so far are incompatible. Both Marxist and more orthodox theories are more or less based on Keynesian macroeconomic theory. This implies the efficacy of aggregate demand policies. Therefore such policies must matter to both voters and politicians at the macroeconomic level.

The main difference between these two groups of theories is the liberalism of the orthodox theory. This certainly implies a greater faith in change through both the political and economic systems. For this reason there is no

⁷See Madsen (1980) and Willett and Banaian (1988b).

Marxist "partisan" theory although both are based on class conflict. Marxist "chronic" theory is obviously more congenial than any such orthodox variety. Marxist "cyclical" theory presents no hypothesis about timing and could be fitted into an "electoral" model. Pal (1981, 52-57) provides hypotheses consistent with both theories. However the Nordhaus-MacRae theory does not hinge on representational skews as Marxist theories do, except perhaps a skew toward the government itself (Nordhaus, 1975, 182). The more liberal theories also hint that the problem is the ignorance of the masses rather than the power of the elite.

A synthesis of the two principal theories here -- the electoral theory and the partisan theory -- is possible. Partisan theory is only a cycle theory in the longer-run sense and is in no way contrary to the electoral hypothesis. While Hibbs realized this initially, it has only recently been formally demonstrated by Nordhaus (1989). According to Nordhaus, arguments that political parties would behave in a "principled" manner in the partisan model, but display "opportunistic" behavior in the electoral model, are simplistic. This is because principled political parties would have preferences for electoral victory if for no reason other than to keep ideological opponents out of office and away from power. Given ideologically distinct parties that alternate in office and have preference

structures that accordingly weigh so-called "electoral" and "ideological" motives, it can be demonstrated that there will continue to be electoral cycles in policies and outcomes. Furthermore, the inclusion of both motives adds to endogenous instability.

An even more synthetic possibility is raised by Charles Schultze in an appendix to the new Nordhaus paper. He suggests that political parties may not simply have different preferences and interests, but that they may in fact believe in different macroeconomic models. There is, he argues, enough uncertainty about the truth-value of different models to make such a situation quite feasible. This is not a challenge to the theory but to our ability to extract motives from behavior. Do governments act a certain way because they believe it is in their interest, or because they believe it is correct? Are they able to make the distinction?

This ambiguity helps explain the contradictions that arise in assessing partisan behavior in an electoral context. On the one hand, it can be argued that "left" parties are less likely to create an electoral cycle because they are more committed to Keynesian economics. On the other hand, it can be argued that "right" parties are less likely to do so because their Classical frameworks generate more skepticism toward such manipulations. Nordhaus' formal theory is wisely neutral on this point.

One particular difference between the electoral theory and the partisan theory should be mentioned. Hibbs' partisan model is based on both macroeconomic and microeconomic analysis. It is microeconomic in the sense that it is based on preferences of a distributional nature. This provides a grey zone between theories of an entirely different nature. These next theories reflect a far greater skepticism toward Keynesian macroeconomics.

2.2.3 Conservative Critiques

There have long been opponents of Keynesian economics and its fiscal policy prescriptions. These critics also believe that macroeconomic policy can be inherently destabilizing. However, they challenge very basic Keynesian assumptions on which the early versions of PBC theory were based. They emphasize the view that fiscal policy is primarily a distributive phenomenon, not a stabilization tool.

For example, early opponents such as Hayek and the Austrian school also held a type of PBC theory. They believed that the principal effect of deficit-financing is to raise the demand for loanable funds, pushing up interest rates and "crowding out" private investment. From there, government might use its monetary monopoly to monetize the deficit and raise the supply of loanable funds as well, lowering interest rates. This would give rise to the "monetary trade cycle." The effect of these interventions is

not aggregate demand management but simply the reallocation of resources to the public sector due to deficits and their misallocation to general investment due to monetary creation. The expansion of the money supply leads business to undertake projects which will prove to be unprofitable. Thus an artificial economic high leads to a recession later. The boom-and-bust sequence that follows links yesterday's inflation to tomorrow's unemployment. From this perspective there is no tradeoff at all, only the "stagflation" that was to mark the 1970's.⁸

Similar views were held by the monetarists. While accepting some Keynesian assumptions, monetarists insisted upon the long-run functioning of markets and rejected fiscal policy postulated on a chronic supply of unused savings. This again raises the potential for government deficits to crowd out private investment through higher interest rates. As well the monetarists, like the Austrians, remained skeptical about the role of government in society. This they believed to be the essence of fiscal policy. Not only did they doubt the ability of governments to respond to cycles with appropriately-timed budget balances, they stressed that fiscal policy lacked political neutrality. That is to say, monetarists believed that fiscal policy was too easily used by governments to confer distributional benefits and costs

⁸See Wagner (1980), DeLorme and Ekelund (1983) and Lewin (1988).

on political friends and opponents respectively.⁹

While these early critics of Keynesian fiscal policy were often motivated by a political perspective at least partially divorced from their economics, a new interdisciplinary field emerged to accommodate their criticism. This is the school of "public choice." This broad area overlaps the academic division of labour between economics and political science. Its intellectual roots are in classical political economy and traditional public finance. It therefore tends to harbour both ideological and technical skepticisms toward the ability of political processes to generate well-defined social welfare optima.

The goal of public choice is to apply economic analysis to the field of politics.¹⁰ It is about politico-economic theory. In this regard, public choice has been the dominant influence in both the development and testing of virtually all non-Marxist PBC theory. In its purer forms it rests on the following assumptions. These distinguish it from traditional analysis, but especially from Keynesianism:

1. Government is not just a policy-making institution, but is also a basis for

⁹See Mitchell (1988) and Dornbusch, Fischer and Sparks (1985, 541-547).

¹⁰Various aspects and examples of the public choice framework can be found in Frey (1978), Frey and Pommerehne (1978), Wagner (1980), DeLorme and Ekelund (1983), O'Heron (1984), Vanberg and Buchanan (1986), Doern, Maslove and Prince (1988, 103-106), Hartle (1988), Havrilesky (1988b), Schneider and Frey (1988), Willett and Banaian (1988b) and Renaud (1989).

positive analysis."Government failure" is as valid a concept for policy analysis as is "market failure."¹¹

2. Governmental actors are fundamentally the same as non-governmental actors. They are motivated by self-interest, not social optima. They have preferences; they are not neutral.
3. Governmental processes and institutions are often different from market processes and institutions. In fact, they are highly prone to failure, i.e. to inefficiency economically and unrepresentativeness politically.

Public choice theory describes fiscal policy in the terms of traditional market theory, not in terms of Keynesian analysis. Governments are political "suppliers" of deficits, while voters are "demanders." Politicians are "entrepreneurs," while bureaucracy, media, interest groups, and political processes are part of the "production function." Political success consists in a party gaining a temporary monopoly contract to govern by offering competing sets of outputs (public goods) and prices (taxes) in exchange for votes. Politicians will want to provide as many goods at as low a price as possible. Deficits may help them to do this, particularly since they are not personally liable for such future costs. At the same time, voters may be willing to support such programs because the benefits are direct and sector-specific, while the costs are uncertain

¹¹Purvis and Smith (1986, 42n) note that balancing the benefits and costs of both market and regulatory regimes is standard practice in microeconomic policy analysis, but not macroeconomic policy analysis.

and spread. Thus they may not see or appreciate the relation between their own 'marginal' expenditure behavior and the 'total' taxation burden.

The focus of public choice theory is therefore on an alleged "chronic deficit" tendency in government.¹² This theory can be traced as far back as Adam Smith and the final chapter of the Wealth of Nations (1776, 859-900) where such a tendency manifests itself in long-run debt accumulation, economic misallocation, inflation, and growing political tension.

A weak "electoral theory" has also been advanced in this framework by Wagner (1980) and Havrilesky (1988a, 1988b). In both cases it postulates an Austrian-type cycle in terms of electoral timing. However, monetary policy is the immediate cause of the actual economic cycle, with fiscal redistributions underlying it. The "partisan theory" tends to be less of an issue here due to the systemic concerns of public choice, although the monopoly aspects of government may allow politicians to pursue ideological agendas.¹³

In terms of policy prescriptions, public choice theorists inevitably focus on basic systemic change through the constitution. Since a constitution establishes and

¹²See Buchanan and Wagner (1977) and Crain and Ekelund (1978).

¹³See the Frey-Schneider model outlined in subsection 2.3.1 below.

describes the role of governmental actors, only a constitution can provide constraints to suboptimal government behavior. Recommendations frequently include such suggestions as balanced budget amendments, expenditure or taxation limitations, and an end to the governmental monetary monopoly.

Several criticisms can be applied to such public choice theories. These are, for testing purposes at least, very simple hypotheses and their generation has tended to outpace theory (Alt and Chrystal, 1981a, 37-39). They often rest on government failure (or at least government market power) as an assumption; for example, "government will spend more rather than less" or "government will monetize rather than borrow." It is not clear that illustrating these proves suboptimal behavior, at least not in the absence of demand-side analysis (Ahmad, 1983, 174). In fact public choice studies often reduce simply to "opinions supported, at best, by snippets of anecdotal evidence" (Cameron, 1986, 22). This should be noted before we review empirical work in the next section.

Some of this oversimplicity is connected to an underlying uncertainty about economic theory. Like the monetarists, public choice theorists have tended to "pick and choose" between economic models. For example, their views on aberrant fiscal policy obviously rest heavily on voter irrationality and "fiscal illusion." Yet such myopic

behavior is at odds with the rational and well-informed agents necessary to make the market work -- the market in which public choice conservatives prefer to put their faith.

Public choice theorists do have a response to this criticism however. They argue that such irrationality is to some degree endemic to the political process which is only limitedly representative, where learning must be collective to be effective, and where misinformation is a legitimate activity. In this last category they would include the concept of Keynesian macroeconomic policy itself. In their view macroeconomic fiscal policy is fictive in nature. Its essential function is to increase the scope for distributional policy. It is the distributional effects of policy that matter to the people whose votes politicians wish to buy (Wagner, 1980, 6). At the same time though, public choice theorists argue that some costs and benefits of policy are internalized more quickly than others e.g. direct ones as opposed to indirect ones.¹⁴ This concept of "irrationality" shall be taken up again below.

Additional specific criticism can be directed at the public choice fiscal PBC policy theories that are our interest here. If fiscal policy is really a distributional matter, why then would it have the macroeconomic

¹⁴James Buchanan's denial of "Ricardian equivalence" has led to a direct debate with rational expectations theorist Robert Barro. This is noted in Buchanan and Wagner (1977, 107-124), Crain and Ekelund (1978, 822n-823n) and Pack (1987, 235n-236n).

manifestations that PBC theory predicts? Production and quantity controls, barriers to entry and repricing policies are examples of micropolicy that are consistent with public choice analysis, but need not be accompanied by either big deficits or ongoing deficits. While such deficits are still possible it is not clear when or how large is optimal. Thus there is no real basis given for consistent and testable fiscal policy patterns.

2.2.4 New Classical Revisions

New Classical macroeconomics is based on a complete rejection of Keynesian economic theory. This emphasis is somewhat different from political business cycle theory which has been based largely on a rejection of the Keynesian view of economic policy. Recently, however, there has been some significant synthesis between the two approaches.

New Classical theory is constructed on a theory of "rational expectations." Economic agents are "rational" in the sense that they use all information at their disposal. New Classicals reject economic policy based upon Keynesian concepts like the expectations-augmented Phillips' Curve. In their view workers would eventually learn that there is a relationship between stimulative macroeconomic policies and inflation. They would begin to adjust their inflationary expectations, based on past experience, without changing their labour supply behavior even in the short run. The Phillips' Curve relationship would thus cease to exist

altogether.

New Classical theory postulates that markets are capable of functioning correctly, even in the short run. Thus the basis for any highly interventionist economic policies is undercut. These can work only if policymakers possess information superior to that possessed by private economic agents. Therefore, theorists model non-marketing-clearing situations in terms such as "surprises" by monetary authorities and the absence of information. The efficacy of policies based on systematic and repeated errors by economic agents is rejected by New Classical theorists.

New Classical theory has important implications for any conception of fiscal policy. It follows directly that fiscal policy has no place as a countercyclical stabilization tool if cycles are based on theory of a Keynesian nature. Such policy is bound to be ineffective. In fact, rational expectations theorists generally believe in "real business cycles," the idea that so-called "cycles" are not regular, but can be attributed to structural changes in the economy whether "shocks," (like an OPEC oil price increase) or more permanent phenomena (like labour market restructuring through unemployment insurance regulations).

In fact, the only stabilization role for rational-expectations-based fiscal policy relies on traditional public finance criteria. Because tax collection and changes in tax collections are associated with certain "deadweight"

losses to the economy, it is optimal for governments to engage in some "tax smoothing." That is to say, budget balances should be countercyclical in light of transient changes in national output.¹⁵

New Classical theorists have often been as critical of PBC theory as they have been of traditional macroeconomic theory. To them, PBC theory has been based on similarly untenable assumptions of irrational behavior. However, there has been some growing interest of New Classical economists in PBC-type theory, though consistent with their modelling techniques. In fact, there have only lately been important contributions to PBC theory in the highly rigorous and abstract tradition of New Classical macroeconomics. This is a natural development, given the broad economic and political biases that Public Choice and New Classical share.

Mark Cukierman and Allan Meltzer (1986) provided one of the earlier published versions of a rational-expectations PBC electoral model for policy. Assuming voters are perfectly rational and assess all available information, there may still be a difference between the policy of a benevolent social planner and that of a self-interested politician seeking to maximize chances of reelection. However, this can only come about because of a short-run

¹⁵See Barro (1979). Given, however, the New Classical belief that business cycles are "real," the ex ante identification of "transient" income fluctuations must be problematic in practice if not in theory. Barro identifies only wars as a concrete example.

informational asymmetry and the uncertainty it generates. This will be the case if government possesses information about its actions and their relation to the socially optimal outcome that will not become fully apparent to voters until after the election. In this situation, it is rational for voters to attempt to evaluate the politician's actions based on past behavior. In other words this justifies "retrospective voting" behavior. However this cannot guarantee that voters will correctly evaluate the politician's actions, even if they are aware that his policy may deliberately deviate from the social welfare optimum.

A similar model is advanced by Kenneth Rogoff and Anne Sibert (1988). Specifically, they demonstrate that politicians may be able to fool the public into believing that an electoral budget deficit is really an improvement in the "competence" of government in delivering more public goods relative to cost. Again this is possible only if there are informational asymmetries that can be exploited. There is no incentive for politicians to deviate from a socially optimal policy in off-election years. As well, it is shown that improvement in the government's popularity does not necessarily lessen its likelihood of cheating, assuming that popularity is at least partly related to non-economic factors.

Rogoff (1990) provides another full-employment, rational-expectations model to demonstrate that there can be

fiscal distortions in the presence of informational asymmetries between politicians and voters and the consequent unreliability of pre-election budget information. Again there is no reliance on such devices as "money illusion," "fiscal illusion," or "voter myopia" to demonstrate the results. Distortions in this model are in a nature of shifts of government spending from investment to consumption. A shorter period of office will dampen electoral cycles, but of course will increase their frequency. He also demonstrates that they are dampened by endogenous election dates, as in a parliamentary system. There is no incentive for a policymaker to create an electoral cycle if he/she is not seeking reelection.

It is important to note that none of these models would provide any basis for significant or persistent effects of electoral cycles on output or employment. The informational asymmetries and uncertainties on which all such cycles are based will influence behavior only temporarily and are corrected with the assimilation of post-electoral information. Indeed policymakers only engage in such behavior for the purposes of reelection. This is a key difference between these and traditional PBC models.

Similar rational expectations models of the partisan theory have also been developed, principally by Alberto Alesina. Broadly speaking, distinctive partisan shocks come about because agents are unable to predict with certainty

election winners.¹⁶ Alternatively such shocks could result from policymakers departing from reputational patterns.¹⁷

Specific versions of partisan PBC fiscal policy have also been presented. In a recent article by Alesina and Guido Tabellini (1990), rational expectations modelling is applied to a political economy with two parties that alternate in office and agree on optimal balanced budgeting and in their preferences for the level of public goods provision. However, they disagree about the type of public good to be provided, and this is an adequate basis for the incurrence of deficits.¹⁸ The reason for this hinges on the (very realistic) assumptions that spending and taxation decisions are not binding on successors, but debt obligations are. Thus the incurrence of debt becomes a strategic item to influence the choice of successors where the party's continuation in office is uncertain. This accumulation of debt will be greater as polarization between the parties increases and the chance of reelection falls. However, there remains the possibility that cooperation could benefit both parties in this model.

The Alesina and Tabellini model contrasts markedly with

¹⁶See Alesina (1989, 60-63) and Alesina's comment in Nordhaus (1989, 50-56) for references.

