Provincial Government Finance and Indicators of Fiscal Policy in Ontario, 1961 to 1991

by

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CONTENTS

1 INTRODUCTION

The last few years have seen increased public concern regarding government debt and deficits at the provincial level in Canada. This paper is motivated by the fact that the policy reaction to this concern has had an impact on the provision of important public services in Ontario.

The literature on fiscal policy analysis, albeit dealing with national finances, is largely grounded in a Keynesian paradigm, perhaps best exemplified in the papers by Buiter (1983) and Parkin (1983). As will be documented in subsequent sections, analytical approaches based on this conceptual framework have been gradually "devalued" by the fiscal crisis, be it real or perceived.

A new framework for fiscal policy analysis, developed by Kotlikoff (1992) is in its infancy. Though it shows great promise, the progression from invention to application has not yet occurred (i.e., "generational accounting" is still at an experimental stage). Official agencies still employ tools grounded in the older, Keynesian framework. Although these measures may be deemed outmoded by academic economists, they are still widely examined in the profession.

The purpose of this paper is to examine revenue, spending, deficits and debt in Ontario during the period 1961-1991, and to apply certain established and alternative "tools" to these data to assess the stance of provincial fiscal policy over the period. The tool kit of fiscal policy indicators that has been developed for national economies, by the OECD and other bodies, has not yet been applied to junior levels of government. Inasmuch as the Ontario government, by stated intent, has used discretionary fiscal policy to effect changes on provincial macroeconomic

aggregates, and has attracted additional public scrutiny with the resulting deficits, it is fitting to subject the provincial public finances to tests similar to those employed on national governments.

Ontario data from the Provincial Economic Accounts, and tax elasticities for the provincial level of government from Finance Canada, will be used to calculate these conventional and alternative indicators, supplemented by information from the Ontario Budget and Ontario Public Accounts. The results will be interpreted with respect to the questions of discretion and sustainability.

This paper has 9 sections, subsequent to this introduction. Section 2 presents an historical overview of economic conditions and provincial government finances in Ontario since 1961. Information is drawn from the Provincial Economic Accounts, annual budget documents, and the Canadian Tax Foundation's bi-annual review of provincial finances.

Sections 3 and 4 briefly describe the theory and rationale for conventional indicators of fiscal policy, and discuss their identified shortcomings. Section 5 introduces some new indicators that have been proposed to address these shortcomings.

In Section 6, the conventional and alternative indicator formulae are applied to the data for Ontario from 1961 to 1991, and the salient features of the results are graphed and discussed.

Section 7 concludes the main body of the paper, summarizing the results of the historical review and investigation of the indicator-tools. These results give similar answers to the question of the cyclical thrust of fiscal policy. Specifically, the provincial government has injected

substantial stimulus in periods of rising unemployment, but has been less forceful in withdrawing stimulus in periods of decreasing unemployment. The Ontario results for the conventional tool for assessing sustainability, the level of the cyclically-adjusted balance, are inconsistent with the behaviour of provincial debt over the period. The alternative indicator, the "tax gap," provides a more subtle and complete answer: a tax increase and/or expenditure cut is required sometime within the medium term to keep the debt ratio from rising.

Calculations are provided in the text. Graphs referenced in the text are in Section 8. Historical tabulations of Ontario government revenue and expenditure, reorganized from the standard Provincial Economic Accounts, are presented in Section 9. References are listed in Section 10.

2 HISTORICAL AND INSTITUTIONAL BACKGROUND

2.1 Institutional Character

In Canada, the provincial governments have large mandated responsibilities in the fields of health, education and social welfare. The federal government supports provincial programs in these fields via block transfers or cost-sharing arrangements. The most important block transfers are provided through the Established Programs Financing (EPF) arrangements under Part V of the Federal-Provincial Fiscal Arrangements and Federal Post-Secondary and Health Contributions Act. EPF provides equal, per capita transfers to all provinces, consolidating federal commitments for insured health services, extended health care services and post-secondary education into a single payment, based on provincial population (Canada 1990, p.13-1). The most important cost-sharing arrangement is the Canada Assistance Plan (CAP), under which the federal government reimburses the provincial governments for half of the costs of social welfare transfers and services (Canada 1990, p.16-10).

The existence of these programs transfers some of the revenue-swing risk to the federal government, but not all of it. Under the federal Expenditure Control Act of 1990, per-capita EPF transfers were frozen, and the escalation of CAP payments to those provinces not in receipt of equalization payments (Ontario, Alberta and British Columbia) contained to a maximum of 5 per cent per year. These measures have reduced Ontario's revenues from federal transfers substantially compared to the pre-1990 funding formulas (Canadian Tax Foundation 1993, p.1:21).

However, the need for the programs these federal transfers fund has not diminished. The demand for health and education services is determined by the enrolment-weighted and health-weighted population of the province. The demand for social welfare transfers is largely determined by unemployment or income circumstances not entirely within the control of the provincial government (e.g. exhaustion of unemployment insurance benefits or disability). Expansion of the client base for these provincial programs is largely independent of the business cycle, at least according to Finance Canada (1986, p.3), which implies that the only expenditures of any level of government that are cyclically-influenced are the federal government's expenditure on Unemployment Insurance (UI) benefits.

On the other hand, provincial own-source revenue behaviour is determined by the level of economic activity, setting aside the possibility of tax changes. Therefore, there exists the potential for imbalances between revenue growth and desired expenditure growth, based on any given program structure. It is this differential that has led to high deficits and the initiatives to change the delivery structure of provincial programs (the Ontario Expenditure Control Plan of 1991 and the Social Contract legislation of 1991). This begs the question of how "big" should the government balance be, given the economic circumstances of the time?

Prior to the development and implementation of a panoply of social programs in the late 1960s and early 1970s, the Ontario budget was balanced within a fraction of a percentage point of the province's Gross Domestic Product. If the provincial government were to balance its budget annually now, the swing in expenditure from year to year would result in a large annual change in real expenditure per capita. The difficulty this would pose for planning and fairness in the institutions which provide these

services is obvious. A client in a year of low (high) revenue would receive less (more) services in real terms than someone in comparable circumstances in a previous or subsequent year. It seems very likely that public services would be seriously underprovided if budgets were this uncertain. Furthermore, the stabilization effect of such a policy would necessarily be pro-cyclical, shifting the entire responsibility for stabilization to the federal government (Devereux 1993, p.7).

It does not immediately follow that provincial fiscal policy should be **deliberately contra-cyclical**. Scarth (1992, pp.52-53) has described the risks of such policies to neighbouring provinces if their business cycles are synchronized and the national economy operates under a flexible exchange rate regime. Scarth extends the Mundell-Fleming regional model of currency union to the case of the Canadian confederation, wherein the provinces, as a whole, represent a "Group of 10" economies within a currency union, and the group can have fixed or flexible exchange rates with the rest of the world. Under a fixed exchange rate regime, if Province (A) implements an expansionary fiscal policy, (A)'s provincial income will rise, and Province (B)'s exports to (A) will increase (a "positive spillover"). In a flexible exchange rate regime, however, if (A)'s fiscal expansion "brings pressure for higher Canadian interest rates and, hence, for a higher value of the Canadian dollar" (Scarth 1992 p.53), these effects will dominate the trade effect on Province (B), resulting in a "negative spillover." Which sign of spillover is desired depends on how the provinces' cycles are synchronized.

So, this paper addresses two questions:

- Has Ontario fiscal policy since 1961 been deliberately contra-cyclical?
- What are the implications of these policies for provincial debt, historically and now?

The answers to these questions may have a bearing on the strategic analysis of monetary and fiscal policy formation in Canada or other federations with similar division of powers. As Devereux (1993, p.3) points out, T.J. Sargent's (1986, pp.170-171) model of policy formation as "chicken game" between the government and central bank becomes trilateral in the Canadian context (Bank of Canada, Department of Finance, provincial treasuries), which complicates the analysis. To the extent that the federal government responded to central bank pressure by cutting transfers to the wealthier provinces, and that the provinces (with the exception of British Columbia) have responded by cutting expenditure, raising taxes **and borrowing**, we see one of the "plays" of this new "game:" the federal government lowers its deficit by a combination of tax increases and expenditure reductions, including reducing transfers to the wealthier provinces. The provinces are forced to cut their exhaustive expenditure and transfers to persons, or incur the deficit which the federal government has "downloaded," or some combination of both. The pure efficiency implications of "downloading" are negative, because no junior government can have a higher credit rating than its senior government, therefore shifting the borrowing requirement results in higher borrowing costs for the country as a whole. Given the political context and the limits to expenditure reductions under current legislation, the game between the central bank and the federal government may be "chicken", but the game

between the federal government and the provinces is "tag" or "hot potato."

2.2 Budget Reviews

The Province of Ontario has historically relied on non-public funds for the preponderance of its financing. The two largest of these non-public sources are the pension plans of provincial civil servants and teachers, and the Canada Pension Plan (CPP) Investment Fund. The interest rate on borrowings from the provincial pension plans was set with respect to long-term rates for provincial debentures on the public market. The CPP Fund makes available to the provinces the excess of contributions and interest income over benefits and administrative costs. Each province can borrow from this excess, proportional to that province's share of total contributions. The interest rate applicable on these loans is a weighted average of the market yields of long Canada bonds (20+ years term to maturity).

Following a series of reports recommending full funding and market portfolios for the provincial employees' pension plans (Ontario Ministry of Finance 1989, pp.101-118), legislation was enacted in December 1989 that freed the plans to follow their own investment policies. This was the last year in which the province was obliged to borrow from these funds before going to the markets, allowing the Treasury to secure market financing, should it be cheaper. It was also the last year in which the pension funds were required to invest in provincial debentures, likewise freeing their treasurers to seek higher returns and greater protection from inflation than a portfolio of long-term, fixed-income securities. As interest rates on the public debt market were lower than the administered rates for non-public lenders, the province looked forward to interest savings and the

development of a broad, liquid, public market for provincial paper.

In 1961, the province was participating in the worldwide post-war expansion. Population growth and industrialization were proceeding at a pace substantially higher than the national average. Other than hospital insurance, the programs which constitute the so-called "social safety net" (or the programs to fund health and post-secondary education) were not fully developed or even considered. The Canada Pension Plan was not created until 1968. The province had relatively little debt, and most borrowing was for capital works.

From 1961 to 1975, the province relied on broad-based tax measures strictly to raise revenue. Policy was pursued on the expenditure side (timing of capital works, enhancement of programs in health, education and welfare), but budgets were largely balanced within a fraction of a percentage point of provincial GDP (i.e. expenditure initiatives were largely tax-financed). In 1962, the two senior levels of government signed the first of the Tax Collection Agreements, whereby provincial personal income tax would be assessed on the same basis as the corresponding federal tax, making possible the expression of provincial personal income tax (PIT) as a percentage of the federal income tax. When the federal definition of taxable income was changed in 1972, the provinces were provided with revenue guarantee payments for the subsequent five years. These payments were intended to cover the difference between provincial PIT collected on the new basis, and what would have been collected by the previous system.

Beginning in the early 1970s, the provincial government adopted additional tax policy measures. Adjustments were largely confined to the provincial retail sales tax (PST), where the province had the freedom to

redefine both the rate and the base. In the 1975 budget, Treasurer Darcy McKeough included "tax cuts to provide immediate stimulus through increased consumer spending (and) business capital investment."[1] This took the form of a 2 percentage point cut in the PST rate for nine months. Spending growth was to be curtailed, mostly by reducing transfers to local governments. The province also offered to assume total responsibility for health-care financing, in exchange for 17 points of personal income tax (PIT) revenue from the federal government.

The earliest indications of official concern with the level of the provincial debt and the annual borrowing requirement appeared in the 1977 budget. This was the second of a series of "restrained" budgets, including a target for eliminating the deficit: fiscal year (FY) 1980-81. No public borrowing was required that year, as the financing available from the provincial employees' pension funds and the Ontario contributions to the Canada Pension Plan were sufficient. Net public debt interest payments exceeded $1 billion for the first time.

The 1979-80 budget plan called for the lowest annual percentage increase in nominal spending in the post-war period (6 per cent). However, in the absence of a tax increase, the balanced-budget target period was set back to FY1984-85. The economic outlook for 1979 was pessimistic. The unemployment rate had begun to increase, but largely due to labour force growth. The anticipated stabilization of the exchange rate and a US slowdown were expected to dampen exports. A number of tax and non-tax revenue measures were implemented with the stated intention of "minimizing" the deficit. In what appeared to be an anticipatory move, the Treasury

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1. Canadian Tax Foundation (1975, p.15). The reader is referred to the biennial editions of **Provincial and Municipal Finances** for historical data.

borrowed all available funds from non-public sources (the Canada Pension Plan and the provincial employees' pension plans), which yielded an amount sufficient to cover the deficit, to retire $259 million of publicly-held debentures, and to add $142 million to the liquid asset reserves of the province. Real output declined 0.4 per cent in 1980, recovering slightly over 3 per cent in 1981, before declining by 4 per cent in 1982.

In spite of the recession of 1981-82, the borrowing requirement did not expand beyond available non-public funds. In fact, some public debt was retired in FY1981-82, even after $500 million of Canada Pension Plan (CPP) funds were borrowed on behalf of Ontario Hydro. The province was able to avoid public borrowing throughout the period of high interest rates in the early 1980s, though public debt interest payments continued to be one of the fastest growing expenditure items. It was not until 1983-84 that the Treasury borrowed from public sources, raising $1 billion of a $2.7 billion borrowing requirement on the New York capital market. There were indications of growing concern regarding expenditures, and, in the 1985-86 budget, the Treasurer committed to contain total expenditure growth below the growth of nominal GDP. The deficit that year was funded entirely by non-public sources, but no publicly-held debt was retired. Annual debt charges had risen to nearly $4 billion, in contrast to the $860 million in interest paid in 1975-76, ten years previously.

Higher rates of GDP growth in the late 1980s led to revenue growth such that both the deficit and taxes could be reduced, while still providing additional funding of post-secondary education, additional road-building outside the Southern Ontario core, additional farm income support and increased spending on local-government infrastructure. The total cash requirement for the 1986-87 fiscal year was provided by the

provincial teachers' pension fund, permitting a pay-down of publicly-held debt without the use of CPP funds. The deficit dropped again in FY1989-90, and was again financed entirely by provincial employees' pension funds.

In FY1989-90, an anticipated $577 million surplus only reached $90 million, due to lower-than-expected revenues. This was the first of a series of revenue shortfalls caused by the recession. In 1990-91, an anticipated $30 million surplus materialized as a $3 billion deficit. In the 1991 budget, the Treasury anticipated the beginning of recovery in the third quarter of 1991, rebounding strongly in 1992.

2.3 Deficits And Debt Since 1961.

The provincial government has had both deficits and surpluses (though more deficits than surpluses) throughout the period from 1961 to 1991 (see Graph 1). The balance ranges from -3 to +0.6 per cent of provincial GDP. Juxtaposing the deficit with the provincial unemployment rate might also lead one to infer, as per Kitchen (1991, p.174), that there is a contracyclical fiscal stance.