¹⁷For reference to such models see Willett and Banaian (1988b, 119 and 127n).

¹⁸Alesina and Tabellini (1990, 404n) note the existence of a less generalized model where parties disagree over the level of public goods provision.

an earlier rational partisan fiscal model constructed by Minford and Peel (1982). Their combination of rational behavior in a Phillips' Curve framework constituted a rare example of a PBC "New Keynesian" model. Accordingly, Minford and Peel postulated structural rigidities in the economy that allow for more persistent policy impacts on real variables. Then fixed partisan feedback rules were modelled based on underlying cleavages of a Hibbs-type nature showing that "right" governments would indeed tend to higher budget balances than "left" governments.

The New Classical approach has also produced a "chronic deficit" model. Tabellini and Alesina (1990) have recently provided a rigorous formulation of an inherent bias in democratic society toward budgetary deficits that does not depend on either the occurrence of elections or the existence of political coalitions. In fact, their model excludes all forms of "fiscal illusion," nonaggregatable voter preferences, discounting of future preferences,¹⁹ structural rigidities, and concepts of optimal budget deficits or preferences for them. The principal source of budget deficits becomes the shifting preferences of the unknown future median voter. Due to this and the impact of present fiscal policy on future options, budgetary deficits again become desirable as a strategic tool for securing

¹⁹Alesina and Tabellini (1990, 403n) note the existence of a model of deficit tendencies based on intergenerational transfers.

present preferences in an uncertain future. This is in effect a time-inconsistency problem in a dynamic optimization framework. It is aggravated by greater heterogeneity in the preferences of the population. Cooperation of intertemporal majorities is possible but unlikely. This is certainly a very strong result.

New Classical models are not activist in their policy recommendations. This is not simply because the rational expectations approach doubts the efficacy of policy. It is also because it attributes economic fluctuations largely to transient shocks, of which policy changes are examples. In this regard, the differences between Public Choice and New Classical become more apparent.

Tabellini and Alesina (1990, 45-46) suggest the possibility of a balanced budget amendment. Rogoff (1990, 22 and 30-33), however, argues against this. In his view, such constraints undo the function of the fiscal cycle as a provider of socially useful information. Not only does such an amendment restrict fiscal flexibility that may prove to be desirable from a social welfare perspective, but it may also lead to the use of more costly signalling. Any solution to problems like suboptimal budget deficits must be carefully constructed to ensure that such costs are borne by incumbents rather than society at large. Alesina and Tabellini (1990, 412-413) agree that this problem at least partly reduces to the unsettled dilemma of applying "rules"

versus discretion" to potentially suboptimal policy situations. Cukierman and Meltzer (1986, 378-385) see it differently however. They demonstrate that the same informational asymmetries that create suboptimal policies also encourage policymakers to break any "rules." This tendency is attenuated, but not eliminated, if the impact on their future electoral fortunes is taken into account. Furthermore, under their model, the pressures that lead to unbalanced budgets make the attainment of such constitutional amendments extremely unlikely. In fact, given voters with diverse views on activism, there is a bias of policymakers to discretion in seeking reelection.

To summarize, the shared inclination toward non-intervention by Public Choice and New Classical theorists tends to be strengthened by the formalized and consistent approaches preferred by the latter. This leads New Classical models to reject not only Keynesian economic policies, but also conservative constitutional measures.

On the other hand, it is not correct to categorize New Classical models as free from ideological content. It can be argued, for example, that New Classical PBC models contain a contradiction. If "rational" agents use all available information to improve their welfare, then how could any government policy or process ever generate suboptimal behavior (such as chronic deficits)? The reasoning would be that if cooperation generates improved welfare, agents must

eventually dispose of "self-interest" narrowly defined. To us this seems contrary to human nature, but it is a position defended by rare public choice liberals.²⁰

In this regard an ideological contrast can be made between Keynesian and Classical theory. Although they ostensibly disagree on matters of economic theory, their modelling techniques do contain political biases. Keynesianism requires benevolent and neutral technical bureaucrats who are not species of homo oeconomicus, unlike their private sector counterparts. Classicalism implies the behavior patterns of homo oeconomicus persist when they are suboptimal in a non-market environment. The former makes sense only if humans have infinitely rational (or non-rational) behavioral possibilities which are highly correlated with their economic environments. The latter makes sense only if the rationality of human behavior does in fact have some limitation invariant to the economic environment. Thus the "liberal" position that the market creates behavior and the "conservative" position that behavior creates the market underlie more abstract arguments over the modelling of "rational" and "consistent" behavior by economic agents.

2.2.5 Summary

The foregoing discussion should serve to convince one

²⁰See Hartle (1988, xxi-xxii).

of the diversity and complexity underlying PBC "theory." Theories cut across various fields and schools. Some are compatible, while others are not. In some cases compatibility has led to synthesis. In others it has not. In some cases incompatibility is obvious from the hypothesis. In others it stems from differences bred by the schools from which such hypotheses originate.

A summary matrix could nevertheless be constructed. The evolution of theory from Marxist/Orthodox to Public Choice/New Classical represents a shift from acceptance of Keynesian generalities to their rejection, from emphasis on macroeconomic outcomes to explicit policy theories and microeconomic considerations, and from the "left" to the "right" politically. The evolutions from Marxist to Orthodox and from Public Choice to New Classical represent shifts from descriptive, highly ideological, and supply-driven versions to more formal, abstract, and balanced versions. These latter may retain basic political bias but they are much less drastic in their political and policy implications, favouring social learning over radical systemic changes.

There are at least three specific PBC fiscal theories - the "electoral" theory, the "partisan" theory, and the "chronic" theory of budget deficits. None of these are inherently incompatible. There are also "cyclical" theories without specific timing (Kalecki, Hayek). As with certain

chronic theories, these are based on deep ideological commitments to the public sector and to the private sector respectively.

The electoral and partisan theories clearly exist in forms both Keynesian and Classical by nature. In their Keynesian form the truth of these theories is not simply dependent on testable fiscal policy behavior. It is also dependent upon the ability of such policy to generate political support and its efficacy as macroeconomic stabilization policy. In their Classical form the truth of these theories is dependent upon testable fiscal policy behavior and the ability of such policy to generate political support. However, as macroeconomic stabilization policy, fiscal policy must be ineffective. Obviously then the relative merits of these two types of theory hinge on the ability of fiscal policy to affect macroeconomic outcomes. This issue is beyond the scope of this paper and will not be resolved here.

The cyclical and chronic theories associated with explicit neo-Marxist and neo-conservative political perspectives may be testable as fiscal policy behavior. Generally speaking, however, their truth is dependent on neither the macroeconomic effectiveness of fiscal policy nor its ability to generate political support. This is because of their ideological character. Neo-Marxist and neo-conservative perspectives are ultimately based on broad

social theories about the motivations and power structures inherent in the social order. We should be cognizant of the fact that their breadth probably provides a basis for interpreting any results of tests on fiscal policy. In the absence of an ability to control broad social parameters, tests of much narrower questions of political economy are extremely unlikely to be viewed as being falsifiable hypotheses.

2.3 Previous Empirical Research

In this section we review empirical work relevant to the general area of political business cycles. PBC empirical research topics can be broken into three general types. These are macroeconomic outcome functions, government popularity functions, and macroeconomic policy functions. As theoretical developments have shifted from Keynesian-based to Classical-based models, so has interest tended to shift from outcome to policy functions. We will briefly review these various categories here.²¹ We shall then proceed to discuss fiscal policy tests, budget balance functions, and attempts to integrate these categories. This section ends with a brief discussion of Canadian evidence in these various categories.

In many ways this research is quite discontinuous and conflicting -- a fact related to the multiplicity of theories and theoretical perspectives. Empirical work has preceded independently of theoretical development in many cases. The sophistication of much of this research is also quite limited. Much statistical research, particularly in the earlier studies, can only be classified as "preliminary" at best. These studies are descriptive, anecdotal, univariate and/or non-probabilistic. Multivariate and

²¹Some general literature surveys across these categories can be found in Paldam (1981), Winters *et al* (1981), Lowery (1985), Schneider and Frey (1988), Nordhaus (1989), Whynes (1989), and Haynes and Stone (1989, 1990).

stochastic studies are restricted to standard regression analyses with a few exceptions.

Some of these problems can be seen in the context of the testing of macroeconomic outcomes. The usual variables tested have been unemployment, inflation, and the growth rates of output and disposable income in all or part of the postwar period. Initial evidence was provided by the early theoretically-oriented authors. Nordhaus (1975), for example, provided preliminary data indicating possible electoral unemployment fluctuations for six of nine countries of the Organization of Economic Cooperation and Development (OECD). MacRae (1977) provided a more sophisticated test of the electoral theory. He estimated Phillips' Curve parameters for the United States and then inferred policy preferences from actual outcomes. He suggested that Democratic Presidents behave as if voters are myopic whereas Republican Presidents behave as if voters are strategic, *i. e.* taking longer-run outcomes into account. Hibbs (1977) provided an autoregressive-moving average model of British and American unemployment rates and showed that their dynamic time-path is altered by the partisan composition of the executive in each case, although electoral effects appeared insignificant. Tufte (1978) provided exhaustive preliminary evidence of such electoral and partisan behavior in the U.S. political macroeconomy.

Tests of the initial Nordhaus-MacRae formulation of the

electoral hypothesis in various Western countries found weak support in articles by Paldam (1979), Madsen (1980), Amacher and Boyes (1982), Weller (1983), Kellman and Izraeli (1985), and Soh (1986). Dinkel (1981), Neumann and Lohmann (1987) and Lewis-Beck (1988, 137-152) were more categorically negative. Alt and Chrystal (1981c) found no support for the MacRae tests applied to Britain. MacRae (1981) became somewhat skeptical of his own initial findings when retested against a better database of potential output levels.

In fact, testing of the PBC electoral hypothesis had been discouraged since a publication by Bennett McCallum (1978). McCallum used an autoregressive equation to demonstrate that U.S. unemployment could be modelled as a random walk. In this model, deviations around the natural rate appeared as white noise and could not be explained by electoral variables. In effect, McCallum's purpose was not only to disprove the PBC hypothesis but also to provide evidence of the rational expectations hypothesis of ineffective macropolicy.

McCallum's results have been increasingly challenged however. Using McCallum's methodology, Allen, Sulock and Sabo (1986) claim electoral effects are significant (but small) if the PBC hypothesis is restricted to cases where the incumbent is reelected. Keil (1988) claims to find PBC's for Britain also by using McCallum's methodology. McGavin (1987) criticizes McCallum's approach. He claims it creates

a countercyclical natural rate of unemployment which biases the results. In fact he claims some support for the significance of a distributed lag of an electoral variable explaining both unemployment and the growth rate of output.

Further testing of the partisan hypothesis has also been performed. Capron (1986) claims to find partisan effects for Belgian macroeconomic outcomes, although his electoral effects are weak. This is a particularly significant result because Belgium, like Canada, is a small open economy where macroeconomic manipulation is generally thought to be less effective. Alesina (1989) finds similar results in a cross-sectional study. Using McCallum's methodology on the United States, Alesina finds partisan effects but no electoral cycle (Nordhaus, 1989, 50-56). Hibbs' (1987) later testing reaffirms the same conclusion as well as showing that the parties produce the predicted distributional outcomes. Nordhaus (1989) finds the opposite however (as had Weller). He shows a significant electoral effect in a Phillips' Curve relation for the U. S., but no partisan one. Schultze (Nordhaus, 1989, 56-63) finds elements of both.

Recent articles by Haynes and Stone attempt to shed some light on such contradictory results. In Haynes and Stone (1988) they argue that electoral effects are often missed by the arbitrary specification of electoral variables in regression analysis. Using spectral analysis, they fit a

Phillips' Curve to the most appropriately-timed electoral sine wave. However, such analysis would be limited to political systems with fixed electoral terms. In Haynes and Stone (1990) they demonstrate similar results for other macroeconomic outcomes. Most significantly, they expand the analysis for partisan factors. They show that these fit best when they are interacted with electoral factors. In total, however, Whynes' comment remains valid, "The electoral business cycle has fairly rapidly assumed the characteristic of the Abominable Snowman -- one explorer confidently reports a sighting yet subsequent expeditions find no traces" (Whynes, 1989, 119).

While the nature of macroeconomic outcomes remains elusive, there is stronger evidence to suggest that macroeconomic outcomes influence a government's reelection chances. While strictly outside the tests we will perform here such evidence is critical in the construction of full PBC models. Tests are performed and/or reviewed in many articles, including MacRae (1977), Golden and Poterba (1980), Madsen (1980), Alt and Chrystal (1981c), Chrystal and Alt (1981), Maloney and Smirlock (1981), Paldam (1981), Amacher and Boyes (1982), Minford and Peel (1982), Schneider (1985), Capron (1986), Haynes and Stone (1988), Ito and Park (1988), Lewis-Beck (1988, 137-152), Willett and Banaian (1988b), Renaud (1989, 24-33), Nordhaus (1989) and the Frey-Schneider studies to be discussed below. The principal

points of debate are the most appropriate economic variables and the symmetry and stability of popularity functions. There is no consensus on whether voters are strictly myopic or more broadly rational in their evaluations of economic information, although the former position appears to be more easily defended.

This study is primarily concerned with government policy, whether conditioned by popularity considerations or attempts to influence economic aggregates. Fiscal policy reaction functions will be discussed below. In actuality, the concept of endogenizing policy behavior is much more common in the case of monetary policy. Examples of this are included in Monroe (1980, 1983), Minford and Peel (1982), Ahmad (1983), Frey and Schneider (1983), Joyce (1986), Soh (1986), Havrilesky (1988a), Ito and Park (1988), Keil (1988), Nordhaus (1989) and some of the integrated studies discussed below. These tests are generally favourable to hypotheses that non-stabilization factors matter in the construction of monetary policy.

2.3.1 Frey-Schneider Model

The best known attempt to model political fiscal policy has been made by Swiss political economists Bruno Frey and Friedrich Schneider.²² The Frey-Schneider model is typical

²²For examples of opinions that this is some of the best work in the field see Winters et al (1981, 54-55), Amacher and Boyes (1982, 202) and Haynes and Stone (1990, 455).

of approaches in this area, and helps to underscore some congenital weaknesses. Based on politico-economic hypotheses borrowed from public choice, political science, and public finance, Frey and Schneider test for mutual relationships between political and economic variables in terms of both a government popularity function and a policy reaction function. They argue for a reaction function primarily in fiscal policy since this is the instrument under direct government control.

Specifically, the Frey-Schneider fiscal model is a test of any expenditure or taxation component (INSTR -- usually government consumption expenditures) against administrative, political, and economic constraints. Administrative constraints, in the form of an incrementally-acting bureaucracy and other rigidities, are represented by a lagged dependent variable. Political constraints are represented by the government's electoral needs (ELECT), ideological goals (IDEOL) and its popularity standing (POP). It is hypothesized that a government's ideological preferences (represented by its partisan composition) would only be pursued above some comfortable popularity level (POPMIN) and that its reelection chances would be at stake only below that level. Its action above or below POPMIN is extremely sensitive to the popularity gap, whether in surplus (S) or deficit (D), so that this value is squared. Economic constraints are particular to each country and

include such items as the balance of payments, wage rates, and the budget balance. Therefore the general form of the Frey-Schneider model is:

$$\begin{aligned} \text{INSTR (t)} &= b_0 + b_1 \text{ INSTR (t - 1)} \\ &+ b_2 S * \text{IDEOL} * (\text{POP} - \text{POPMIN})^2 \\ &+ b_3 D * (\text{POPMIN} - \text{POP})^2 \\ &+ b_4 D * \text{ELECT} \\ &+ b_5 \text{ECON} \end{aligned}$$

A couple of additional points should be made about this model. First, the appropriate lag of each independent variable is usually tested for, but is generally within four quarters. Second, the ELECT variable is in a sense a "quantitative dummy," i.e. it takes the hypothesized values of an arbitrary electoral cycle. Usually it is hypothesized that the cycle is small or non-existent in the first half of the electoral term, but expansive and increasingly larger in the second half. Finally, neither this variable nor the others have a consistent format. There are considerable changes to this function in tests between countries.

The Frey-Schneider model is outlined in Frey and Schneider (1975). Successful tests of both popularity and fiscal functions are performed for the United States (Frey and Schneider, 1978a), the United Kingdom (Frey and Schneider, 1978b), the Federal Republic of Germany (Frey and Pommerehne, 1978), Australia ((Schneider and Pommerehne, 1980) and (Pommerehne and Schneider, 1983)), and Switzerland (Schneider, Pommerehne and Frey, 1981). This work is

summarized in Frey (1978), Frey and Schneider (1981b) and Schneider and Frey (1988).

The Frey-Schneider model has proven to be very controversial, more so over the reaction function than the popularity function. The variability of this function and the high degree of fit associated with the lagged dependent variable raise obvious concerns about whether the functions are simply data-specific. Charges have also been levelled regarding non-replicability of results.²³ However, the strongest opponents contend that the model is not well-grounded in economic theory.

This last point has been made by James Alt and Alec Chrystal (1981a, 1981b, 1981c). The central contention of Alt and Chrystal is that a fiscal model should be based on a conventional economic model against which political factors can be tested, rather than the other way around. Specifically, they argue that variables like government consumption expenditure are, first and foremost, linked to the level of GDP and persist in line with its trend. Thus they argue for a model built around a "permanent income hypothesis," against which political variables (POLI) could be tested. Using a Koyck transformation, this model reduces to the following:

²³See Minford and Peel (1982, 264) and the Alt-Chrystal studies discussed below.

$$\begin{aligned} \text{INSTR (t)} &= b_0 + b_1 \text{ INSTR (t - 1)} \\ &+ b_2 \text{ GDP} \\ &+ b_3 \text{ POLI} \end{aligned}$$

Having fitted this model for the United Kingdom, they find only limited support for partisan factors and none for electoral or popularity factors.

Furthermore, Alt and Chrystal charge that the Frey-Schneider model for the United Kingdom is deliberately misspecified to get a desired result (Chrystal and Alt, 1981). In this model a GDP target share of consumption expenditure is specified for a popularity surplus, but not for a popularity deficit. Thus the GDP-consumption relationship is picked up in "significant" popularity relationships. Furthermore the partisan variables are only "significant" because each party is tested separately. The difference between the parties is not significant. The reply by Frey and Schneider (1981a) rests on the superior predictive capacity of their model, but does not answer these criticisms. The debate is taken up again in Frey and Schneider (1982) and Alt and Chrystal (1983), except with a wider range of critics. The reply of Frey and Schneider (1983) leads to the same outcome. The point that models should be more grounded in both economic theory and standard testing techniques is made.

A second theoretical critique is made by Ahmad (1983). This is that fiscal policy should be tested with a standard fiscal policy variable, such as the cyclically-adjusted

budget balance:GDP ratio. The point is well taken and has become the basis for the budget balance tests we will review below. The use of standard macroeconomic policy variables is not just dependent on the efficacy of macroeconomic policy. It is also a question of whether politico-economic models have significance as macro-phenomena, or are really just a question of distributional games. For example, if certain expenditure and taxation functions can be represented by politico-economic models, but budget balances cannot, then further modelling on popularity functions should focus on specific voter segments rather than being specified at the full level of aggregation. Tests of the budget balance are a more interesting case from a PBC perspective because they imply that governments simultaneously care about both demanders and suppliers of public goods. Similarly, fiscal components are more subject to instrument-switching.

Nevertheless work continues on politico-economic models of expenditure and taxation policy. The best known of these were Tufte's (1978, 28-64) studies of U.S. transfer payments. While initially sensational, these results have been severely challenged by such authors as Paldam (1981, 1297), Winters et al (1981, 66-76) and Brown and Stein (1982). Other studies of fiscal components can be found in Paldam (1979), Monroe (1980, 1983), Madsen (1980), Ahmad (1983), Gruen (1985), Kieweit and McCubbins (1985), Cameron (1986), Soh (1986), Kamlet and Mowery (1987), Ito and Park

(1988), Keil (1988), Alesina (1989), Nordhaus (1989), Renaud (1989) and Roubini and Sachs (1989a).

2.3.2 Budget Balance Functions

In this subsection we review the bulk of the budget balance studies while leaving integrated tests until later. These studies are generally favourable though limited. Some budget balance studies, such as Winters *et al* (1981, 83-85) for the U.S., Kalchheim and Rozevitch (1990) for Israeli municipalities, and Alesina's (1989) cross-sectional study are too preliminary in their analysis to be discussed here.

Statistical studies of PBC fiscal policy through formal modelling of the budget balance are surprisingly rare. This is not just a deficiency restricted to Frey and Schneider or even to the general PBC literature. A recent review by Joyce (1986) listed 100 economic publications on the subject of macroeconomic policy functions. Few of these touched on fiscal policy functions and virtually none were relevant to the study of endogenous fiscal policy.

There seems to be only slight suggestion as to what a formal budget balance function should look like, other than its inverse relationship to transient or cyclical income fluctuations. Robinson and Courchene (1969) estimated a budget balance: national income share for Canada against permanent output and the output gap. Crain and Ekelund (1978) estimated a budget balance ratio against the proportion of total revenues in U.S. states raised from

taxes on human capital. While this links to a modern rationale for deficit financing, the explanatory value of the equation was very low.

The earliest tests of PBC budget balance hypotheses were skewed towards evaluating the possible impact on macroeconomic outcomes. Eckstein (1978, 39-48) for the U.S. and Dinkel (1981) for the U.S. and West Germany are examples. Both were interested primarily in whether apparent electoral patterns in full employment budget balances had been inconsistent with stabilization needs. There was no evidence that this had been the case.

Cowart (1978) may have provided the first regression test of a PBC budget balance equation. He tested the level of the budget balance (not its ratio) against a distributed lag of unemployment changes and inflation changes, as well as partisan dummies, for seven European democracies. He found virtually no fit other than one related to a seasonal pattern of revenue collection.

Most national budget balance functions tested have been American studies. Ahmad's (1983) critique of Frey and Schneider included a successful test of the cyclically-adjusted federal budget balance share of Gross National Product (GNP) against economic and political factors. The dominant economic factor was the growth rate of GNP as opposed to either the unemployment rate or the rate of inflation. The popularity deficit (not squared) was a

significant explanatory factor on the political side. The popularity surplus was not a factor and no electoral variable was tested. There was also no significant difference between administrations. Like the Frey-Schneider model, Ahmad included a (highly significant) lagged dependent variable. Schneider and Frey (1983) in a reply offered a test of their own model for a cyclically-adjusted budget balance ratio. It showed the lagged dependent, the taxation: GNP ratio, electoral timing, the popularity deficit, and the popularity surplus for the Kennedy administration only as successfully fitted explanatory variables.

Golden and Poterba (1980) had previously tested a PBC cyclically-adjusted budget balance ratio function for the United States without use of a lagged dependent variable. This was much less successful. Only the unemployment rate emerged as an explanatory variable in their tests. Inflation, changes in the disposable income, popularity levels, electoral factors, partisan factors and administration factors did not appear to matter, although all were correctly signed.

Laney and Willett (1983) tested the level of the cyclically-adjusted budget balance against a simpler model including the Presidential electoral cycle, the partisan composition of Congress and the size of the public sector relative to the economy. All factors were significant. The

fit of the model was improved by incorporating a number of periodic shocks into the model.

Hicks (1984) successfully tested both a budget balance ratio and a cyclically-adjusted budget balance ratio in an autoregressive model. He attempted to test a wide range of theories. In his attempt to test the Marxist theory he used a much wider range of economic variables. For a political cycle variable he fitted a cross-product of Frey-Schneider's popularity deficit squared and electoral quantitative dummy. This fit was significant and was particularly strong for the Nixon administration. Otherwise partisan and Presidential variables were not explanatory.

Lowery (1985) tested a range of economic and political theories of the budget balance. His dependent variable was an unadjusted budget balance ratio. He normalized using total outlays instead of GNP although this would not likely affect the results. Lowery found his budget balance ratio to be explained by both unemployment and its first difference and by the policies of particular administrations, specifically by the periods of the fiscally conservative Eisenhower and the fiscally liberal Johnson. Otherwise, his results showed no effect for partisan factors. Neither was inflation significant. Electoral cycles showed limited significance only if period-specific considerations were omitted. There seemed to be no evidence of a long-term downward trend to the deficit other than one related to a

long-term rise in the unemployment rate. Lowery's study is notable for the range of functional forms and cross-variables tested.

Pack (1987) tested the first differences of the cyclically-adjusted budgetary balance ratio against changes in the inflation rate, unemployment rate, real disposable per capita income and popularity, as well as partisan and electoral factors. The economic and partisan factors were clearly significant and electoral factors were weakly so. Popularity was a weakly significant factor but with the wrong sign. Pack's study is distinguished by focusing on budgetary proposals rather than realized outcomes. In this way, she was also able to distinguish between Presidential and Congressional policy initiatives. She found the former to be more fiscally conservative generally, but that both were inclined to fiscal expansion near elections.

Hibbs (1987, 244-268) tested a more complex relationship of the adjustment of the difference between cyclically-adjusted revenues and cyclically-adjusted expenditures to a target level. It was hypothesized that changes in the natural rate of unemployment, the rate of unemployment, partisan factors, the Vietnam War, and monetary growth and permanent inflation would affect such an adjustment. All these variables fit in an autoregressive equation. However when the model was expanded for electoral factors these proved to be insignificant with the notable

and clear exceptions of the 1972 and 1984 Presidential campaigns.

It is not easy to account for all the differences between these studies. Clearly they are related to the nature of the assumptions and various functional forms. The autoregressive models seem to enable researchers to fit more explanatory variables, but the precise interpretation of the results and significance of such tests is more difficult. This is a major difference in the studies mentioned. The selection of the dependent variable is also critical. Economic factors will clearly be less significant in a cyclically-adjusted budget balance than an unadjusted one. The use of a GDP ratio will tend to have the same effect. The significance of electoral and popularity factors is obviously dependent on the specification of the variable, which is highly arbitrary.

The bottom line is that all the studies except the one by Golden and Poterba show some statistical significance for political factors. Given the arbitrary nature of these variables this should be considered encouraging, even if one discounts all the autoregressive tests completely. Lowery's findings are limited, but this is probably due to the use of annual data. Pack's model is essentially the same as Golden and Poterba's. The main statistical difference is that Pack avoided autocorrelation problems by using first differences as opposed to retesting procedures in levels either using

lagged dependents (as in most cases) or omitting them (as in the Golden and Poterba case).

There are also tests for budget balance functions outside of the U.S. federal case. Minford and Peel (1982) successfully tested the British budget balance ratio as a function of both economic and partisan factors. This is an autoregressive model where the economic factors are rationally-formed expectations of inflation, unemployment, and disposable income under conditions of wage and price rigidity.

Gruen (1985) provided analysis of the Australian case. He found electoral, administration, and partisan preferences across both fiscal policy and its components in a non-stochastic study. However, his analysis was based on a detailed review of source budgets. Interestingly, Gruen found that extreme electoral behavior tended to backfire on incumbents.

Baber and Sen (1986) found a weak but significant relationship between a budget balance ratio and electoral timing in U.S. states with a high degree of partisan competition. This study also has an interesting angle because the subnational level of government in the States is generally considered to be a non-stabilization environment.

Roubini and Sachs (1989a, 1989b) have performed a cross-sectional study which is suggestive. Their statistical model is a first-difference autoregressive one for budget

balance ratios. It includes obvious economic factors such as changes in growth, unemployment, interest rates, and debt burden. Also significant is the degree of political cohesion and stability. What emerges is a hypothesis that countries with multi-party coalitions experience difficulty responding to rising deficit and debt problems. Virtually all Western countries experienced such problems after the first oil price shocks of 1973-1974. Success in adjusting to the situation was dependent upon the ability of countries to achieve political consensus. This finding is important because it is directly related to the recent New Classical theories of PBC fiscal policy. Also in line with New Classical thinking, Roubini and Sachs found that attempts to reduce discretion only shifted policymakers' behavior, not their intentions. For example, it appears that an integrated European monetary policy has shifted the taking of seigniorage from inflation to deficits.

2.3.3 Integrated Tests

Ultimately the value of a PBC policy function depends on some demonstrated relationships to other economic and political behavior, *i.e.* to popularity demand functions, to economic outcomes, or to other policies. In other words, it is one step in the construction of broader politico-economic models. This was the objective of Frey and Schneider in testing both popularity and policy functions, although their results were never really integrated. In fact there is a

rather limited selection of examples attempting to integrate fiscal PBC functions into broader models. This is probably due to the uncertainty and variability in both PBC outcome studies and PBC policy studies.

Golden and Poterba (1980) tested both popularity and policy functions along lines similar to Frey and Schneider. They attempted to "price" popularity. That is to say, they attempted to measure the dollar value of government fiscal actions necessary to extract popularity points given a popularity function. Their findings indicated that the amount was too onerous to make a deliberate PBC credible, at least in the U.S. case.

Maloney and Smirlock (1981) based monetary policy and government spending reaction functions partly on potential unemployment targets determined by a calculated Phillips' Curve. They found that spending patterns were consistent with the hypothesis that governments attempted to exploit the short-run Phillips' Curve based on the myopic perspective of voters. However, the function was autoregressive and the results little altered by different specifications of the voter discount rate, including a rate of zero. This implies that any PBC is based solely on a short-run Phillips' Curve exploited by the government. It therefore fails to provide any explanation of why voters would buy into such a policy.

Thompson and Zuk (1983) investigated the hypothesis

advanced by Tufte (1978, 65-70) that the American PBC spills into other industrialized democracies. Paldam (1979) had similarly observed a possible role for export prices in coordinating fairly weak PBC's across the OECD countries. In fact, Thompson and Zuk found American elections significant in GNP growth rates in Canada. However, the overall results of their Box-Taio impact assessment model proved to be very limited given their inability to find any American electoral-economic cycle.

Chappell and Keech (1986) provided one example of attempts to integrate macroeconomic policies, particularly monetary policy, into macroeconomic models. They found that a partisan monetary policy function did work in the St. Louis model. The partisan fiscal policy function was not significant, but fiscal impact is weak in the St. Louis model in any case. Elections also proved to be a significant factor in a modified rational expectations model tested by Chappell and Keech. Assuming that agents form expectations rationally, including from known partisan policy functions, elections can create forecasting errors for monetary growth. These errors form the basis for short-run impacts on real economic performance.

There have also been attempts to incorporate political fiscal elements into monetary policy reaction functions. In addition to their fiscal reaction function, Laney and Willett (1983) provided evidence that monetary expansions

are more influenced by electoral budget deficits than by non-electoral budget deficits. Havrilesky (1988b) has similarly placed changes in the relative share of social spending in a monetary function. The idea of these tests is that while monetary policy is probably more significant in its effect on macroeconomic outcomes than fiscal policy, fiscal policy in fact drives politically-motivated monetary policy through attempts to accommodate redistribution policies.

Perhaps the most ambitious integrated tests have been performed by Haynes and Stone (1989). They used spectral analysis to show that a 16-quarter sine wave is optimal for both macroeconomic policies and outcomes. In all cases they fitted the most appropriate lag and then attempted to demonstrate that the outcome PBC is a function of the policy using the St. Louis model. Given the nature of this model, impact was clearly more significant for money supply growth than for the cyclically-adjusted budget balance. These tests are clearly based upon a PBC theory derivative from Keynesian models. Once again it should be stated that this technique is of limited use for countries which have variable electoral periods, such as Canada.

2.3.4 Canadian Evidence

Canada has not been thoroughly examined in the PBC literature. Studies have generally concentrated on the American case, the British case, and cross-sectional

evidence. No doubt the relative smallness of the Canadian economy provides some explanation. The belief is that small open economies are less endogenously driven in macroeconomic outcomes and policies. As well, the Canadian political scene, with its endogenous election dates and non-ideological parties, is not thought to be an ideal for study.²⁴

There are no statistical studies of a PBC budget balance function for the Government of Canada. Politico-economic analysis of Canadian federal fiscal policy by Pal (1981) for the period 1945 to 1963 concentrated on Marxist and electoral PBC factors, but was almost entirely descriptive in approach. Campbell (1987), Doern, Maslove and Prince (1988), Hartle (1988) and Savoie (1988) are similar in discussing the evolution of the federal deficit. Standard economic statistical analysis of Canadian fiscal policy, such as done by Robinson and Courchene (1969) and McCallum (1983) certainly suggests that federal policy has been broadly countercyclical. Technical debate has focused on how adequate or appropriate such policy has been, whether it is appropriate at all at the provincial level, and on the economic effects and effectiveness of fiscal policy.

The only study designed to test PBC fiscal policy at the federal level, at least in part, is probably an

²⁴Alesina (1989, 64-65) discusses these factors in an international context.

unpublished one by Herb O'Heron (1984) done for the Macdonald Royal Commission and referenced briefly by Maslove, Doern and Prince (1986) and by Clancy (1987). O'Heron's simple regression tests covered pooled data of the federal government and five provinces for the period 1959 to 1982. While not testing the budget balance directly, his fiscal categories were general enough to be suggestive. He regressed the annual changes in gross general revenues and gross general expenditures against growth rates, unemployment rates, time trends, and provincial and electoral dummies. Only the election year dummy was significant for expenditures in a model that is only weakly explanatory. Only the growth rate was significant on the revenue side. Caution should be used in interpreting these results, which are not normalized by GDP size as budget balances usually are. However, they do suggest an overall electoral effect on fiscal policy.