It is apparent from Graph 2 (Net Debt to GDP) however, that the response of the fiscal balance to changing economic activity has not been symmetric in all periods, and that the debt situation has changed substantially from 1961. Other than in the period of very high GDP growth in the 1980s, the debt ratio resembles a step function, with distinct plateaus beginning in periods of downturn. Each downturn leads to a higher ratio, which persists until the next downturn. According to the "rule of fiscal prudence" posited in Bruce and Purvis (1988), the debt ratio should detectably and commensurately decline during expansions, the ratio should

not "ratchet up." The obvious inference is that Ontario fiscal policy has not been "fiscally prudent," at least since 1970.

Graph 3 introduces an additional element of concern. This ratchet-like increase in the debt ratio has not apparently resulted from a lack of tax effort. The average implicit provincial tax rate doubled from 1961 to 1971, rising steadily since that time to reach 15.6 per cent of GDP. Given the revenue increases in the recoveries, especially during the 1980s, contrasted with the relative decline in provincial government capital spending as a percent of GDP (see Table 2), it would appear that there was nothing preventing a substantial reduction of the debt ratio. Ip (1991, pp.63-64) offers particularly scathing criticism of the provinces for not taking this opportunity.

That said, there appears to be no theoretical indication as to what the "optimal" debt ratio might be, and therefore no theoretical support for setting a particular historical debt ratio as a target. The post-war period, especially the 1960s and early 1970s were also characterized by a deliberate expansion of the public sector in the form of new programs in health, education, infrastructure and income security at both the federal and provincial levels (i.e., a change in the public/private consumption mix).

Fiscal policy research in the 1980s and 1990s has focussed on the medium-term debt dynamics (e.g. J. Sargent 1986 and Purvis 1985), expressing increasing concern regarding sustainability, credit market pressures and "crowding out," and fiscal distortions to aggregate supply. The next section examines how interest payments have factored into the development of the debt situation in Ontario.

2.4 Interest Payments And Debt Stability

Graph 4 reveals that interest payments have been pre-empting an increasing share of provincial government revenue since 1970. As of March 31, 1991, the bulk of provincial government bonds and debentures (approximately one-half) was held by the provincial government employees' pension funds. A third of the provincial debt was held by the Canada Pension Plan Investment Fund.[2] There are two important implications of these institutional arrangements. First, the bulk of provincial government net public debt interest is transferred as investment income for the CPP Investment Fund and the superannuation accounts of provincial government employees. Second, by virtue of the way interest rates were determined for these funds, the province borrowed at the relatively stable, long end of the yield curve, isolated from short-term spikes in rates. Of the remaining 20 per cent of provincial debt, $8.7 billion in 1991, all but $2.8 billion is denominated in US dollars. Public debt interest, calculated as the percentage relationship of gross debt interest over gross financial liabilities adjusted from fiscal year to calendar year, has been relatively low and non-volatile. It has nevertheless doubled from 3.5 per cent to slightly below 7 per cent since 1961.

It is apparent from Graph 5 that, with very little exception, the province of Ontario has been in a state of debt-dynamic grace since 1970 (i.e., the average interest rate on public debt has been less than the growth rate of the economy), because of stable non-market rates of interest and strong nominal growth. This situation provided the provincial fiscal authority additional room to manoeuvre in the past, but is not expected to

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2. Shares based on data from Ontario Public Accounts, 1990-1991, Vol. 1, pp. 2-40 to 2-45.

persist, because the bulk of new borrowing will be from public sources at market rates, and long-term economic prospects are not necessarily as robust as the experience of the 1960s and 1970s, or of the mid-1980s.

3 THE "CONVENTIONAL" (UNADJUSTED) BALANCE

The budget balance is the residual between revenues and expenditures for a given period, normally a calendar or fiscal year. It therefore summarizes the net result of government budgetary transactions in the period. The sign and magnitude of this balance is watched very closely because it has an effect on other variables: output, prices, income and interest rates.

Lately, the perception expressed in the popular press is that deficits are "too big," and are responsible, at least in part, for greater economic uncertainty, higher interest rates and a "crowding out" of private investment. This leads, so the argument goes, to lower investment, output and employment than if deficits were smaller.

This opinion is pre-dated by the view, based on Keynesian theory, that a bond-financed deficit represents an injection of demand, and is beneficial in an economy operating below its full-employment output level. At this level of activity, private credit demand is also below its full-employment level, leaving "room" for expanded public borrowing without increasing interest rates. The likelihood of a single province causing substantial interest rate changes via competition for credit in an economy with liberal international capital flows and access to global savings is arguable. However, there is no question that as deficits accumulate, and debt rises, the debtor government encounters two problems. First, the government faces higher interest-rate risk. This may be only a potential problem, if interest rates are relatively stable. The second, and unavoidable, problem is that interest payments on the debt are an obligatory transfer of resources from the set of all taxpayers to the

savers holding government bonds. This transfer will tend to have a regressive effect on the domestic distribution of income at the same time that the payments pre-empt more beneficial transfers or final expenditures. Should the creditors in question be non-residents, the implications are worse, because the transfer leaves the jurisdiction altogether, lowering the current account balance and offering no opportunity for the government to tax back a portion of this interest income. At this point, interest-rate symptoms may manifest themselves from "portfolio" effects (i.e., savers, residents or non-residents, are unwilling to lend further without an incremental premium).

Most budget documents and official statements of public finances measure revenue and expenditure on a cash basis. The balance measure in this framework is the "Public Sector Borrowing Requirement (PSBR)", which is the difference between total cash expenditures in the period, including interest payments, less amortization, and ordinary cash receipts (i.e., all sources of cash in the period other than borrowing). When the PSBR is greater than zero, the budget is in deficit and the absolute value of the PSBR is the current period's increment to the stock of public debt. The PSBR is normally financed through the sale of bonds or treasury bills, to the central bank or the public. (See Blejer and Cheasty (1991) for examples of unconventional financing methods, including trade credit and major asset sales.)

The System of National Accounts (SNA) books transactions on an accrual basis, which better indicates the actual pre-emption of resources, since the time of actual collection or disbursement of cash can depart substantially from the time of the decision to collect or to disburse. The SNA also accounts for depreciation (Capital Consumption Allowance) and

separates investment from current expenditure. The balance calculated in this framework is "Net Lending (NL)". The bulk of the analysis in this paper is based on government revenue and expenditure data from the Provincial Economic Accounts. These data are derived from the National Income and Expenditure Accounts, using the same SNA rules. They have the advantage of calendar year timing, avoiding the necessity of end-of-year adjustment.

4 THE "STRUCTURAL" (ADJUSTED) DEFICIT

Not all changes in revenue or expenditure, and therefore the balance, are deliberate. The government's income and expenditure are affected by macroeconomic conditions, like those of other economic agents. We therefore have little foundation for making summary assessments of fiscal policy based solely on the conventional balance, because it is sensitive to changes in the macro environment. We can therefore isolate two issues and ask the questions:

- What is the government's deliberate fiscal policy?
- Is this policy sustainable?

Discretion and sustainability are concepts that are not "measured" directly by the conventional balance. While the government balance affects aggregate demand, aggregate demand also has automatic effects on government revenue and expenditure (Parkin 1983, pp.150-152). This is well explained in the Keynesian conceptual framework: high unemployment reduces output and income, and the tax base, and increases transfers to persons under the income security programs, pushing revenue and expenditure in opposite directions. Since the deficit is the difference between two numbers, relatively small percentage changes in revenue and expenditure can cause wide swings in the deficit. It is, therefore, important to ascertain the extent of deliberate change, which may in itself be a demand disturbance. Somehow the total change in the deficit has to be decomposed, removing the effect induced by changes in the environment.