Certain growth of government studies have touched upon PBC issues. Abizadeh and Yousefi (1988) found that federal expenditure growth was tied to economic, partisan, and leadership factors. Cameron (1986) found similar results for the Government of Canada in a multinational context, as well as noting the clear significance of transient wartime influences in a broad historical study. However, he found partisan factors to be unimportant in Canada. Neither study found electoral factors to be significant. Foot's (1979)

study concentrated on governmental employment patterns in Canada. He found popularity cycles to be the key in deviations from trend at the federal level. Otherwise, neither electoral nor economic cycles seemed to be important. He suggested this to be a consequence of the certainty of knowledge of the former rather than the latter in the Canadian setting. MacNaughton and Winn (1981) provided an example of a highly disaggregated fiscal study. They found partisan considerations to be important in the spatial distribution of industrial development subsidies.

Carmichael (1990) recently published a politico-economic popularity study for the Government of Canada. He found that only since 1974 have economic factors had significant and expected impact on the popularity of Canadian governments. Prior to 1972 governments appeared to have benefited from bad economic performance. This appears contrary to the findings of American retrospective voting studies. Carmichael's analysis noted the highly regionalized behavior patterns of the electorate, and is a reference for other such Canadian studies.

Canada does not appear to have been frequently studied for PBC macroeconomic outcomes either. Preliminary evidence in Nordhaus (1975), Kellman and Izraeli (1985), and Soh (1986) was generally not favourable to the hypothesis.

Chapter Three - Empirical Application

3.1 Introduction

In this chapter we will test a series of multivariate reaction functions for the budget balance of the Government of Canada from 1953 to 1990. We test a range of politico-economic theories of fiscal policy, beginning with a simple Keynesian countercyclical model and then attempting to graft political considerations into it.

Testing in this manner draws heavily from Lowery (1985). He observed that the imprecise theoretical nature of both economic and political influences on the budget balance makes it difficult to study these in isolation, but requires some ordering to reduce the testable hypotheses to a reasonable number. The ordering here draws also from the original Alt-Chrystal critique of the Frey-Schneider model. The critical economic factors should be isolated first.²⁵

Our model will be expanded from basic economic influences to include the electoral and partisan theories, popularity and institutional variants of these, and period-specific models. Although our results provide evidence as to a number of evolutionary influences on Canadian fiscal policy, the theoretical interpretations cannot be precise in this framework. The final chapter will examine the results

²⁵Alt and Woolley (1982) is a general reference for the use of reaction functions in the testing of politico-economic behavior.

in the context of a possible broader politico-economic model.

3.2 Model

In this section we will outline the multi-stage model to be used to test Canadian fiscal policy. We begin with basic statistical characteristics and the dependent variable. The subsequent subsections outline the independent variables to be used in each stage of testing.

As is the case with much empirical work in this area, considerable time was spent pretesting the data. Two things became apparent from this. First, annual data lacks enough sensitivity to determine whether or not short-term political behavior such as electoral cycles are present. Quarterly data has therefore been used throughout although there is some theoretical argument against its use in budgetary analysis.²⁶ Second, the relevant economic data for this study is likely to be plagued by severe problems of autocorrelation when used in levels.

For this latter reason, Dickey-Fuller tests were performed on the dependent variable and three independent economic variables. Dickey-Fuller tests are designed to determine whether variables are stationary, a feature necessary for the application of ordinary least squares regression analysis. This test is performed by regressing the first difference of the variable against a constant, a

²⁶For debate on the use of annual vs. quarterly data see Cowart (1978, 430n), Laney and Willett (1983, 57), Thompson and Zuk (1983, 468), Weller (1983, 400-401), and Lowery (1985, 444-445).

time trend, one lag of the level of the dependent variable, and two lags of the dependent variable. The t-statistic on the lag of the level of the dependent variable is the critical one for determining stationarity. The null hypothesis of non-stationarity can be rejected with a t-score of -3.13 at the .90 level of significance, -3.43 at the .95 level, and -3.99 at the .99 level in the vicinity of 150 observations (Fuller, 1976, 373).

The Dickey-Fuller tests were performed on the primary budget balance share (BBPRSH), the unemployment rate (UNEM), the rate of inflation (INFL) and the interest payment share (INTSH) in levels, and the same variables in first differences taken by subtracting the current value from the value four-quarters previously and expressed at an annual rate (respectively FISCPR, DUNEM, DINFL, DINTSH).²⁷

Table 3.1 and Table 3.2 show summary statistics for the variables in levels and first differences respectively, including the critical Dickey-Fuller t-statistic. Table 3.1 shows that the null hypothesis cannot be rejected in levels, except for the BBPRSH at the .90 level of significance. However, Table 3.2 shows that the variables are clearly stationary in the first-difference format. Thus the first difference format has been used throughout this study.

Also in our model we will avoid use of a lagged dependent variable in all stages of our testing. Instead we

²⁷These variables are described more fully below.

Table 3.1

Summary Statistics on Economic Variables
in levels, 1953Q1 to 1990Q4

<u>Variable:</u>	<u>BBPRSH</u>	<u>UNEM</u>	<u>INFL</u>	<u>INTSH</u>
N	151	151	151	151
mean	1.10	6.63	4.78	2.80
standard deviation	1.58	2.27	3.79	1.39
maximum	3.93	12.60	13.88	6.31
minimum	-3.19	2.70	-2.79	1.47
Dickey- Fuller t-score	-3.14*	-2.48	-2.46	-0.61

(* - significant at the 0.90 level)

Table 3.2

Summary Statistics on Economic Variables
in first differences over four quarters, 1953Q1 to 1990Q4

<u>Variable:</u>	<u>FISCPR</u>	<u>DUNEM</u>	<u>DINFL</u>	<u>DINTSH</u>
N	147	147	147	147
mean	0.24E-02	0.12	0.12	0.11
standard deviation	1.41	1.21	2.59	0.25
maximum	3.57	4.50	6.19	1.18
minimum	-4.44	-1.80	-7.99	-0.41
Dickey- Fuller t-score	-5.96***	-5.26***	-4.62***	-5.07***

(*** - significant at the 0.99 level)

will use our initial stages to test lags of the independent variables and capture persistence in the most appropriate distributed lag structure before proceeding to tests of possible political influences.

In this study, the variable selected as a measure of fiscal policy is FISCPR or "primary fiscal impulse." Here this is defined as the change in the budget balance as a percentage share of GDP excluding interest payments (hence the term "primary"). Interest payments are excluded principally because they do not constitute a policy instrument from the short-term perspective inherent in a fiscal reaction function. Although technically a government could unilaterally reschedule or terminate its debt obligations, this would be a catastrophic situation. For all normal intents and purposes, only program expenditures and taxes are subject to government action. The only other way to control the size of interest payments is through manipulation of interest rate structures. However this must be done exogenously to fiscal policy via monetary instruments, which are under the control of Canada's fairly independent monetary authority. Thus interest payments are entirely predetermined and invariant at any given time. Of course, from a long-run perspective interest payments are entirely a fiscal policy instrument.

This exclusion of the interest share from the policy instrument is not common in previous studies and is an

essential part of "Canadianizing" the analysis.²⁸ Unlike commonly studied countries, particularly the United States, the debt service trap has become the driving force behind fiscal policy dynamics in Canada in recent years. In fiscal year 1991 public debt charges constituted a growing 36% of federal budgetary revenues, 28% of federal budgetary expenditures, and 141% of the federal budget deficit! (Department of Finance, 1991) Such numbers indicate that overall budget balances are now subject to changes driven largely by debt service problems and the past decisions embedded in these.

However, as we shall see below, the debt service phenomenon is considered in this study. We are only stating here that interest payments should be excluded from the policy instrument, the dependent variable. We are not stating that they should be excluded from the analysis, which would obviously be ludicrous given their importance.

A second and more common consideration involves whether certain adjustments should be made to the budget balance figures, particularly for cyclical fluctuations. To some degree this has been precluded by the fact that authoritative cyclically-adjusted or high-employment budgetary data is not as readily available in Canada as the

²⁸The inappropriateness of keeping the interest portion of government expenditure in certain analysis is sometimes acknowledged. See Barro (1979) and Department of Finance (June 1990, 106-108).

United States.²⁹ In any case, we take here the position of Lowery (1985, 432) that it is more meaningful to test the "Keynesian" responsiveness of the budget balance to stabilization targets such as unemployment and inflation than to first attempt to define and separate "automatic" from "discretionary" fiscal actions.

3.2.1 Cyclical Economic Variables

The first set of variables tested includes those usually associated with Keynesian short-run fiscal analysis. These are common measures of economic activity such as unemployment and inflation. Here we have used the change in the unemployment rate of all workers 15 years old and over (DUNEM) and the change in the rate of inflation defined by the consumer price index (DINFL). This is, in other words, a Phillips' Curve-type model.

We could have used other comparable measures, such as the changes in the growth rate of GDP or the growth rate of the GDP deflator. However, the measures used here are more common references and targets of policy, and are in fact embedded in certain statutory programs.

We would expect the coefficients of DUNEM to be negative and those of DINFL to be positive. A rise in the unemployment rate should lead to a fall in the budget

²⁹Cyclical adjustment is part of the Department of Finance's (June 1990, 106-108) definition of "fiscal impulse," unlike the use of the term here. However, it only publishes such measures in annual data since 1964.

balance. This is because any associated economic slowdown would result in lower revenues and higher expenditures through automatic stabilizers. As well, discretionary action toward a higher budget deficit should help to stimulate the economy according to basic Keynesian theory. On the other hand, a rise in the rate of inflation may lead to a rise in the budget balance. In the absence of indexation, the real value of transfer payments should fall and the government share of revenue should rise in a progressive taxation system. However, these automatic stabilizers have been indexed in Canada since the mid-1970's and adjustments were made regularly even before that. From the standpoint of discretionary policy, it can be argued that a higher budget balance might be used to contract aggregate demand in the presence of accelerating inflation, although this has been thought to be more the role of monetary policy for some time. Overall then, we are more confident of our expected sign on unemployment than on inflation.

3.2.2 Structural Economic Variables

Conventional economic theory indicates that the long-run state of government finances should be a concern of fiscal policy. In fact, the overall state of the finances has been an obvious potential constraint on Canadian fiscal policy, with governments in the late 1940's, early 1950's, and the 1980's under much more long-run pressure than governments in the middle period.

As a consequence we next introduce into the analysis DINTSH as a possible explanatory variable. This is the change in the share of the federal government's interest payments as a percentage of GDP. We use this variable in preference to a debt:GDP ratio to emphasize the actual burden of the debt. Thus we introduce the interest factor into the reaction function, but as an explanatory variable rather than a policy instrument.

We would expect the coefficients associated with this variable to be positive. In other words, as the government's debt service burden gets higher, it tends to shift the primary budget balance toward surplus to compensate for this autonomous increase in expenditures.

3.2.3 Cyclical Political Variables

Once we have tested a reaction function with critical economic variables, it is our intention to test some of the possible political variables starting with those of a short-term nature. The significance of cyclical political influences is, after all, our primary interest here. The literature has suggested two possible cyclical influences on fiscal policy - the timing of elections (ELECT) and the popularity of the government (POP).

The form suggested for both influences varies widely. Some specified examples of hypothetical electoral cycles can be found in McCallum (1978, 507) and Allan, Sulock and Sabo (1986, 109). These include sawtooth patterns, symmetrical

and asymmetrical cycles, and more quarter-specific contractions or stimuli. POP is sometimes specified in Frey-Schneider's squared format. It has also been used in levels.³⁰ We have seen that Hicks (1985) crossed the Frey-Schneider popularity variable with an electoral timing variable. For their British tests, Frey and Schneider switch to a Government "LEAD" over the Opposition variable.

In fact, the suggested forms are almost too numerous to provide any concrete guidance. We will experiment with various forms of a POP variable, and construct an ELECT variable from the residuals of the economic model.

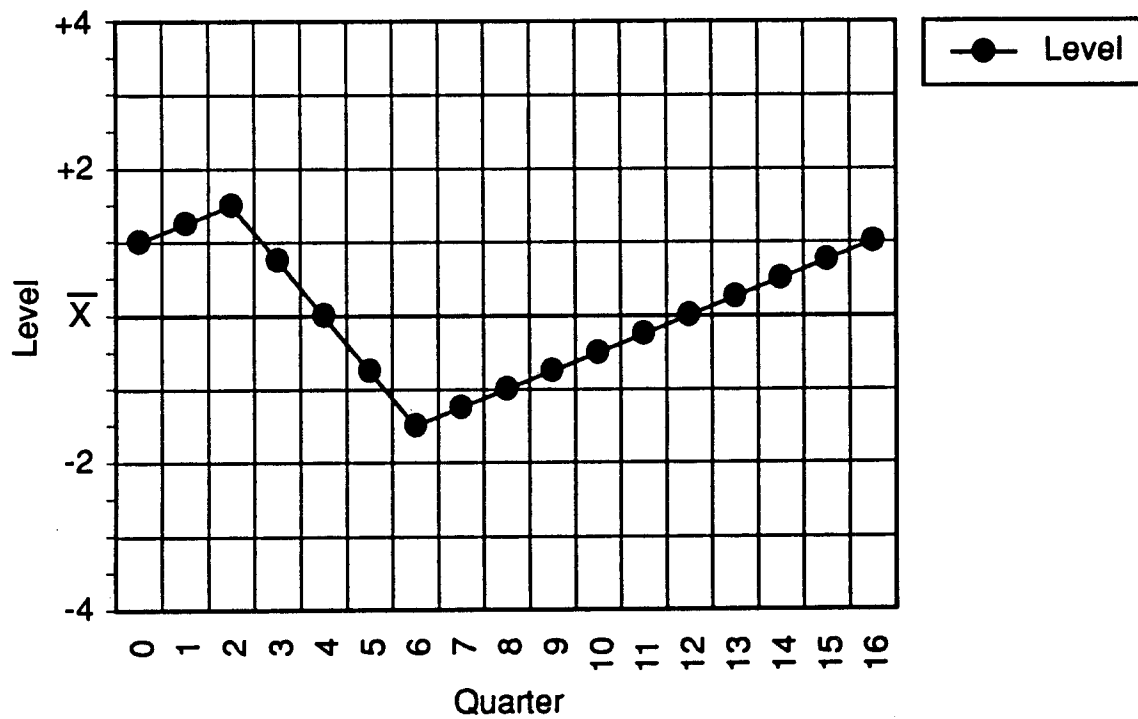
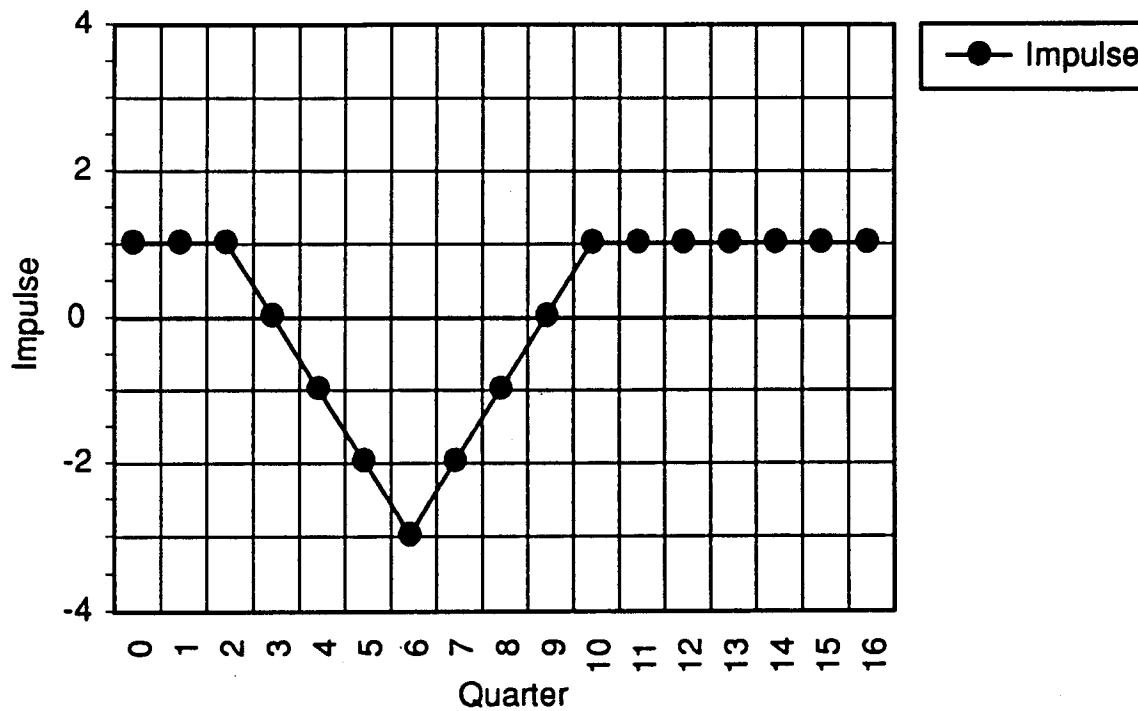
Generally, it is postulated that the proximity of an election leads to negative or deficit-oriented fiscal impulses and that higher popularity leads to positive or surplus-oriented fiscal impulses. These standard assumptions are related to the "vote-buying" behavior behind general PBC theory. As elections approach, governments are under more pressure to deliver benefits to clients and this translates into higher expenditures and/or lower taxes. Likewise low popularity indicates the need of government to purchase support and high popularity indicates it can afford unpopular actions. Note that these are assumptions about the general self-interest of politicians independent of any contrary ideological objections that they (or their

³⁰ See, for example, Golden and Poterba (1980) and Pack (1987).

supporters) may have.

Due to the importance of the ELECT variable to our overall model, we shall review here the form chosen for this variable although this is actually a result of the tests in the Section 3.3. Our ELECT construction takes the following values, beginning in the first post-election quarter -- 1, 1, 0, -1, -2, -3, -2, -1, 0, 1, 1, 1, 1 This variable could be said to represent "electoral pressure" and is signed to produce a negative coefficient. In other words, it is constructed to show negative fiscal impulse immediately following an election. This impulse at first becomes larger. It becomes neutral in the third quarter and positive fiscal stimulus peaks in quarter six. Impulse becomes smaller thereafter. It becomes neutral in quarter nine and negative thereafter. By quarter ten it is at its most negative and does not change thereafter.

The meaning of this variable can be further explained with reference to Graph 3.1. In the top graph the ELECT variable is shown as described above. The magnitudes of this variable are strictly relative, their actual values determined by the beta-coefficient from regression tests. The bottom graph shows how this impulse cycle in four-quarter changes would translate into a cycle in levels. Assuming fixed 16-quarter electoral cycles, a perfectly repetitive budget balance cycle around a mean is hypothesized. The scale of relative magnitudes here is the



Graph 3.1
The ELECT Variable

same as the top graph, with the actual values again determined by the beta-coefficient on ELECT.

The essence of this ELECT variable is a strong post-electoral contraction, with a general deficit tendency at other times. This will be discussed at greater length below. While this cycle does not perfectly repeat itself in levels if an electoral cycle is different than sixteen quarters, the cycles are more or less the same as long as electoral periods are not very short. Since the ELECT variable chosen does not apply in periods of minority government, this qualification is not violated in this study.

3.2.4 Structural Political Variables

Our next step will be to add some non-cyclical political variables to our model along with their cross-products with previous factors. In addition to short-term influences, the literature describes possible political influences on fiscal policy that do not necessarily cause political cycles. These fit into two categories - the ideological or partisan character of a government and its degree of formal control of the agenda. These can be conceptually distinguished from factors such as the orientation of the Prime Minister. This latter case may be important, but unlike the first two it is in a sense a "one-shot event" and of extremely limited use if models are designed for predictive purposes.

In the Canadian context the ideological choice is

represented by the two major parties which alternate (irregularly) in power, the Liberal Party and the Progressive Conservative Party. A priori we might expect the Liberals, as the more "left" party, to be the more deficit-oriented. However certain considerations should temper this judgement.

In Canadian politics both major parties have tended to be highly pragmatic and adverse to ideological conflict. Petry (1988) has noted that both have tended to share programs and have borrowed heavily from the New Democratic Party (NDP) over time. As well, although there is some evidence of Phillips' Curve preference cleavages in Canadian socio-economic groups (Pal, 1981, 44-52), it is not clear that these are the bases of the major parties. To the extent the Liberals and Conservatives represent divergent interests, these have historically been at least as much regional and ethnic as they have been economic (Beck, 1968). Finally, the identification of the federal Liberal Party with left-liberalism or social democracy is a relatively recent phenomenon. Prior to the mid-1970's, the Liberals were regarded as the bastion of what is now called "fiscal conservatism." In fact, Hibbs (1977, 1471-1472) classified that Liberal Party as a "centre" party rather than a "left" party and noted that in practice these tend to be much closer to "right" parties in their preferences. In general though, we would postulate the dummy variable LIB to be

associated with negative fiscal impulses, if it is significant at all.

Some American studies consider the role and partisan composition of Congress in fiscal policy. Power is not similarly fragmented in the Canadian parliamentary system -- a fact that makes it a better candidate for fiscal engineering. The only real consideration in Canada is whether the Government does or does not command a clear majority in the Lower House (the House of Commons). Thus we set up the MIN dummy to signify periods of minority government. These have been surprisingly frequent, including nearly 25% of the period studied.³¹

Once again it is not entirely clear how this factor might affect the results. The common view is that minority governments are weak and therefore prone to fiscal liberalism, *i.e.* deficits. This view has some support from both Keynesian and Classical PBC theories. On the other hand, the two minority parties in the period studied -- the NDP and its predecessor, the Cooperative Commonwealth Federation (CCF), and the Social Credit Party and its Quebec wing, the Ralliement des Cr ditistes -- have frequently been viewed as more ideological incarnations of the Liberals and Conservatives respectively. Minority governments might reflect the ideological inclinations of such king-makers. On

³¹Appendix B includes the values of basic political parameters -- election dates, winning parties, control of the Commons -- for the postwar period.

the other hand, both the New Democrats and Social Credit have had important social and regional orientations which are not necessarily ideological. Again, we would on balance expect MIN to be associated with negative fiscal impulses, if it is significant at all.

It is not just the independent impact of these variables which will be tested, but the interactive impact as well. That is to say, LIB and MIN may also impact on economic and PBC behavioral variables. Therefore, we will also be testing cross-products on the variables from the previous testing phases.

As was pointed out earlier, caution should be used in speculating on signs, especially of partisan cross-variables. MacRae (1977), Alesina (1989), Nordhaus (1989), Haynes and Stone (1990), and the Frey-Schneider studies point to various types of incompatible partisan-electoral patterns, consistent with various theoretical perspectives.

3.2.5 Shock Variables

A final phase will test the fiscal reaction function against differences related to specific time periods. These are described below in terms of particular national political leadership:

STL	- the St. Laurent government, 1953-1957
DIEF	- the Diefenbaker government, 1957-1963
PEAR	- the Pearson government, 1963-1968
TRUD1	- the first Trudeau government, 1968-1972
TRUD2	- the second Trudeau government, 1972-1974
TRUD3	- the third Trudeau government, 1974-1979
CLARK	- the Clark government, 1979-1980

TRUD4 - the fourth Trudeau government, 1980-1984³²
MUL - the Mulroney government, 1984-1990

It should be noted that these subperiods can sometimes be understood in either political or economic terms. For example, the third Trudeau government, a majority government between two minority governments, corresponded almost exactly with the period between the first and second major OPEC oil price shocks. The end of the Diefenbaker majority government in 1962 was not just the start of a transition from a Conservative to a Liberal Prime Minister, but also was closely correlated to the start of the longest postwar boom and an altered relationship between the Government and the Bank of Canada.

³²This period includes the Turner government, which was in office for only one quarter.

3.3 Results

In this section we will review the results of tests for the model outlined in the previous section. We will restrict our comments to the significance of the various variables until the end. There we will look more closely at the magnitudes of the final regressions.

All regressions are by the method of ordinary least squares (OLS) using the program TSP version 4.0. The raw data for all tests covers the period from 1953:Q1 to 1990:Q4. Detailed descriptions of the data and sources are contained in Appendix B.

3.3.1 Policy Function with Cyclical Economic Variables

In this subsection we begin the tests by regressing the change in the primary budget balance (FISCPR) against changes in the unemployment rate (DUNEM) and changes in the rate of inflation (DINFL), *i.e.* against a basic Phillips' Curve model. As part of this initial testing it is necessary to select an appropriate lag structure for the independent variables.

Selection of the lag structure was made using the Akaike Information Criteria (AIC). The $AIC = N * \ln (SSR/N) + 2k$, where N is the number of observations, SSR is the sum of the squared residuals, and k is the number of regressors. The best fit occurs when the AIC reaches its minimum value.

It was our anticipation that the appropriate lag structure would be short. Otherwise, we would encounter

spurious correlations from later movements in the business cycle. It was also our anticipation that unemployment would appear as a factor immediately. This is partly because of the automatic stabilization nature of the tax system and transfer programs and also because unemployment is commonly regarded as the principal target of fiscal policy. On the other hand, it was our anticipation that any effect from inflation would appear as a factor after the government budget planning period, i.e. after four quarters.

Equation 1 in Table 3.3 shows FISCPR regressed against DUNEM and DINFL each lagged to eight quarters to test these assumptions. The results indicate that the above assumptions are realistic. DUNEM(0) fits best and is negative. Although no DINFL variable is significant, the second year lags generally have the correct sign.

The second equation in Table 3.3 shows the optimal distributed lag fit for FISCPR against these variables. FISCPR was regressed against distributed lags of DUNEM and DINFL from four quarters down to zero quarters. The AIC's show the best fit to be with a lag of one quarter.

Note that, although unemployment is highly significant in the result, inflation is not significant at all. DINFL was retained in further tests however, in case it became significant as the specification of the model improved. Although the adjusted $R^2 = 0.47$ here, note also the presence of positive serial correlation in the residuals as indicated

Table 3.3

Policy Function with Cyclical Economic Variables
 Dependent Variable: FISCPR, 1953Q1 to 1990Q4

	<u>Equation 1</u>		<u>Equation 2</u>	
C	0.83E-01	(0.89)	0.96E-01	(1.10)
DUNEM	-0.66***	(-3.49)	-0.45***	(-3.71)
DUNEM(-1)	-0.28	(-0.92)	-0.43***	(-3.55)
DUNEM(-2)	-0.46E-02	(-0.14E-01)	---	
DUNEM(-3)	0.22	(0.66)	---	
DUNEM(-4)	-0.51	(-1.45)	---	
DUNEM(-5)	0.14	(0.44)	---	
DUNEM(-6)	0.87E-01	(0.27)	---	
DUNEM(-7)	0.11	(0.37)	---	
DUNEM(-8)	-0.18E-01	(-0.93E-01)	---	
DINFL	-0.52E-01	(-1.15)	---	
DINFL(-1)	-0.20E-01	(-0.44)	---	
DINFL(-2)	0.47E-01	(1.02)	---	
DINFL(-3)	-0.31E-01	(-0.66)	---	
DINFL(-4)	-0.40E-02	(-0.79E-01)	0.39E-03	(0.11E-01)
DINFL(-5)	0.47E-01	(0.98)	0.38E-01	(1.07)
DINFL(-6)	0.23E-01	(0.50)	---	
DINFL(-7)	0.31E-01	(0.68)	---	
DINFL(-8)	0.83E-02	(0.18)	---	
N	139		142	
d_2	0.89		0.93	
\bar{R}^2	0.44		0.47	
AIC	33.78		16.07	

(t-statistics are in parentheses)

(*** - significant at the 0.99 level)

by the Durbin-Watson d-test ($d = 0.93$). Since the variables used in the model are stationary, this is an indication of missing explanatory factors in the model.

3.3.2 Policy Function plus Structural Economic Variables

The interest payment variable DINTSH (the change in interest payments as a share of GDP) was added to the results obtained in the first set of tests. In fact, the entire set was performed again with DUNEM, DINFL and DINTSH included.

Again, it was our anticipation that the relative interest share would appear as a factor only after the government budget planning period of four quarters. The appropriateness of this and previous assumptions was reconfirmed. Appropriate lags begin with DUNEM(0), DINFL(-4), and DINTSH(-4). This is shown in Equation 1 of Table 3.4.

Possible lag structures with the three independent variables were again tested from zero to four quarters. A lag of one quarter again proved optimal (*i.e.* had the lowest AIC statistic) and is shown in Equation 2 of Table 3.4.

Again unemployment is significant in the result but inflation is not. The interest factor is also significant but only for one quarter. All signs are as anticipated. There is an improvement of fit from the previous model ($\bar{R}^2 = 0.54$), but positive serial correlation remains a serious problem though it is slightly reduced ($d = 1.04$). This

Table 3.4

Policy Function plus Structural Economic Variables
 Dependent Variable: FISCPR, 1953Q1 to 1990Q4

	<u>Equation 1</u>		<u>Equation 2</u>	
C	0.12	(-1.11)	-0.85E-01	(-0.94)
DUNEM	-0.72***	(-3.95)	-0.44***	(-3.90)
DUNEM(-1)	-0.20	(-0.70)	-0.57***	(-4.86)
DUNEM(-2)	-0.15	(-0.52)	---	
DUNEM(-3)	0.22	(0.73)	---	
DUNEM(-4)	-0.62*	(-1.86)	---	
DUNEM(-5)	0.28	(0.92)	---	
DUNEM(-6)	0.10	(0.35)	---	
DUNEM(-7)	0.20	(0.70)	---	
DUNEM(-8)	-0.12E-01	(-0.67E-01)	---	
DINFL	-0.26E-01	(-0.60)	---	
DINFL(-1)	0.86E-02	(0.19)	---	
DINFL(-2)	0.63E-01	(1.44)	---	
DINFL(-3)	-0.45E-01	(-1.01)	---	
DINFL(-4)	0.17E-01	(0.37)	0.20E-01	(0.59)
DINFL(-5)	0.71E-01	(1.59)	0.50E-01	(1.47)
DINFL(-6)	0.44E-01	(1.03)	---	
DINFL(-7)	0.23E-01	(0.54)	---	
DINFL(-8)	0.29E-02	(0.71E-01)	---	
DINTSH	0.24	(0.40)	---	
DINTSH(-1)	-0.57	(-0.73)	---	
DINTSH(-2)	0.26	(0.34)	---	
DINTSH(-3)	-0.66E-01	(-0.88E-01)	---	
DINTSH(-4)	1.63**	(2.08)	1.52***	(2.83)
DINTSH(-5)	0.68	(0.90)	0.20	(0.38)
DINTSH(-6)	0.35	(0.46)	---	
DINTSH(-7)	-0.18	(-0.24)	---	
DINTSH(-8)	-0.77	(-1.24)	---	
N	139		142	
d ₁	1.07		1.04	
R ²	0.54		0.54	
AIC	13.39		-1.88	

(t-statistics are in parentheses)

(*** - significant at the 0.99 level)

(** - significant at the 0.95 level)

(* - significant at the 0.90 level)

underlying economic model is retained for the rest of our testing stages.

3.3.3 Policy Function plus Cyclical Political Variables

In this section we describe the attempts to supplement the basic economic model of Equation 2 in Table 3.4 with short-run political factors. As explained in subsection 3.1.3, this is complicated by the imprecision in the literature on the incorporation of such variables. The results below sample the most important of the tests that were run.

The construction of a possible ELECT variable began with a test that isolated each post-electoral quarter through a long series of dummy variables. The results of this are presented in Table 3.5a. The test includes the economic variables with electoral dummies for each post-election quarter indicated by E1, E2, E3, . . . E18. The constant thus captures the electoral quarter. Variables E1 through E9 were split into E1A, E1B, E2A, E2B, . . . E9A, E9B where 'A' represents a period of majority government and 'B' represents a period of minority government. It has been hypothesized by Paldam (1979, 326-328) in a cross-sectional context that minority governments lack the political control necessary to generate electoral cycles. We have also previously noted that theory predicts that minority parliaments may be subject to distinctive behavior patterns.