Buiter (1983) points out that even in the absence of Keynesian effective demand deficiencies, there are benefits to stabilization policy, if capital markets are imperfect and private agents are liquidity-constrained from consuming according to their permanent income. "Successful stabilization policy keeps disposable income in line with permanent income and ensures an adequate share of disposable financial wealth in comprehensive wealth" (Buiter 1983, p.309). He also points out that stabilization policy is desirable when governments can borrow more cheaply than other agents, a condition which is manifestly true in the Canadian context.

Buiter recommends (1983, p.344), consistently with Scarth (1992), that taxes and transfers should be left to respond to fluctuations in activity, keeping exhaustive expenditure programs "on track" to provide the best feasible private/public consumption mix based on permanent income. In Canada, the bulk of the responsibility for providing this public consumption falls on the provinces.

The question of "sustainability" is multi-faceted. It is cited by Muller and Price (1984, pp.8-9) as an operational issue (budget planning over the medium term), a structural issue (fiscal distortions), and a financial market issue (interest rate pressures). The practical criterion for sustainability is whether or not conditions exist, and can be reasonably expected to continue, under which public debt will not explode. A further criterion for sustainability is that fiscal policy not imply explosive imbalances elsewhere in the system, such as accelerating inflation or balance of payments difficulties. Where "discretion" is a comparative-static concept (i.e., how much has fiscal policy changed from period to period), sustainability is a steady-state concept (i.e., can this

go on indefinitely).

In developing indicators for assessing fiscal policy, there are desirable characteristics which would enhance their usefulness.

- o Simplicity of calculation.
- o Number of assumptions required, theoretical or quantitative (e.g., forecasts).
- o Credibility or acceptance of results.

These criteria can be used to compare alternative indicators and select methodologies that are more likely to receive broad acceptance and be widely used. They also raise clear criteria against which proposed new methodologies can be judged and compared to established methods.

The methodologies surveyed in this paper are simple to understand. They employ the concept of a deficit, which is well understood, which they proceed to adjust in specific ways. The progress that has been made hitherto (i.e., the shift from the full-employment balance to the cyclically-adjusted balance) has largely been due to theoretical vulnerability and a loss of faith in prior accepted measures.

The conventional balance needs to be set in its macroeconomic context through adjustment. These adjustments require estimating the hypothetical level of revenue and expenditure under a counterfactual case for output, called interchangeably a "reference case" or "benchmark." This process yields an adjusted measure of balance, to be compared with the conventional balance. The general methodology for calculating indicators of fiscal policy was clearly outlined in De Leeuw and Holloway (1985, p.232):

> To construct (an) ... adjusted budget, the essential steps are (1) choosing a reference (case) for GNP free from short run fluctuations, (2) determining the responsiveness of each category of receipts and expenditures to short-run movements in GNP (e.g., cyclical tax elasticities), (3) applying these responses to gaps between (reference case) GNP and actual GNP, and (4) adding the expenditures and receipts "gross-ups" from step 3 to the actual budget to obtain (an) ... adjusted budget. **The first step, selecting a GNP reference (case), is the most important and controversial. Other things being equal, the higher the level of the reference (case), the smaller the ... adjusted deficit** (emphasis added).

Various economic organizations (e.g., US Bureau of Economic Analysis, Organization for Economic Cooperation and Development, Finance Canada) publish adjusted balance measures on a regular or occasional basis. In this application, output is a proxy for the total tax base, which in the Canadian federal and provincial context is a vector of high dimensionality: personal income, corporate income, retail sales, sales of tobacco and alcohol, natural resource royalties, etc.

4.1 The Full Employment Surplus

The earliest benchmark employed for the calculation of adjusted balance was a "full employment" case, where the reference output was equal to potential output (Blejer and Cheasty 1991, p.1654). This was based on the presumption that the aim of fiscal policy was to help attain and ensure full employment, and that it could do so, and therefore the full employment situation was the appropriate target. The **change** in the full employment balance from year to year, termed the fiscal impulse or fiscal thrust, was an indicator of **discretionary** change in the budget balance, or fiscal policy direction.

The level of the full employment balance was, according to Blanchard (1990, p.7), pressed to serve as an indicator of sustainability on the assumption that "a small surplus in that (full employment) budget would ensure a high level of national saving while permitting built-in fiscal stabilizers to damp cyclical fluctuations" (De Leeuw and Holloway 1983, p.27).

The full-employment benchmark's acceptability as a guide post for analysing fiscal policy, especially medium-term debt dynamics, was undermined by the theoretical controversy and the duration of sub-full-employment output growth in the 1970s and 1980s. There is considerable argument over what level of output, and by implication, what unemployment rate, constitutes "full employment" for any jurisdiction at any given time. Also, especially since the 1970s, there has been doubt as to whether OECD economies can, on average, operate near full employment. In the Canadian context, Parkin (1983, pp.169-170) pointed out that full employment, as it was being employed as a benchmark reference case, was too high for the average level of employment to be consistent with a fixed average rate of inflation (i.e., the full-employment unemployment rate was less than NAIRU). A fiscal policy which contributes to inflation acceleration can not very well be deemed sustainable. This would logically imply that a NAIRU benchmark would make a more suitable reference case.

However, adopting NAIRU as a benchmark is frought with uncertainty. Although NAIRU as a concept is clear, being the unemployment-rate result yielded by a reduced-form Phillips curve when solved for a constant inflation rate, the determinants of NAIRU (i.e., the specification of the structural equations behind the Phillips curve) and the econometric results vary widely. Setterfield, Gordon and Osberg (1992) have demonstrated,

using Canadian data, that econometric estimates of NAIRU vary so widely with the specification of the Phillips curve and the sample time period as to encompass almost the entire historical range of unemployment rates. They therefore conclude that the use of NAIRU estimates as a structural parameter in macroeconomic policy formation is unsatisfactory (p.135). Rose (1988, p.43) also concludes that estimated NAIRU is highly sensitive to the sample period. Inasmuch as fiscal planning is a medium-term exercise, readers would have to expect the NAIRU parameter to be reasonably stable over the planning horizon, if it were to be the basis of an acceptable counterfactual benchmark for calculating fiscal policy indicators.

Another problem with full employment or NAIRU as a benchmark is that either unemployment rate may imply external imbalance, and eventual balance of payments problems, if the benchmark is inconsistent with conditions in major trading partners (Muller and Price 1984, p.5). This is obviously of greater concern in small, open economies like Canada's. For Ontario, with its relative reliance on durables exports, especially automotive goods, conditions in the United States are a factor in determining full employment at a given time.

Full employment or NAIRU could be characterized as "target" or desirable unemployment-rate values for benchmarks. The full-employment benchmark's credibility was certainly undermined for its quality of wishful thinking after the experience of the 1970s and 1980s. Being obliged to abandon this normative benchmark, a more positive, but potentially as naive, benchmark based on historical experience was adopted: trend or mid-cycle output.

4.2 The Cyclically-Adjusted Balance (CAB)

Reference cases for adjustment can be posited without an estimate of full-employment output, based solely on the information contained in the time series of output, as input to Steps (2) through (4) of the De Leeuw and Holloway method quoted above. Current practice for positing a reference case entails an inspection of GDP growth time series and the identification of episodes ("business cycles") for which average growth is calculated.[3]

In the standard OECD methodology (Chouraqui, Hagemann and Sartor 1991, p.55) business cycles begin in the year following a GDP peak and end at the subsequent peak. A peak in the GDP **level** occurs in the year when the GDP **growth rate** displays a local minimum. The series is extended using medium-term (3-5 year) forecasts. The trend growth rate is typically estimated by Ordinary Least Squares applied to the log-linear equation:

$$\log GDP = \log(a) + (\log(1+g))(t-1),$$

where g is the growth rate of GDP, t is time in years and a is an intercept term.