The results indicate a very general pattern though only

Table 3.5a

Policy Function against Electoral Quarters
 Dependent Variable: FISCPR, 1953Q1 to 1990Q4

C	-0.12	(0.45)
DUNEM	-0.62***	(-5.05)
DUNEM(-1)	-0.33***	(-2.65)
DINFL(-4)	0.10E-01	(0.28)
DINFL(-5)	0.22E-01	(0.60)
DINTSH(-4)	0.98	(1.63)
DINTSH(-5)	-0.22	(-0.39)
E1A	0.24	(0.52)
E2A	-0.32	(-0.69)
E3A	-0.43	(-0.93)
E4A	0.38	(0.82)
E5A	0.48	(1.02)
E6A	1.53***	(3.17)
E7A	1.21***	(2.45)
E8A	0.79*	(1.76)
E9A	0.74	(1.53)
E1B	0.29	(0.62)
E2B	-0.19	(-0.41)
E3B	-0.10	(-0.19)
E4B	-0.26	(-0.44)
E5B	0.29E-01	(0.49E-01)
E6B	0.39	(0.66)
E7B	-0.97E-01	(-0.13)
E8B	0.36	(0.51)
E9B	0.30E-01	(0.42E-01)
E10	-0.79E-01	(-0.16)
E11	-0.47	(-0.99)
E12	0.91E-01	(0.18)
E13	0.77E-01	(0.16)
E14	-0.49	(-1.03)
E15	0.94E-01	(0.18)
E16	-0.89*	(-1.80)
E17	-0.58	(-0.98)
E18	1.67*	(1.67)
N	142	
d	1.12	
\bar{R}^2	0.58	

(t-statistics are in parentheses)
 (***) - significant at the 0.99 level)
 (*) - significant at the 0.90 level)

Table 3.5b

Policy Function against Electoral Years
 Dependent Variable: FISCPR, 1953Q1 to 1990Q4

C	-0.23	(-0.55)
DUNEM	-0.50***	(-4.35)
DUNEM(-1)	-0.46***	(-3.91)
DINFL(-4)	0.19E-02	(0.55E-01)
DINFL(-5)	0.38E-01	(1.10)
DINTSH(-4)	0.99*	(1.83)
DINTSH(-5)	0.11	(0.21)
E01	-0.18	(-0.26)
E02	0.68	(0.64)
E03	0.66	(0.84)
E04	0.18E-01	(0.17E-01)
E1A	0.70E-01	(0.14)
E1B	0.33E-01	(0.70E-01)
E2A	1.00**	(2.10)
E2B	0.27	(0.52)
E3A	0.92E-01	(0.19)
E3B	0.15	(0.19)
E4	-0.16	(-0.33)
E5	0.64E-01	(0.10)
N	142	
d	1.29	
\bar{R}^2	0.57	

(t-statistics are in parentheses)
 (***) - significant at the 0.99 level)
 (**) - significant at the 0.95 level)
 (*) - significant at the 0.90 level)

Table 3.5c

Policy Function plus the Electoral Cycle Variable
 Dependent Variable: FISCPR, 1953Q1 to 1990Q4

C	0.44E-02	(0.51E-01)
DUNEM	-0.48***	(-4.57)
DUNEM(-1)	-0.44***	(-4.00)
DINFL(-4)	-0.12E-02	(-0.38E-01)
DINFL(-5)	0.29E-01	(0.92)
DINTSH(-4)	0.86*	(1.68)
DINTSH(-5)	0.19	(0.39)
ELECT	-0.36***	(-4.82)
N	142	
d_2	1.14	
\bar{R}^2	0.60	

(t-statistics are in parentheses)
 (***) - significant at the 0.99 level)
 (*) - significant at the 0.90 level)

the second-year electoral quarters are of significant magnitude. The signs are first negative, become positive by the end of the first year and become negative again in the third year. The constant is negative, but insignificantly so. The same broad pattern is found for minority governments, but is definitely less marked.

Next, periods of four quarters were analyzed. The test presented in Table 3.5b broke the post-election periods into years E1 through E5 with 'A' and 'B' again signifying majority and minority governments respectively. E0 signifies the actual election quarters with E01, E02, E03, E04 signifying what year that quarter fell in. The constant thus captures an election quarter that falls in the fifth year of its electoral period.

The results of Table 3.5b are broadly similar to those in Table 3.5a. Again only a second-year contraction appeared significant, and only in the case of majority government. The same broad pattern was evident as in the quarters, and again less marked for minority governments. This test also indicates that the actual electoral quarter probably behaves according to its position in the post-electoral period, rather than being similar across elections.

As outlined in subsection 3.1.3, this data analysis gave some indication of what an electoral cycle might look like, if one exists. Briefly, there appeared to be more evidence of a move to sudden post-election fiscal surplus

than of any sudden pre-election fiscal deficit, although impulses are more likely negative near elections. The contraction would peak in the second year, probably in the sixth quarter. This is the basis of the ELECT variable, which is signed to produce a negative coefficient.

A test with the model of the previous subsection including this ELECT variable is presented in Table 3.5c. With $\bar{R}^2 = .60$ the model is an improvement over Equation 2 in Table 3.4. The autocorrelation problem is again lessened but still remains serious ($d = 1.14$). The ELECT variable appears to be highly significant, but this result must be viewed as tentative due to autocorrelation. The DUNEM variable remains significant; the DINTSH variable is only weakly so; and the DINFL variable remains insignificant. Note that to this point the value of the constant has been insignificant, i.e. there is no fiscal impulse if $ELECT=0$ and there is no change in any of the economic variables.

Our tests of the economic model with popularity variables added are summarized in Tables 3.6a and 3.6b. In all of our tests popularity was taken as a planning variable, i.e. a variable with a distributed lag of one quarter beginning at $t-4$.

We first tested the level of popularity (POP). The results for the POP variable were not significant (Equation 1 in Table 3.6a). We also tested the four-quarter change in the level of popularity (DPOP) in its place. Again, the

Policy Function with Popularity Variables
 Dependent Variable: FISCPR, 1953Q1 to 1990Q4

	<u>Equation 1</u>	<u>Equation 2</u>
C	-1.21*** (-2.49)	-0.42E-01 (-0.46)
DUNEM	-0.46*** (-4.09)	-0.46*** (-4.08)
DUNEM(-1)	-0.56*** (-4.87)	-0.51*** (-4.40)
DINFL(-4)	0.12E-01 (0.38)	0.49E-02 (0.14)
DINFL(-5)	0.41E-01 (1.22)	0.41E-01 (1.23)
DINTSH(-4)	1.50*** (2.79)	1.16*** (2.12)
DINTSH(-5)	0.17 (0.33)	0.28 (0.53)
POP(-4)	0.10E-01 (0.55)	---
POP(-5)	0.16E-01 (0.84)	---
DPOP(-4)	---	0.10E-01 (0.75)
DPOP(-5)	---	0.18E-01 (1.26)
N	142	142
d_2	1.08	1.06
\bar{R}^2	0.55	0.55

(t-statistics are in parentheses)
 (***) - significant at the 0.99 level)

Policy Function with Frey-Schneider Popularity Variables
 Dependent Variable: FISCPR, 1953Q1 to 1990Q4

	<u>Equation 1</u>	<u>Equation 2</u>	<u>Equation 3</u>
C	-0.31*** (-2.93)	-0.34*** (-3.17)	-0.26*** (-2.42)
DUNEM	-0.49*** (-4.67)	-0.49*** (-4.61)	-0.49*** (-4.67)
DUNEM(-1)	-0.49*** (-4.57)	-0.50*** (-4.56)	-0.50*** (-4.61)
DINFL(-4)	0.32E-01 (0.99)	0.29E-01 (0.91)	0.33E-01 (1.04)
DINFL(-5)	0.68E-01*** (2.13)	0.62E-01* (1.91)	0.71E-01** (2.21)
DINTSH(-4)	1.24*** (2.47)	1.36*** (2.67)	1.14** (2.26)
DINTSH(-5)	0.30 (0.61)	0.22 (0.45)	0.38 (0.76)
POPGAP2S(-4)	0.20E-02 (0.75)	0.12E-02 (0.65)	0.35E-02 (0.81)
POPGAP2S(-5)	0.85E-02*** (3.12)	0.52E-02*** (2.80)	0.14E-01*** (3.31)
POPGAP2D(-4)	0.37E-03 (0.22)	0.11E-02 (0.47)	0.18E-04 (0.15E-01)
POPGAP2D(-5)	0.10E-02 (0.59)	0.89E-03 (0.34)	0.78E-03 (0.62)
N	142	142	142
d_1^2	1.13	1.12	1.12
\bar{R}^2	0.61	0.60	0.61

(t-statistics are in parentheses)
 (***) - significant at the 0.99 level)
 (**) - significant at the 0.95 level)
 (*) - significant at the 0.90 level)

results for the new variable were not significant (Equation 2 in Table 3.6a).

We then tested the Frey-Schneider popularity variables with a critical reelection level of 43%.³³ The results of this hypothesis, presented in Equation 1 of Table 3.6b, are somewhat equivocal. Above the critical popularity level, *i.e.* with a surplus popularity gap squared (POPG2S), there appears to be some significant response. However, in the case of a popularity deficit, the value of the gap squared (POPG2D) is insignificant and has the wrong sign. Furthermore, the constant now has a significant negative value, the interpretation of which is unclear. The results are not dependent upon the critical level chosen. Similar results were obtained with levels of 40% and 46% as shown in Equation 2 and Equation 3 respectively.

The popularity factor is a potentially complex one since it is independently related to both economic and electoral factors.³⁴ For example, it is possible that the significance of the popularity surplus is related to the post-electoral contraction captured in the ELECT variable. That is to say, the post-electoral period is usually a popularity "honeymoon" period, and it is at this time that

³³This level of support has been the level necessary to achieve a majority government in the elections held in the postwar period.

³⁴On this last point see Chrystal and Alt (1981) and Nordhaus (1989) as examples.

governments invariably experience their highest public approval ratings. It is also at this time that governments are farthest from an election and most likely to have room to take any tough fiscal action. This coincidence would explain why POPG2S would be significant, while POPG2D would not -- a spurious correlation with electoral factors.

On the other hand, the problem might be due to forms of the popularity variable that are just too simple. For example, it is easy to imagine a government with a 35% popularity rating tempted to improve its reelection chances with a fiscal expansion. It is also easy to imagine that this temptation would increase as popularity slipped to 30%. However, it is hard to imagine how the present government, at 15%, would believe it could improve its standing in this way. It is even harder to imagine that its effort to do so would increase with the square of the gap!

Thus our results here led us to conclude that, if popularity is significant in fiscal impulse, the nature of the relationship is more complex than those described in the literature. It may require a simultaneous model to test adequately. Popularity variables were dropped from testing beyond this point. From this section only the ELECT variable is incorporated into the model.

3.3.4 Policy Function plus Structural Political Variables

In this stage the economic-electoral model of Table 3.5c was expanded to include tests of both partisan (LIB)

and parliamentary (MIN) variables in both intercept and slope. Thus, including variables and cross-variables, FISCPR was regressed against 23 variables.³⁵ The results are presented in Table 3.7.

Equation 1 in Table 3.7 shows the full test. With the successive elimination of insignificant variables, the result in Equation 2 was obtained. This equation has an improved fit over the result in Table 3.5c ($\bar{R}^2 = 0.65$). The unemployment rate and the electoral cycle remain significant, but the interest share now shows significance only for Liberal and/or minority governments. The unemployment rate also shows additional impact during periods of Liberal government. These results should be interpreted cautiously until period-specific influences are looked at. Caution also needs to be expressed given the continued though reduced presence of significant autocorrelation ($d = 1.31$).

3.3.5 Policy Function plus Shock Variables

Due to the continued presence of autocorrelation in Equation 2 of Table 3.7, the reaction function was next broken into time periods. In other words, the economic-electoral model of Table 3.5c was expanded to include an intercept variable and full set of cross-variables for each

³⁵Note that there is no cross-variable of ELECT and MIN. Given the construction of the ELECT variable, this would produce perfect multicollinearity. Diagnostics confirmed the lack of significant electoral patterns during periods of minority government.

Table 3.7

Policy Function with Structural Political Variables
 Dependent Variable: FISCPR, 1953Q1 to 1990Q4

C	-0.88E-01(-0.54)	0.81E-01 (1.08)	
LIB	0.24 (1.30)	--	
MIN	-0.19 (-1.03)	--	
DUNEM	-0.43*** (-2.99)	-0.29*** (-2.39)	
DUNEM(-1)	-0.50*** (-3.36)	-0.46*** (-3.76)	
DUNEM*LIB	-0.30 (-1.45)	-0.33* (-1.74)	
(DUNEM*LIB)(-1)	0.65E-02 (0.29E-01)	0.18E-01 (0.87E-01)	
DUNEM*MIN	0.24 (1.26)	--	
(DUNEM*MIN)(-1)	0.19E-01 (0.94E-01)	--	
DINFL(-4)	-0.12 (-1.54)	--	
DINFL(-5)	-0.88E-01(-1.25)	--	
(DINFL*LIB)(-4)	0.14* (1.70)	--	
(DINFL*LIB)(-5)	0.13* (1.72)	--	
(DINFL*MIN)(-4)	0.22E-01 (0.29)	--	
(DINFL*MIN)(-5)	0.63E-01 (0.81)	--	
DINTSH(-4)	0.78E-01 (0.95E-01)	--	
DINTSH(-5)	0.29 (0.39)	--	
(DINTSH*LIB)(-4)	1.90** (2.02)	1.59*** (2.52)	
(DINTSH*LIB)(-5)	-0.43 (0.49)	-0.13 (-0.24)	
(DINTSH*MIN)(-4)	0.83 (0.53)	1.03 (0.73)	
(DINTSH*MIN)(-5)	4.12*** (2.68)	3.54*** (2.46)	
ELECT	-0.46*** (-3.74)	-0.39*** (-6.05)	
ELECT*LIB	0.17 (1.11)	--	
N	142	142	
d ₁	1.42	1.31	
R ²	0.65	0.65	

(t-statistics are in parentheses)
 (***) - significant at the 0.99 level)
 (**) - significant at the 0.95 level)
 (*) - significant at the 0.90 level)

subperiod. Because of the large number of variables involved, each subperiod was tested individually against the result of Table 3.5c.³⁶

These tests are shown in Tables 3.8a, 3.8b and 3.8c. Significant regressors included the DIEF, PEAR and TRUD3 shift variables as well as the DUNEM*DIEF, DUNEM*TRUD3, DUNEM*TRUD4, DINFL*TRUD2, DINTSH*PEAR, DINTSH*TRUD2 and ELECT*DIEF cross-variables, all of which showed initial significance at at least the 0.90 level.³⁷ These regressors were then combined in a similar regression including ELECT*TRUD4, which was nearly significant at the 0.90 level.

With the successive elimination of the least significant regressors, the best result was that shown in Table 3.9.³⁸ This model has significantly improved explanatory power ($\bar{R}^2 = 0.75$). This is in fact a highly explanatory model for a first-difference equation. It is also the only model with no significant autocorrelation ($d = 1.72$). This result is discussed at length below in the

³⁶For the same reasons as explained in the previous footnote there are no ELECT*PEAR, ELECT*TRUD2 or ELECT*CLARK cross-variables in these tests. These were all periods of minority government.

³⁷The reader will note from Table 3.8a that DINFL is weakly significant when the DIEF period is excluded. Later diagnostics included a DINFL*NOTDIEF cross-variable, but it did not prove to be significant.

³⁸The DUNEM*TRUD4 cross-variable was eventually eliminated because, although it had significance in both the t-4 and t-5 periods, the magnitudes tended to cancel out. In other words, there appeared to be statistical significance but no economic significance to this cross-variable.

Table 3.8a

Policy Function broken into Subperiods
1953-1968

Dependent Variable: FISCPR

<u>PERIOD</u>	<u>STL</u>	<u>DIEF</u>	<u>PEAR</u>
C	-0.34E-01	0.79E-02	0.78E-02
-	(-0.36)	(0.86E-01)	(-0.83E-01)
PERIOD	0.48	-0.38*	0.65**
	(0.50)	(-1.68)	(2.09)
DUNEM	-0.49***	-0.79***	-0.48***
	(-4.40)	(-5.35)	(-4.57)
DUNEM(-1)	-0.40***	-0.25	-0.47***
	(-3.47)	(-1.57)	(-4.30)
DUNEM*PERIOD	-0.81	0.55***	0.44
	(-0.91)	(2.85)	(0.92)
DUNEM*PERIOD(-1)	0.25	-0.24	0.17
	(0.13)	(-1.15)	(0.34)
DINFL(-4)	-0.22E-02	0.10E-01	0.20E-02
	(-0.68E-01)	(0.31)	(0.62E-01)
DINFL(-5)	0.30E-01	0.58E-01*	0.32E-01
	(0.92)	(1.75)	(0.98)
DINFL*PERIOD(-4)	0.14	-0.37E-01	-0.54E-01
	(0.43)	(-0.37)	(-0.46)
DINFL*PERIOD(-5)	0.72E-01	-0.12	0.59E-01
	(0.41)	(-1.35)	(-0.51)
DINTSH(-4)	0.87	0.84	0.78
	(1.59)	(1.62)	(1.54)
DINTSH(-5)	0.22	0.36	0.27
	(0.44)	(0.75)	(0.57)
DINTSH*PERIOD(-4)	5.92	2.01	11.22***
	(1.16)	(1.12)	(2.99)
DINTSH*PERIOD(-5)	6.38	-0.27	2.26
	(1.15)	(-0.15)	(0.62)
ELECT	-0.38***	-0.24***	-0.35***
	(-4.95)	(-3.10)	(-4.74)
ELECT*PERIOD	1.79	-0.49***	--
	(1.48)	(-2.56)	--
N	142	142	142
d	1.18	1.28	1.25
R ²	0.60	0.65	0.62

(t-statistics are in parentheses)

(*** - significant at the 0.99 level)

(** - significant at the 0.95 level)

(* - significant at the 0.90 level)

Table 3.8b

Policy Function broken into Subperiods
1968-1979

Dependent Variable: FISCPR

<u>PERIOD</u>	<u>TRUD1</u>	<u>TRUD2</u>	<u>TRUD3</u>
C	-0.69E-01 (-0.74)	0.61E-01 (0.70)	0.12 (1.44)
PERIOD	0.43 (1.47)	1.30 (1.44)	0.77* (1.82)
DUNEM	-0.47*** (-4.34)	-0.44*** (-4.27)	-0.44*** (-4.41)
DUNEM(-1)	-0.48*** (-4.30)	-0.44*** (-4.09)	-0.34*** (-3.18)
DUNEM*PERIOD	-0.69 (-1.14)	0.67 (0.37)	-0.83* (-1.85)
DUNEM*PERIOD(-1)	0.84 (1.22)	1.98 (1.29)	-1.03** (-2.02)
DINFL(-4)	0.66E-02 (0.19)	0.36E-02 (0.11)	0.29E-02 (0.88E-01)
DINFL(-5)	0.23E-01 (0.66)	0.30E-01 (0.94)	0.16E-02 (0.49E-01)
DINFL*PERIOD(-4)	0.24E-01 (0.23)	0.42 (1.53)	-0.61E-01 (-0.78)
DINFL*PERIOD(-5)	0.68E-01 (0.67)	-0.35** (-2.00)	0.39E-01 (0.46)
DINTSH(-4)	1.01* (1.87)	0.75 (1.47)	0.58 (1.14)
DINTSH(-5)	0.14 (0.28)	0.67E-01 (0.14)	-0.72E-01 (-0.15)
DINTSH*PERIOD(-4)	-1.22 (-0.46)	-0.59 (-0.17)	-0.56 (-0.34)
DINTSH*PERIOD(-5)	0.97 (0.37)	7.86** (2.21)	-0.48 (-0.32)
ELECT	-0.36*** (-4.28)	-0.38*** (-5.21)	-0.45*** (-5.68)
ELECT*PERIOD	-0.33E-01 (-0.16)	-- --	-0.32E-01 (-0.15)
N	142	142	142
d	1.16	1.29	1.34
R ²	0.60	0.63	0.67

(t-statistics are in parentheses)

(*** - significant at the 0.99 level)

(** - significant at the 0.95 level)

(* - significant at the 0.90 level)

Table 3.8c

Policy Function broken into Subperiods
1979-1990
Dependent Variable: FISCPR, 1953Q1 to 1990Q4

<u>PERIOD</u>	<u>CLARK</u>	<u>TRUD4</u>	<u>MUL</u>
C	-0.21E-01 (-0.24)	-0.16E-02 (-0.18E-01)	-0.11E-02 (-0.12E-01)
PERIOD	-0.74 (-0.34)	0.42 (1.34)	-0.10 (-0.26)
DUNEM	-0.45*** (-4.20)	0.38*** (-3.22)	-0.47*** (-4.32)
DUNEM(-1)	-0.48*** (-4.25)	-0.53*** (-4.47)	-0.49*** (-4.29)
DUNEM*PERIOD	-0.90 (-0.51)	-0.70*** (-2.49)	-0.46 (-0.91)
(DUNEM*PERIOD)(-1)	0.39 (0.35)	0.94** (2.24)	0.43 (0.71)
DINFL(-4)	-0.31E-02 (-0.96E-01)	-0.34E-01 (-1.00)	0.65E-02 (0.20)
DINFL(-5)	0.27E-01 (0.84)	0.27E-01 (0.77)	0.26E-01 (0.80)
(DINFL*PERIOD)(-4)	-19.41 (-1.22)	0.61E-01 (0.58)	-0.89E-01 (-0.37)
(DINFL*PERIOD)(-5)	-7.57 (-1.18)	-0.15E-01 (-0.16)	0.11 (0.57)
DINTSH(-4)	1.06** (1.97)	0.84 (1.42)	1.29** (2.17)
DINTSH(-5)	0.79E-01 (-0.15)	0.32 (0.55)	0.29 (0.52)
DINTSH*PERIOD(-4)	-125.91 (-1.23)	-0.94E-01 (-0.70E-01)	-1.29 (-0.85)
DINTSH*PERIOD(-5)	168.38 (1.25)	-1.53 (-1.55)	1.08 (0.99)
ELECT	-0.32*** (-4.18)	-0.30*** (-3.64)	-0.45*** (-5.44)
ELECT*PERIOD	-- --	-0.52 (-1.63)	0.33 (1.03)
N	142	142	142
d	1.17	1.23	1.17
\bar{R}^2	0.60	0.62	0.61

(t-statistics are in parentheses)

(*** - significant at the 0.99 level)

(** - significant at the 0.95 level)

Table 3.9

Final Regression with Subperiods
 Dependent Variable: FISCPR, 1953Q1 to 1990Q4

C	0.29***	(4.11)
DIEF	-0.40 ***	(-2.47)
TRUD3	0.41*	(1.68)
DUNEM	-0.48***	(-5.61)
DUNEM(-1)	-0.23***	(-2.70)
DUNEM*TRUD3	-0.93***	(-2.73)
(DUNEM*TRUD3)(-1)	-0.85**	(-2.29)
(DINTSH*PEAR)(-4)	9.27***	(3.43)
(DINTSH*PEAR)(-5)	1.06	(0.39)
ELECT	-0.32***	(-4.88)
ELECT*DIEF	-0.52***	(-3.50)
ELECT*TRUD4	-0.43***	(-2.94)
N	143	
d	1.72	
\bar{R}^2	0.75	

(t-statistics are in parentheses)
 (***) - significant at the 0.99 level)
 (**) - significant at the 0.95 level)
 (*) - significant at the 0.90 level)

summary.

3.3.6 Summary

In this subsection we will summarize the results, with particular emphasis on the regression in Table 3.9. The results provide a statistical overview of Canadian fiscal policy, including the presence of electoral cycles. They also suggest some important rigidities and lessons for its operation.

The most obvious conclusion should not go unstated. This is that responses to unemployment are a significant part of macroeconomic fiscal policy in the period studied. The results indicate that a rise in the unemployment rate of one percentage point (DUNEM) leads to a 0.7 point rise in the federal primary deficit as a share of GDP after two quarters. In current dollars this would be upward pressure of nearly five billion dollars on an annual basis. Given the built-in stabilization nature of the tax system and transfer programs, the existence of this basic countercyclical feature should not be surprising.

In addition, during the period of the third Trudeau government (1974-1979), this response to unemployment was substantially greater. It was in fact greater by nearly a 1.8 per cent share of GDP over two quarters (DUNEM*TRUD3). In other words, during this period, for every one percentage point rise in the unemployment rate, the primary federal deficit rose by 2.5 per cent as a share of GDP.

The final result also shows a significantly large positive value in the constant. This indicates that there is fiscal contraction when there is no change in unemployment and the electoral cycle is at its mean. This may be a proxy for "fiscal drag." Diagnostics indicated that this positive value in the constant is induced principally by the inclusion of the DUNEM*TRUD3 cross-variable. This would indicate that there may be an asymmetrical response to changes in unemployment. Note that the positive constant is much greater for the third Trudeau government (C + TRUD3), but that it is negative for the Diefenbaker government (C + DIEF).

It should be remembered that the effects of the DUNEM variable on the primary budget balance include the combined effects of automatic stabilizers, discretionary policy actions, and discretionary changes to automatic stabilizers. Without detailed budgetary analysis it is impossible to separate these effects. It would be difficult even with such analysis. After all, this reduces to a distinction between "rules" and "discretion" which is far from clear. What Tables 3.8a-c and 3.9 show is that there is nevertheless a high degree of consistency in the response of the primary budget balance to changes in the unemployment rate during the period studied, with the exception of the 1974-1979 subperiod. This suggests that the effects are dominated by automatic stabilizers. Recent budgetary sensitivity analysis

indicates that automatic stabilizers would include a large portion of the beta-coefficients on DUNEM found in this study.³⁹

Similar caution needs to be expressed regarding interpretations of the 1974-1979 subperiod. It is not possible, based on these regressions alone, to say whether the large effects of the economic cycles on the primary budget balance, represented by DUNEM*TRUD3, were the consequence of discretionary action or of the way oil price changes affected automatic stabilizers. However, the latter explanation is very unlikely. First, budgetary analysis of this period makes it clear that discretionary activism was unusually high during this period. Second, to the extent that built-in policies caused negative fiscal impulses, these in fact originated in this period. The decision to begin an oil consumption subsidization program is the best example. As well, there were ongoing discretionary measures designed to extract even more tax revenue from domestic energy production.⁴⁰

Also, we should not necessarily conclude that fiscal behavior in this particular subperiod can be described as a "Trudeau phenomenon." For one thing, the additional fiscal response paralleled the experience of other OECD countries.

³⁹Department of Finance, Budget Papers, 1990, 133.

⁴⁰See Purvis and Smith (1986) and the Department of Finance (1983, 5-11 and 39-54).

Roubini and Sachs (1989a, 1989b) show that this overstimulative response to the first oil shock was the immediate cause of the budget deficit problems in Western countries in the late 1970's and early 1980's. There is little historical evidence to assume that Canadian Conservatives would have behaved differently (as shown in Table 3.7). In fact, the earlier Trudeau governments (TRUD1 and TRUD2 in Table 3.8b) had a quite "fiscally conservative" record. On the other hand, there is little evidence that the later Trudeau ever took adequate action to resolve the structural fiscal problems (TRUD4 in Table 3.8c). A tentative explanation may combine global behavioral trends with the gradual transformation of the Liberals from a fiscally orthodox party to one reflective of a Prime Minister who had only marginal and sporadic interest in fiscal and economic concerns.

The only other regular influence on the level of the primary budget balance appears to be the electoral cycle. The coefficient on the ELECT variable used here (-0.32) implies a full cycle swing of nearly one percent in the size of the budget balance relative to GDP. In current terms this represents about six and a half billion dollars on an annual basis. We should recall that this variable is structured to reflect the most likely common electoral pattern. In this structure, the swing is concentrated in a post-election contraction occurring mainly in the second

year, with mild deficit tendencies at other times.

The results also show additional electoral swings during the last Trudeau government (1980-1984) and the Diefenbaker years (1957-1963). The magnitudes of these swings are more than double the normal cycle, exceeding 2 percent of GDP under Trudeau and nearly 2.5 percent of GDP under Diefenbaker. Otherwise the magnitudes appear fairly consistent across the subperiods (Table 3.8a-c).

These results raise obvious questions as to whether the magnitudes found for electoral cycles are credible. The numbers are very large indeed. We would argue that the size of the regular cycle is likely correct. First, the discretionary fiscal record of the Mulroney government, reviewed in Chapter One, confirms this. Note that this government does not appear as exceptional in our results. In fact, the magnitude for this subperiod is, if anything, likely smaller (ELECT*MUL in Table 3.8c). Second, these numbers are not out of line with other studies that have found electoral cycles. Schneider and Frey (1983), O'Heron (Maslove, Prince and Doern, 1986, 191), Gruen (1985) and Pack (1987) observed similar magnitudes, though Laney and Willett (1983) found substantially smaller ones.

On the other hand, the magnitudes of the cycles for the Diefenbaker and last Trudeau governments are very hard to imagine. Diagnostics indicated that these governments may have engaged in deliberate and significant preelection

stimulus. Therefore, to some degree the large beta-coefficients on ELECT may be a result of the specified form of the cycle being somewhat inappropriate. It is also interesting to note that both these governments were majority governments that languished moderately low in the polls and were eventually defeated. This would be consistent with Gruen's (1985) impression that deliberate and excessive electoral budgeting probably backfires.

Perhaps the most significant quality of these electoral cycles, however, is their contrast with the usual theory. The principal theoretical constructs reviewed in Chapter Two suggest the engineering of pre-electoral deficits for political gain. Our results indicate that this is not the essence of regular electoral behavior, at least in Canada. Our post-electoral contractions would seem to indicate that governments are reactive in this regard. Elections seem to constrain deficit-reducing actions more than they encourage deficit-expanding ones. There have been some suggestions of these possible patterns in the empirical results of Paldam (1979, 1981) and the theoretical musings of Havrilesky (1988a, 1988b). Likewise, Ito and Park (1988) in the Japanese parliamentary context found that governments behave opportunistically rather than manipulatively in their selection of election dates. Nevertheless this is a significant point of departure.

A third interesting finding from this study is the

relative unimportance of other economic variables that were hypothesized to influence targets for the size of the primary budget balance. The acceleration of the inflation rate (DINFL) was included at all stages of testing. It showed only sporadic significance in some popularity formulations (Table 3.6b) and under some governments and subperiods (Tables 3.7 and 3.8a-c). The variable does not appear in the final equation. Inflation is not generally seen as a target of fiscal policy. However, this result also implies an interpretation of the actual operation of Keynesianism as opposed to the theoretical. That is to say, fiscal expansion seems to occur in response to a deterioration in unemployment regardless of its nature, whether cyclical or structural, as indicated by the absence or presence of inflationary pressures. Certainly this is what took place in the 1970's. It is generally acknowledged that governments in this period failed to recognize a rising structural unemployment problem and attempted to shield their economies from the real permanent losses implied by the first OPEC oil price shock.

Neither is it apparent that changes in the long-term state of the finances, as indicated by the DINTSH variable, are a particularly strong factor in the size of the primary budget balance. This result is surprising. While this variable initially appeared to be a factor, it eventually proved to be significant only for the Pearson government

(DINTSH*PEAR). The result in Table 3.9 indicates that a one percentage point rise in the share of interest payments: GDP leads to an over ten percentage point rise in the primary budget balance during this subperiod. However, the debt service problem was at a low ebb during this period and it hardly seems likely that this was a policy target. It may merely stand as a proxy for the comparatively strong "fiscal conservatism" of this administration.

We should also note that the apparently significant partisan and parliamentary influences that appeared in Table 3.7 are almost certainly the consequence of specific governments. In Table 3.9, the partisan unemployment response appears restricted to the TRUD3 government and the partisan and parliamentary interest share response appears restricted to the PEAR government.

In fact, parties appear to make almost no difference to the practice of Canadian fiscal policy over time. Of course, this study cannot show how the party in opposition would have behaved had it been in power. The fact that such propositions are inherently untestable probably only increases their appeal to the die-hard partisan. This finding about the major Canadian political parties would be consistent with evidence that major economic cleavages have not been the dominant distinctions. However, casual observation suggests this may be slowly changing. Certainly the 1988 election saw the Liberals and Conservative

polarized not only over the free trade issue, but also in their selection of highly ideological rhetoric.

Minority governments show no particular tendency to fiscally irresponsible behavior, contrary to some theoretical predictions. This may be because they are either quickly defeated or survive only under intense and ongoing scrutiny of their actions. In both cases their discretionary leeway is probably quite limited. On the other hand, minority governments show no significant post-electoral contraction either, which may be an important element in maintaining a long-run fiscal balance. In this regard there appears to be no reason to strongly fear the likelihood of a minority government in Canada in the near future, although it gives no strong hope to fiscal conservatives either.

A general observation would be that, while there is no evidence of a "chronic deficit" tendency in Canada historically, neither is it clear how such a problem is resolved once it occurs. This is particularly true if growing interest payments exert only marginal pressure. This has been the case since the fiscal overexpansions of the mid-1970's. The Trudeau government of 1980-1984 provided no particularly strong remedies, and may have even engaged in additional pre-electoral stimulus. The Mulroney government's deficit reduction record also appears to have been part of regular post-electoral behavior, as well as countercyclical improvements that took place in the later 1980's.

The principal purpose of this study has been to test for electoral PBC's. The findings here indicate that both electoral patterns and economic (unemployment) cycles are significant influences on Canadian fiscal policy as represented by the relative size of the primary budget balance. Furthermore these influences appear reasonably consistent over time. One is tempted to suggest from the results that economic effects are dominated by automatic stabilizers, whereas more "discretionary" actions are constrained by electoral factors. This would be consistent with the retreat from advocacy of "finetuning" that occurred some time ago. It is also consistent with the informal comments of economist evaluating the likely directions of fiscal policy (Lewis-Beck, 1988, 137). Finally, it reinforces the common view that any future Canadian government needing to retrench should do so quickly and severely following its election.