De Leeuw and Holloway (1985, pp.233-234) utilize a different method to establish a reference trend. Each individual period within an identified business cycle is categorized into one of four phases: recession, early expansion, middle expansion or late expansion. Date-output coordinates for points on the reference case are established by calculating the average GDP level during middle expansion, and dating the average at the center of the

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3. In a series with high variance, there is room for subjectivity in the identification of these periods. In the United States, the National Bureau of Economic Research issues official declarations of recession, demarcating the beginning of a cycle.

mid-expansion period. These points are then joined with constant growth rates.

The key ingredient for Step 2 of the four-step De Leeuw and Holloway recipe for indicators is the vector of elasticities of the revenue and expenditure line-items with respect to output. The a priori expectations for these elasticities depend first on the relationship between output and the tax base, and secondly on the structure of tax measures which apply to each base. Increases in output would lead to increases in personal and corporate incomes, which would lead to an increase in revenues from the personal income tax (PIT) and corporate income tax (CIT). In a progressive taxation regime, these elasticities should be greater than unity. This increase in income would lead to an increase in retail sales, and more income from the provincial retail sales tax (PST). Because of the simultaneity of the effects of fiscal measures on income and output, values for these elasticities are derived from the impact properties of macro models.

Given this structure of relationships between changes in output and the line-items of the provincial budget, alternative levels of revenue, expenditure and balance can be calculated based on the reference case. The reference-case level of any budget line-item (B^*) is given by:

$$B^* = B \times (1 + \eta \times (Y^* - Y))$$

or the adjustment required to bring the item to its trend-output level:

$$(B^* - B) = B \times \eta \times (Y^* - Y)$$

where $(Y^* - Y)$ is the difference between reference and actual output, and η is the elasticity of the line-item with respect to output. It is

immediately apparent that the larger the "output gap" ($Y^* - Y$), the larger the line-item gross-up to the reference case ($B^* - B$). Given the a priori signs and magnitudes on the line-item elasticities, then the larger the gross-up, the higher (more positive) the budget balance in the reference case. This is the source of the controversy regarding the choice of reference case. Although the CAB does not rely on a determination of full employment, in order to assess current policy, it requires a forecast to complete the current cycle. Even if the variance in proposed forecasts is relatively small in GDP-level terms, the magnitude of some of the elasticities (especially progressive personal and corporate taxes) can be sufficient to change the sign of the adjusted balance, sending a contradictory signal regarding fiscal stance (i.e., the sign of the CAB) and medium-term debt sustainability (i.e., the magnitude of the CAB, if negative) to policy makers.

5 ALTERNATIVE INDICATORS

Blanchard (1990) has proposed a small battery of indicators to replace the OECD-style cyclically adjusted balance (CAB). According to Blanchard, there are several shortcomings with the CAB:

- The CAB methodology is founded on the assumption that there are regular fluctuations around a stable trend in output.
- Assessing current policy with the CAB requires a forecast to complete the current cycle, an assumption which adds an element of uncertainty to the measure, since trend GDP and, therefore, the CAB results for the current period, will be sensitive to the forecast employed.
- The CAB as a single figure has been stretched beyond its initial application as an indicator of discretionary change.

Also, the mid-cycle trend output is vulnerable to the same criticism as full-employment output for assessing sustainability. It may well be inconsistent with price stability and external balance. This is manifestly true when an output trend is calculated for historical periods where inflation and/or external balance problems occurred.

Blanchard (1990, p.11) also posits some desirable characteristics for indicators, characteristics that would increase their usefulness and acceptance by working analysts: they should be simple, and they should rely as little as possible on forecasts, subject to the role of the expected future in their theoretical basis.

According to Blanchard, "if all that is needed is to distinguish between induced and discretionary fiscal policy changes, any benchmark will do" (Blanchard 1990, p.6; emphasis in original) because any benchmark will serve to estimate the induced policy change, which, when subtracted from the total change, reveals the discretionary component. A measure which is equally indicative of discretion, but requires fewer assumptions is more efficient on the basis of Occam's razor. It is therefore best to avoid a debate regarding full employment or the realism of a particular forecast, if possible.

In Blanchard's method, changes in unemployment, interest rates or inflation induce changes in government revenue and expenditure. The budget is adjusted for unemployment using the output elasticities that are employed for conventional CAB construction, via an Okun coefficient linking the unemployment rate to output growth. Inflation and interest rate adjustment is straightforwardly accomplished by using the primary balance (balance before net interest payments) as the basis for the indicator. This may seem simplistic, but the inflation effects are relatively small, and the rationale for inflation adjustment relies on two theoretical assumptions: namely, that household consumption depends on real wealth, and that government bonds are net wealth. Abstracting from inflation avoids the necessity of building these hypotheses into the indicator, and therefore simplifies the indicator in use (Blanchard 1990, p.12 and Buiter 1983, pp.334-338).

The indicator of discretionary change is then the primary balance which would have resulted in the current period if the unemployment rate were the same as the previous period, less the primary balance of the previous period, both as ratios to GDP. Chouraqui et al. (1991), in their

calculations of this indicator for the OECD countries, term this the "moving benchmark" (MB) primary balance change. This indicator reveals the net effect of deliberate policy changes, if any.

Blanchard (1990) found the CAB inadequate as an indicator of sustainability. As with the discretion question, the appropriateness of assuming a regular cycle around a stable trend is dubious. This weakness is compounded by the importance of the growth path in determining the debt position at a future date.

The forecast segment of the reference case would not normally extend far enough to take into account partially foreseeable, if uncertain, events that would affect revenues and expenditure (e.g., exhaustion of certain natural resources and therefore their respective royalties, or the implication of demographic trends on transfer programs).

Blanchard proposes a simple indicator of sustainability, the "tax gap", based only on the government budget constraint and a forecast of expenditure. The current debt-to-GDP ratio (b_0) is given. The government's taxation and expenditure plans are sustainable if the debt ratio at the forecast horizon (b_1) is no higher than b_0 (i.e., by the time the forecast horizon is reached any temporary increases in the debt ratio have been reversed). Since we have an expenditure forecast, any adjustment necessary to ensure that b_1 is equal to or less than b_0 will come through changes to the tax rate.[4] Because the government budget constraint will hold ex post, this implies that there is a sustainability-ensuring tax

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4. This is only an hypothesis for use in constructing an indicator. Blanchard (1990) does not state that ultimately all spending will be tax financed, nor does he cite Ricardian equivalence for theoretical foundation. He does state (p.13) that adjustments to ensure sustainability are "more likely" to come from the tax side than from expenditure changes.

rate, t^*, such that:

$$t^* = (r-\theta)[\xi(g_s + h_s)e^{-(r-\theta)s}ds + b_0],$$

where r is the average interest rate on government debt, θ is average growth of the economy, ξ is the summation operator, s is the time index, g is final expenditure and h is transfers, both as shares of output. This equation states that, in present value terms, expenditure and taxes are equal at the sustainable tax rate.

The gap, $(t^* - t)$, therefore gives an indication of the direction and magnitude of the change required in the future. If t is already relatively high, a large gap might be taken to imply that **expenditure** plans should be changed, which has actually been a significant policy element in Ontario since 1991. For the current period (an indicator Blanchard calls the "primary gap") the increment to the debt is the deficit, and $t_1^* - t$ is equal to the deficit as a ratio to GDP. In other words, t_1^* is the implicit tax rate that would have prevailed if final expenditure, transfers, and interest net of growth, were entirely tax-financed. If such expenditure is not entirely tax-financed in each period, the increment to the debt ratio implies a yet-higher share of GDP dedicated to interest payments in subsequent periods.