Chapter Four

4.1 Summary and Conclusions

This study has examined the theory of the political business cycle and its relevance to Canadian fiscal policy in the post-Korean War period. In this section we review the findings of this study. In the next section we look at directions for further research.

Chapter One briefly reviewed the fiscal policy record of the Government of Canada in the postwar period. Although a broad countercyclical pattern is present, stabilization has not been remarkable and errors have been frequent. There have likewise been major challenges to the theory of fiscal policy. These include attacks on the underlying theoretical framework and the Keynesian theory of policy. This latter includes the contention that policy is at least partly endogenous to its political environment. This gives rise to the theory of the political business cycle as a consequence of the practice of Keynesian macroeconomic policy. Preliminary evidence suggested that the PBC hypothesis for Canadian fiscal policy is a reasonable one.

Chapter Two surveyed theories of the political business cycle. There are in fact numerous theories emanating from different economic schools and different political perspectives. Early Keynesian and recent New Classical versions differ principally in their views of the potential macroeconomic impact of fiscal policy and of the underlying

economic behavior. These theories originated in more ideological and radical neo-Marxist and neo-conservative (Public Choice) interpretations.

Chapter Two also surveyed tests of the various hypotheses. In the context of fiscal policy, these include an "electoral theory" (the principal one) as well as "partisan" and "chronic" theories of budget deficit behavior. Testing is extremely varied and discontinuous due to the wide range of approaches and models. The common method of testing fiscal policy is the construction of a reaction function including various possible economic and political influences. This method has the advantage of being unconstrained by the peculiarities of the wider economic and political models. However, many of these tests are simply not grounded in basic economic and fiscal theory.

In Chapter Three we tested a similar reaction function for Canada for the period 1953 to 1990. We were careful to combine both standard Keynesian and PBC influences in our tests. Our tests included a wide range of variables and specifications. Our results indicate that both countercyclical (unemployment) and electoral influences have been important in short-run changes in the budget balance. In contrast, accelerating inflation, the long-run fiscal position (as indicated by the change in the level of interest payments), and political parties do not seem to matter, although particular governments at particular time

periods have been important. We were not able to ascertain to what degree government popularity may influence fiscal policy.

Our tests also provided some explanation of the evolution of Canada's fiscal position. Canada was an extreme case of fiscal conservatism until the early 1970's. It had a very successful record in reducing high World War II debt:GDP ratios. The Pearson government during the long boom of the 1960's was probably the pinnacle of this conservatism. Canada's debt and deficit problems began with overstimulation following the first OPEC oil price shock. This paralleled experience elsewhere and represented both a failure to acknowledge a rising structural unemployment rate and an attempt to use expansionary policy to shield the economy from real, permanent losses. Canada has had no particularly strong retrenchment since that time. Governments have relied primarily on economic growth to reduce the deficit. This has not proved to be adequate, and a debt-interest-deficit syndrome has gradually become the driving dynamic behind the fiscal situation.

Some specific comments should be made regarding the electoral patterns found in Chapter Three. Our results indicate only weak support for electoral cycles as advocated by traditional political business cycle models. Our electoral cycle is composed of a strong post-electoral contraction with weak deficit tendencies at other times.

There are no such patterns during periods of minority government. This implies that government behavior is largely reactive as opposed to the PBC theory that governments attempt to engineer cycles. Pre-election stimulus may have occurred, but it does not appear to be a systematic pattern. Policy reaction functions are not, after all, deterministic. However, our result does indicate the discretionary fiscal policy is severely constrained by its political environment. The record indicates that particularly activist Keynesian policy has been rare in the postwar period. The results indicate that it should remain so.

4.2 Directions for Further Research

In this final subsection we outline some potential directions for additional research. This includes improvements on the model of Chapter Three, as well as some indications regarding the construction of a broader politico-economic model.

There are several obvious improvements that could be tested for in the model of Chapter Three. Alternative variables could be used (growth rates, GDP deflators) and more in-depth budgetary study might indicate potential finetuning to the final regression for particular subperiods. As well, because there is a two-way link between budget deficits and economic cycles, more sophisticated simultaneous-equation models could be constructed in a larger framework. This would help evaluate the magnitude of the coefficients found using the current approach. A similar conclusion would apply to exploration of the link between budget deficits, economic cycles, and government popularity. It would also be appropriate to construct an integrated model where the unemployment and electoral influences on fiscal policy are evaluated separately for their impact on both macroeconomic outcomes and monetary policy.

However, in terms of broader politico-economic theory, it would be difficult to proceed further without making some commitment to the broader context of the theories outlined in Chapter Two. Our study is suggestive in this regard.

First, this study suggests that New Classical theories may be more useful than Keynesian ones. The original PBC theories are based not only on pre-rational expectation models of the economy but also on unrealistic capacities for finetuning. It is generally true that PBC theory has severely lagged developments in macroeconomic theory; however, strict New Keynesian models of the electoral cycle are not likely to appear. While rational behavior can provide Phillips' Curve relationships in the presence of wage and price rigidities, it is hard to see how electoral gains could be extracted from a rational electorate by the exploitation of such tradeoffs. In short, economic rigidities and the efficacy of macroeconomic policy may not matter for PBC models compared to structural and informational rigidities in the political system itself. In other words, the electoral influences found in this study are more likely to be explained in a strictly political model than in a pseudo-stabilization context.

Second, the specific electoral cycle discovered here would indicate that current New Classical models of Public Choice are inadequate. Our electoral cycle, which combines both "electoral" and "chronic" deficit elements is not of an obviously deliberate nature. At the same time the more developed "partisan" models appear not to work in the Canadian context. The New Classical models may overemphasize certain informational asymmetries and underemphasize

structural rigidities in the collective decision-making process.

For example, the post-electoral contraction phenomenon may be based on standard views of a myopic electorate. In that case it can be tested in models that include government popularity functions. On the other hand, the behavior does seem highly suboptimal from the government's point of view. It may reflect constraints that the government perceives on its ability to act.

An alternative model that explains the electoral cycle of Chapter Three might be based on the assumption that governments are passive agents and that their actions reflect their uncertainty in evaluating their popularity. This would be lowest in the post-electoral period. At other times uncertainty would be higher, and might cause skews in behavior toward higher deficits -- skews that originate from interest group power, for example. In other words, the informational deficiencies may rest with the government rather than the public. If this is indeed the case, remedies should improve information flow rather than restrict government action.

Distributional factors are clearly an element of fiscal policy and warrant some study as well. For example, Canada's fiscal behavior as an oil consumer in the OPEC period undoubtedly reflects the preponderance of oil-consuming interests, as opposed to oil-producing interests, in the

government of the day. It is worth reflecting on the fact that the OPEC period has probably had as much long-run negative impact on Canada's government finances as on those of any Western country, in spite of the fact that Canada was a significant energy producer. More microeconomically or regionally-oriented enquiries such as this into fiscal behavior are likely to be very fruitful in developing politico-economic theory and models. However, it must be remembered that the behavior in any such disaggregated study is far more subject to instrument-switching strategies.

Finally, the slowness of Canadian governments in dealing with the larger financial problem is certainly an obvious topic for further research. Previous research has indicated that political instability and policy fragmentation are factors in such response patterns. Canada has usually been thought a politically stable society. This view is beginning to change. Canada's political institutions are notable for such elements as cabinet solidarity, caucus secrecy, an absentee Head of State, an appointed Upper House, an oligopolistic electoral system, and an unclear federal division of powers. These may simply mask growing and dangerous political heterogeneity with unstable forms of "pseudo-consensus." This possibility was dramatically demonstrated during the recent debate over the Meech Lake constitutional accord.

There is evidently much ground here for further

development of the tests, theories and models of the Canadian political economy. Since there is no reason to believe these matters are entirely deterministic, there may be room for political action as well.

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Appendix A

Measurement of Fiscal Policy

In this appendix we will briefly review some of the concepts and controversies surrounding the measurement of fiscal policy. We will look at four issues: the measurement of fiscal impact, the measurement of fiscal stance, the measurement of fiscal prudence, and the alternative accounting frameworks.

As mentioned in the first part of Chapter Two, the impact of fiscal policy on the macroeconomy is thought to be related to the direction and size of the budgetary balance, and to the overall level of government activity. This latter consideration comes about because government activity is not subject to "leakages" (principally via savings behavior) in the same way as in private sector. For example, government consumption purchases have a larger fiscal impact than transfer payments. Government consumption generates direct economic activity in the first round of spending in the economy, whereas transfer payments do not. These latter go directly to households and are thus subject to savings leakage in the first round.

A technically correct measure of fiscal policy would therefore weight the various components of the budget in terms of their multiplier effects on the economy. In practice this is seldom done. The differential value of multipliers is probably subject to a wider range of

interpretation than the differences between them. As a consequence, such weighting is meaningless unless one has access to and confidence in some large macroeconomic simulation model.

Nevertheless, a small number of implicit weightings do crop up. A particular one is the "inflation-adjustment" to government budget balances. Because government is a net borrower in the economy, inflation affects its balances in disproportionate ways. It is reasoned that the growth of government interest payments due to inflation has no impact of aggregate economic activity to the extent it compensates bondholders for expected real capital losses. Thus it is commonly argued that this portion of interest payments should be excluded.

Some recognition of the level of government activity in fiscal policy is accomplished by the practice of expressing government budget balances relative to the size of the economy rather than according to their real value. Thus the balance in most analysis is expressed as a percentage of Gross Domestic Product (GDP) at each given point in time rather than in a constant-dollar value. This practice of using the budget balance:GDP ratio implies that current inflation is irrelevant in assessing budgetary impact, except on the interest payment portion mentioned above. This is strictly true only if government activity is subject to the same inflation rate as general economic activity.

Of course it is always important to remember that the concept of fiscal impact is itself dependent upon the assumption that there is a vastly significant difference between government activity financed by deficits and government activity financed by taxation. This is of course challenged by non-Keynesian schools such as monetarism and rational expectations. In addition, the use of any budget balance:GDP ratio assumes that the method of deficit finance, whether bonds or money, is also irrelevant in macroeconomic impact. While this is clearly subject to challenge, it is a common assumption for the purpose of analysing fiscal policy in isolation.

"Fiscal stance" is a concept used as a basis for assessing discretionary changes in fiscal impact due to government policy actions as distinct from changes due to the operation of automatic stabilizers in taxation and certain transfer payments. There is little debate that changes in the budget balance due to movements in the business cycle should be removed from measures of fiscal stance. Thus similar concepts like the "full employment/high employment budget balance" and the "cyclically-adjusted budget balance" attempt to assess the size of the budget balance at some normal level of economic activity.

This concept of a cyclically-adjusted budget balance is the basis for the concept of a "structural balance." Changes to this are then taken to reflect policy action or

what is sometimes called "fiscal impulse." The practical problem is that hypothetical levels of potential output must be constructed. There are serious disagreements over these, even ex post. Such disagreements are complicated by different views regarding the impact of fiscal policy on economic activity.

Far more controversial from a conceptual viewpoint is the notion that other transient effects on budget balances should be removed from measures of fiscal stance. Should it be assumed that fluctuations, particularly non-cyclical fluctuations in such items as terms-of-trade, interest rates or demographics, would be automatically compensated for by government action? This appears somewhat unreasonable. On the other hand, are such items in fact unrelated to any structural deficit problem? There seem to be no clear answers to such questions at present.

Controversy also surrounds measures of long-run fiscal prudence. The debt:GDP ratio constitutes a rough measure, though appropriate measures of the debt are debatable. The belief that the debt:GDP ratio must be non-explosive is accepted. However, the expected future values of real and nominal interest rates and growth rates are highly controversial, and impact enormously on the selection of any feasible debt:GDP target.

A critical debate in the evaluation of long-run fiscal position concerns the impact of expected future non-economic

changes. For example, it is widely believed that the population will age in the coming decades and that this will lead to rising payments in some critical (and underfunded) social security programs. One argument is that these payments are part of a powerful social contract and must be included in expected future expenditures until policy is altered. The more conventional view is that this is simply current policy. Legally these are not in fact contractual obligations and policy can be changed unilaterally. Note however that such an assumption is never made regarding interest payments.

In the context of short-run versus long-run assessments of the budget balance, we need to be clear about the significance of the common adjustments. The "inflation adjustment" removes that portion of interest payments believed to have no stimulative impact on the economy. However, this is a real cost to the government and represents a factor in its long-run financial position. On the other hand, the "cyclical adjustment" removes a portion of the balance thought to have a stimulative impact on the economy. However, this effect is expected to be temporary and reversed through future developments. Thus it is not believed to influence the government's long-run financial position.

Discussion of the size of the budget balance is also complicated by the use of different accounting systems. The

Second, although the Public Accounts deficit is higher than the National Accounts, they generally move in tandem. In other words, changes in the budget deficit are likely to be similar in both frameworks.

For further reference on all of these issues see the Department of Finance (1983). The first three issues are discussed at length in Blinder and Solow (1974), Bruce and Purvis (1986) and Purvis and Smith (1986). The last issue is discussed in the Canadian Tax Foundation annuals, where reconciliation statements can also be found.

Appendix B

Data and Sources

- Nominal GDP - annual - Statistics Canada, Series D10000, Cansim University Base, 1987.
- updated from Statistics Canada, Catalogue 11-210, Canadian Economic Observer, 1991.
 - quarterly, seasonally adjusted at annual rates
 - Statistics Canada, Series D20000, Cansim University Base, 1987
 - updated from Statistics Canada, Catalogue 13-001, National Income and Expenditure Accounts, 1991.

Real GDP Growth Rates

- annual - Statistics Canada, Catalogue 11-210, Canadian Economic Observer, 1991.

Nominal Budget Balances

- These figures are National Accounts' "net lending/net borrowing" figures, *i.e.* they exclude federal capital consumption allowances which often appear in National Accounts' "budget balance" figures.
- annual - Statistics Canada, Series D10193, Cansim University Base, 1987.
 - updated from Statistics Canada, Catalogue 11-210, Canadian Economic Observer, 1991.
- quarterly, seasonally adjusted at annual rates
 - Statistics Canada, Series D20193, Cansim University Base, 1987.
 - updated from Statistics Canada, Catalogue 13-001, National Income and Expenditure Accounts, 1991.

Nominal Public Debt Charges

- quarterly, seasonally adjusted at annual rates
 - Statistics Canada, Series D20189, Cansim University Base, 1987.
 - updated from Statistics Canada, Catalogue 13-001, National Income and Expenditure Accounts, 1991.

Unemployment Rates

- Monthly unemployment figures were averaged to create quarterly data. Note that there are slight differences between pre and post-1965 figures due to changes in Statscan's labour force survey. Only post-1965 figures are

available on Cansim.

- monthly, seasonally adjusted, all workers 15 years and older - Statistics Canada Series D767611, Cansim University Base, 1987.
 - updated from Statistics Canada, Catalogue 71-201, Historical Labour Force Statistics, 1991.
 - pre-1966 figures from Campbell (1987, 231).

Consumer Price Index and Inflation Rates

- Monthly CPI figures were averaged to create quarterly data. Recent data with 1986=100 were converted to 1981=100 series from Cansim. The difference between quarterly CPI figures was converted to an annual rate of change to create inflation figures
- monthly, unadjusted, all items - 1981=100 - Statistics Canada, Series D484000, Cansim University Base, 1987.
 - updated from Statistics Canada, Catalogue 62-001, The Consumer Price Index, 1991.

Government Popularity

- Quarterly popularity data was created by averaging available Gallup polls from each quarter. Election results were included in the averaging for the first post-electoral quarter. Polls published during election campaigns were excluded.
- "Political Preference Polls, 1942-1991" were supplied by Gallup Canada Inc., Toronto.

Elections, Parties, Parliaments, Prime Ministers

- The Party, Parliament and Prime Minister in each quarter is considered the one in at the beginning of the quarter. The following have been the dates and results of Canadian federal general elections since 1945:

1945 June 11	Liberal Majority
1949 June 27	Liberal Majority
1953 August 10	Liberal Majority
1957 June 10	Conservative Minority
1958 March 31	Conservative Majority
1962 June 18	Conservative Minority
1963 April 8	Liberal Minority
1965 November 8	Liberal Minority
1968 June 25	Liberal Majority
1972 October 30	Liberal Minority
1974 July 8	Liberal Majority
1979 May 20	Conservative Minority

- 1980 February 18 Liberal Majority
1984 September 4 Conservative Majority
1988 November 21 Conservative Majority
- Chief Electoral Officer. Reports. Ottawa, various years.
 - Beck (1968).
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