In the absence of detailed fiscal forecasts, the equation can be motivated by a forecast of interest rate, growth, final expenditure and transfers. If detailed fiscal forecasts are available, with forecasts of revenue, final expenditure, transfers, and public debt interest, the primary gap can be calculated for each period and averaged.

Blanchard suggests that the gap be calculated for the current period (the primary gap) and for a period into the medium term (say t_3^*). Chouraqui et al. (1991) have calculated the gap for 1, 3 and 5 year periods, for the OECD countries, omitting periods where GDP growth exceeds the interest rate on government debt, since the sustainability issue does not arise in that case. (Obviously, if $r = \theta$, the indicator equation is not of much use, since it yields $t^* = 0$.)

Blanchard's indicators of discretion and sustainability meet our criteria better than the CAB. The indicator of discretion is as simple to construct and does not require a forecast. The tax gap, though requiring a forecast, answers the question of sustainability in a more subtle way than simply saying that the CAB is positive or negative (i.e., it says whether or not current tax rates are consistent with a given expenditure plan and desired debt ratio).

6 THE INDICATORS APPLIED TO THE ONTARIO DATA

The data necessary to calculate conventional and alternative fiscal indicators for Ontario are available in the Provincial Economic Accounts and the provincial budgets, and are presented in the tables of Section 9.

As mentioned earlier, the common ingredient in all recipes for counterfactual measures of the budget balance is the vector of elasticities of the revenue and expenditure line items with respect to output. The table below lists those provincial revenue line-items subject to adjustment and the elasticities employed:

Elasticities of Provincial Government Revenues With Respect to Real GDP

Corporate Income Tax (CIT)	3.1
Personal Income Tax (PIT)	1.1
Provincial Sales Tax (PST) and LCBO profits	0.9
Gasoline Taxes, Motor Vehicle and Other Licenses and Fees	0.5

Source: Finance Canada (1986, p.4)

These elasticities are derived from the impact properties of a macro model, and are for the provincial level of government in Canada. Given the size of Ontario's economy within Canada, and the lack of Ontario-specific elasticities, we assume that they are reasonably applicable. Note that there are no elasticities of provincial government **expenditure** with respect to GDP in this source.

6.1 Cyclical Adjustment

We follow the De Leeuw and Holloway four-step recipe for cyclical-adjustment, but using the OECD's definition of a cycle. This yields four episodes in the GDP-growth time series:

Period	Years	Avg. Annual GDP Growth
Pre-OPEC	1961-1975	5.1
Oil Crisis to 1981 Recession	1976-1982	1.6
Mid-1980s	1983-1990	4.5
1990 Recession	1991-1997	3.4

Sources: Statistics Canada and Ontario Ministry of Finance.
GDP forecast from Ontario Budget 1994.

This is portrayed in Graph 6 and 7. Although there is room for judgment in the determination of local minima, as called for in the OECD methodologies, these episodes "break" at economically significant dates in the historical period.

The output gap implied by the trend growth calculation is displayed in Graph 8. Based on these calculations, the actual growth of the Ontario economy has been better than, but very close to, mid-cycle trend growth calculated using the OECD methodology, but has entered a period of underperformance.

The output gap and the elasticities are combined according to the "gross-up" equation above, to calculate the revenue adjustment. This is added to the conventional primary balance, to yield the cyclically-adjusted primary balance (CAPB). Calculations are shown below:

CYCLICAL REVENUE ADJUSTMENTS

	PIT	CIT	GAS	CAR LICENSE	OTHER LICENSE	PROV. SALES TX.	LCBO PROFIT	TOTAL ADJUSTMENT
1961	0.00000	0.00000	0.00000	0.00000	0.000000	0.00000	0.00000	0.0000
1962	-4.47850	-9.70864	-1.40149	-0.36016	-0.101784	-2.49449	-0.88787	-19.4329
1963	-2.92051	-6.10292	-0.86243	-0.20771	-0.054184	-1.51986	-0.54455	-12.2122
1964	-10.52252	-20.14754	-3.20740	-0.71744	-0.211013	-4.98835	-2.10169	-41.8960
1965	-18.71137	-29.12594	-4.71667	-1.04184	-0.303079	-7.39893	-3.40964	-64.7075
1966	-33.65631	-43.38865	-7.59491	-1.57323	-0.433995	-17.86974	-5.22421	-109.7411
1967	-34.33292	-36.35048	-6.50963	-1.20708	-0.366436	-17.57601	-4.42310	-100.7657
1968	-51.12508	-59.67290	-9.90364	-1.67385	-0.446361	-26.21255	-7.43191	-156.4663
1969	-64.22182	-72.16879	-11.64013	-2.22442	-0.487545	-37.13262	-7.56913	-195.4445
1970	-37.51782	-33.57456	-6.13330	-1.21170	-0.269267	-20.41041	-3.95822	-103.0753
1971	-51.92726	-44.60528	-7.61968	-1.41762	-0.460725	-26.09122	-5.10342	-137.2252
1972	-71.69824	-66.19164	-10.90083	-1.86550	-0.584374	-38.67659	-7.52494	-197.4421
1973	-67.14255	-76.13001	-10.45698	-2.11912	-0.673366	-46.02261	-7.41495	-209.9596
1974	-35.32775	-49.63754	-5.20256	-1.07544	-0.367672	-27.11764	-3.83849	-122.5671
1975	60.07860	73.16595	7.86276	1.66249	0.490571	35.12489	6.18120	184.5665
1976	-54.50175	-52.03979	-6.41339	-1.52909	-0.275017	-37.22628	-5.82156	-157.8069
1977	-142.45045	-91.46666	-12.43204	-2.61073	-0.476561	-78.06077	-12.23313	-339.7303
1978	-270.73266	-166.72023	-20.05546	-4.23571	-0.770130	-110.66763	-20.38918	-593.5710
1979	-317.87905	-249.41156	-26.03827	-5.15646	-1.097118	-173.84936	-26.92328	-800.3551
1980	-257.10971	-215.78766	-19.42084	-3.64141	-0.923545	-131.28063	-20.32855	-648.4923
1981	-403.67424	-263.99488	-29.24197	-4.45721	-1.215601	-189.63383	-30.08614	-922.3039
1982	-59.53442	-28.12860	-4.47905	-0.54265	-0.155677	-30.06344	-4.21128	-127.1151
1983	-50.83587	-25.61841	-3.80185	-0.49693	-0.132741	-26.39920	-3.16741	-110.4524
1984	-424.61567	-230.34493	-29.17550	-4.00065	-1.073346	-218.58203	-26.12622	-933.9183
1985	-497.73991	-300.89295	-32.30924	-3.71247	-1.129882	-269.04104	-29.82888	-1134.6544
1986	-746.66958	-473.56098	-41.80027	-4.82441	-1.990489	-368.91523	-38.19715	-1675.9581
1987	-876.89097	-525.56878	-44.82628	-5.38858	-2.458541	-434.23229	-38.97967	-1928.3451
1988	-1371.89964	-797.84005	-67.17460	-8.00340	-2.652812	-656.61152	-51.71635	-2955.8984
1989	-1022.98424	-599.07591	-52.42228	-6.02339	-2.321513	-522.45343	-38.39908	-2243.6798
1990	349.36832	144.36846	14.95879	1.73644	0.830103	140.91083	9.86467	662.0376
1991	1613.43909	533.52967	74.05203	7.79495	3.665942	604.78787	43.89869	2881.1682

CYCLICALLY-ADJUSTED BALANCES

	PRIMARY BALANCE (PB)	TOTAL ADJUSTMENT (+)	CAPB	INTEREST EXPENSE (-)	CAB	CH. IN CAPB	% OF GDP
1961	-35.00000	0.0000	-35.0000	32.0000	-67.00000	-	-
1962	47.00000	-19.4329	27.5671	34.0000	-6.43293	62.5671	0.00346517
1963	-5.00000	-12.2122	-17.2122	36.0000	-53.21216	-44.7792	-0.00232065
1964	69.00000	-41.8960	27.1040	37.0000	-9.89596	44.3162	0.00208665
1965	142.00000	-64.7075	77.2925	35.0000	42.29253	50.1885	0.00214848
1966	176.00000	-109.7411	66.2589	31.0000	35.25895	-11.0336	-0.00042142
1967	8.00000	-100.7657	-92.7657	25.0000	-117.76566	-159.0246	-0.00559414
1968	80.00000	-156.4663	-76.4663	15.0000	-91.46629	16.2994	0.00051915
1969	239.00000	-195.4445	43.5555	34.0000	9.55555	120.0218	0.00345705
1970	-33.00000	-103.0753	-136.0753	14.0000	-150.07528	-179.6308	-0.00483776
1971	-305.00000	-137.2252	-442.2252	21.0000	-463.22520	-306.1499	-0.00754528
1972	-299.00000	-197.4421	-496.4421	82.0000	-578.44213	-54.2169	-0.00118590
1973	-47.00000	-209.9596	-256.9596	190.0000	-446.95960	239.4825	0.00454116
1974	-11.00000	-122.5671	-133.5671	176.0000	-309.56708	123.3925	0.00200316
1975	-1280.00000	184.5665	-1095.4335	218.0000	-1313.43354	-961.8665	-0.01411106
1976	-996.00000	-157.8069	-1153.8069	333.0000	-1486.80689	-58.3733	-0.00074658
1977	-683.00000	-339.7303	-1022.7303	460.0000	-1482.73033	131.0766	0.00154823
1978	-766.00000	-593.5710	-1359.5710	593.0000	-1952.57101	-336.8407	-0.00364491
1979	-189.00000	-800.3551	-989.3551	616.0000	-1605.35510	370.2159	0.00354739
1980	-315.00000	-648.4923	-963.4923	785.0000	-1748.49233	25.8628	0.00022491
1981	-763.00000	-922.3039	-1685.3039	842.0000	-2527.30386	-721.8115	-0.00558034
1982	-1908.00000	-127.1151	-2035.1151	1040.0000	-3075.11511	-349.8112	-0.00258887
1983	-1553.00000	-110.4524	-1663.4524	1496.0000	-3159.45242	371.6627	0.00248665
1984	627.00000	-933.9183	-306.9183	1917.0000	-2223.91835	1356.5341	0.00803087
1985	503.00000	-1134.6544	-631.6544	2079.0000	-2710.65439	-324.7360	-0.00176744
1986	1444.00000	-1675.9581	-231.9581	2170.0000	-2401.95810	399.6963	0.00197176
1987	2043.00000	-1928.3451	114.6549	2445.0000	-2330.34511	346.6130	0.00154833
1988	2927.00000	-2955.8984	-28.8984	2545.0000	-2573.89837	-143.5533	-0.00056753
1989	3144.00000	-2243.6798	900.3202	2706.0000	-1805.67985	929.2185	0.00340869
1990	556.00000	662.0376	1218.0376	3193.0000	-1974.96238	317.7175	0.00116395
1991	-4388.00000	2881.1682	-1506.8318	3825.0000	-5331.83175	-2724.8694	-0.01005491

Based on the change in the CAPB (Graph 9), we can infer that fiscal policy has been deliberately restrictive in 14 of the last 30 years. Examining the **level** of the CAPB in the calculations above, however, lends support to the contention that Ontario did not take advantage of the strong growth in the 1980s to undo the increase in the debt ratio, i.e., the adjusted surpluses are few and small relative to the adjusted deficits maintained in from 1970 to 1986.

The level of the CAB is negative in all but three years. If the CAB is used to assess sustainability (i.e., CAB > 0 is "sustainable" and CAB < 0 is "unsustainable") then this indicator implies that provincial fiscal policy has been unsustainable throughout the last 30 years, including periods where the debt ratio declined. However, for much of this period, the average growth rate of the economy was higher than the average interest rate on provincial debt, implying that a deficit, and therefore, a fortiori, an adjusted deficit, could be sustained indefinitely, as implied by the dynamic government budget constraint in GDP-ratio terms.

6.2 Alternative Indicators

Using the same elasticities, but employing Blanchard's moving benchmark (MB), yields a different indicator of discretionary policy change. The average annual unemployment rate data for Ontario are drawn from the Labour Force Survey, and extended using the forecast in the Ontario Budget (1994). An Okun coefficient of 2.5 is used to calculate year-over-year GDP growth necessary to maintain the unemployment rate unchanged at its value in the previous year. Calculation of the output gap is shown below:

GAP = ((DIFF URATE) x OKUN x GDP<-1>) / GDP, where OKUN = 0.025

	UNEMPLY RATE	CH. IN URATE	GDP	GAP
1961	5.50000	-	68502.0	-
1962	4.30000	-1.200000	73259.0	-0.0280520
1963	3.80000	-0.500000	76635.0	-0.0119493
1964	3.20000	-0.600000	82221.0	-0.0139809
1965	2.50000	-0.700000	87396.0	-0.0164638
1966	2.60000	0.100000	93475.0	0.0023374
1967	3.20000	0.600000	97385.0	0.0143978
1968	3.60000	0.400000	103789.0	0.0093830
1969	3.20000	-0.400000	109818.0	-0.0094510
1970	4.40000	1.200000	112252.0	0.0293495
1971	5.40000	1.000000	118830.0	0.0236161
1972	5.00000	-0.400000	126272.0	-0.0094106
1973	4.30000	-0.700000	132279.0	-0.0167053
1974	4.40000	0.100000	136440.0	0.0024238
1975	6.30000	1.900000	137227.0	0.0472276
1976	6.20000	-0.100000	146481.0	-0.0023421
1977	7.00000	0.800000	151654.0	0.0193178
1978	7.20000	0.200000	157443.0	0.0048162
1979	6.50000	-0.700000	161308.0	-0.0170807
1980	6.80000	0.300000	160777.0	0.0075248
1981	6.60000	-0.200000	165638.0	-0.0048533
1982	9.70000	3.100000	159043.0	0.0807137
1983	10.30000	0.600000	166275.0	0.0143476
1984	9.00000	-1.300000	181460.0	-0.0297803
1985	8.00000	-1.000000	191014.0	-0.0237496
1986	7.00000	-1.000000	202710.0	-0.0235575
1987	6.10000	-0.900000	212344.0	-0.0214792
1988	5.00000	-1.100000	227164.0	-0.0257059
1989	5.10000	0.100000	232051.0	0.0024473
1990	6.30000	1.200000	224878.0	0.0309569
1991	9.60000	3.300000	218046.0	0.0850850
1992	10.80000	1.200000	220083.0	0.0297223
1993	10.60000	-0.200000	225365.0	-0.0048828
1994	10.30000	-0.300000	232802.0	-0.0072604
1995	9.80000	-0.500000	241648.5	-0.0120424
1996	9.40000	-0.400001	252281.0	-0.0095786
1997	8.90000	-0.500000	263129.1	-0.0119847

Given these new values for GAP, we apply the same elasticities and revenue adjustments as we employed for the cyclical-adjustment methodology:

MOVING-BENCHMARK REVENUE ADJUSTMENTS

	PIT	CIT	GAS	CAR LICENSE	OTHER LICENSE	PROV. SALES TX.	LCBO PROFIT	TOTAL ADJUSTMENT
1962	-8.02286	-17.39222	-2.51065	-0.645195	-0.182338	-4.46868	-1.59055	-34.812
1963	-3.86442	-8.07537	-1.14116	-0.274835	-0.071696	-2.01107	-0.72055	-16.159
1964	-5.22886	-10.01173	-1.59382	-0.356513	-0.104857	-2.47882	-1.04437	-20.818
1965	-8.13146	-12.65735	-2.04974	-0.452754	-0.131710	-3.21537	-1.48174	-28.120
1966	1.45013	1.86946	0.32724	0.067785	0.018699	0.76994	0.22509	4.728
1967	11.46637	12.14019	2.17406	0.403137	0.122381	5.86996	1.47721	33.653
1968	8.59762	10.03509	1.66548	0.281489	0.075064	4.40812	1.24981	26.312
1969	-9.95946	-11.19187	-1.80514	-0.344961	-0.075608	-5.75849	-1.17381	-30.309
1970	36.80427	32.93601	6.01665	1.188655	0.264146	20.02223	3.88294	101.114
1971	34.60230	29.72321	5.07746	0.944644	0.307009	17.38617	3.40072	91.441
1972	-15.00997	-13.85717	-2.28208	-0.390542	-0.122338	-8.09691	-1.57534	-41.334
1973	-28.31714	-32.10757	-4.41020	-0.893733	-0.283990	-19.40988	-3.12723	-88.549
1974	4.65773	6.54438	0.68592	0.141790	0.048475	3.57528	0.50608	16.159
1975	104.10850	126.78718	13.62516	2.880883	0.850097	60.86692	10.71122	319.829
1976	-5.80178	-5.53970	-0.68271	-0.162774	-0.029276	-3.96278	-0.61971	-16.798
1977	66.40492	42.63823	5.79534	1.217021	0.222155	36.38893	5.70261	158.369
1978	20.31693	12.51140	1.50505	0.317866	0.057794	8.30497	1.53009	44.544
1979	-74.23438	-58.24515	-6.08073	-1.204189	-0.256210	-40.59909	-6.28740	-186.907
1980	36.65995	30.76805	2.76912	0.519209	0.131684	18.71863	2.89854	92.465
1981	-29.00994	-18.97192	-2.10147	-0.320316	-0.087359	-13.62799	-2.16213	-66.281
1982	540.16818	255.21663	40.63933	4.923534	1.412489	272.77186	38.20985	1153.341
1983	107.14641	53.99574	8.01313	1.047375	0.279778	55.64141	6.67594	232.799
1984	-259.18415	-140.60186	-17.80864	-2.441987	-0.655167	-133.42182	-15.94737	-570.060
1985	-219.70725	-132.81708	-14.26162	-1.638720	-0.498741	-118.75734	-13.16676	-500.847
1986	-260.68780	-165.33628	-14.59390	-1.684364	-0.694948	-128.80088	-13.33593	-585.134
1987	-279.62673	-167.59562	-14.29440	-1.718335	-0.783990	-138.46984	-12.43000	-614.918
1988	-392.16694	-228.06806	-19.20232	-2.287827	-0.758325	-187.69691	-14.78347	-844.963
1989	39.90204	23.36727	2.04476	0.234945	0.090552	20.37857	1.49778	87.515
1990	638.41850	263.81183	27.33497	3.173085	1.516889	257.49352	18.02622	1209.775
1991	1778.74372	588.19236	81.63902	8.593581	4.041536	666.75130	48.39633	3176.357

MB-ADJUSTED BALANCES

	PRIMARY BALANCE (PB)	TOTAL ADJUSTMENT (+)	CAPB	INTEREST EXPENSE (-)	CAB	CH. IN CAPB	% OF GDP
1961	-35.00000	-	-	32.0000	-	-	-
1962	47.00000	-34.81250	12.18750	34.0000	-21.8125	-	-
1963	-5.00000	-16.15910	-21.15910	36.0000	-57.1591	-33.3466	-0.00172816
1964	69.00000	-20.81898	48.18102	37.0000	11.1810	69.3401	0.00326491
1965	142.00000	-28.12012	113.87988	35.0000	78.8799	65.6989	0.00281245
1966	176.00000	4.72836	180.72836	31.0000	149.7284	66.8485	0.00255322
1967	8.00000	33.65331	41.65331	25.0000	16.6533	-139.0750	-0.00489236
1968	80.00000	26.31268	106.31268	15.0000	91.3127	64.6594	0.00205948
1969	239.00000	-30.30935	208.69065	34.0000	174.6907	102.3780	0.00294884
1970	-33.00000	101.11490	68.11490	14.0000	54.1149	-140.5758	-0.00378594
1971	-305.00000	91.44150	-213.55850	21.0000	-234.5585	-281.6734	-0.00694204
1972	-299.00000	-41.33435	-340.33435	82.0000	-422.3344	-126.7759	-0.00277300
1973	-47.00000	-88.54974	-135.54974	190.0000	-325.5497	204.7846	0.00388320
1974	-11.00000	16.15966	5.15966	176.0000	-170.8403	140.7094	0.00228428
1975	-1280.00000	319.82995	-960.17005	218.0000	-1178.1700	-965.3297	-0.01416187
1976	-996.00000	-16.79873	-1012.79873	333.0000	-1345.7987	-52.6287	-0.00067310
1977	-683.00000	158.36921	-524.63079	460.0000	-984.6308	488.1679	0.00576608
1978	-766.00000	44.54410	-721.45590	593.0000	-1314.4559	-196.8251	-0.00212982
1979	-189.00000	-186.90715	-375.90715	616.0000	-991.9071	345.5488	0.00331103
1980	-315.00000	92.46519	-222.53481	785.0000	-1007.5348	153.3723	0.00133374
1981	-763.00000	-66.28113	-829.28113	842.0000	-1671.2811	-606.7463	-0.00469077
1982	-1908.00000	1153.34188	-754.65812	1040.0000	-1794.6581	74.6230	0.00055227
1983	-1553.00000	232.79979	-1320.20021	1496.0000	-2816.2002	-565.5421	-0.00378383
1984	627.00000	-570.06099	56.93901	1917.0000	-1860.0610	1377.1392	0.00815285
1985	503.00000	-500.84752	2.15248	2079.0000	-2076.8475	-54.7865	-0.00029819
1986	1444.00000	-585.13409	858.86591	2170.0000	-1311.1341	856.7134	0.00422630
1987	2043.00000	-614.91892	1428.08108	2445.0000	-1016.9189	569.2152	0.00254271
1988	2927.00000	-844.96386	2082.03614	2545.0000	-462.9639	653.9551	0.00258535
1989	3144.00000	87.51593	3231.51593	2706.0000	525.5159	1149.4798	0.00421668
1990	556.00000	1209.77501	1765.77501	3193.0000	-1427.2250	-1465.7409	-0.00536970
1991	-4388.00000	3176.35784	-1211.64216	3825.0000	-5036.6422	-2977.4172	-0.01098682

The results are displayed in Graph 10. The MB indicator demonstrates more variance or "swing" than the CAB. This is consistent with the fact that growth changes are not "smoothed" or trended in the calculation of this indicator, as they are for the CAB.

The MB and CAB results can be quite contradictory for a given time period. In the 1960 to 1970 period, the overall patterns are similar. Local maxima and minima fall within a year or two of the same date using

both methods. However, the variance of the MB indicator is higher, its behaviour "exaggerated" versus the CAB. This may be a positive feature, to the extent that higher sensitivity of the indicator implies clearer evidence of policy change. After 1970, the two indicators behave very differently.

The results of the MB specification are more indicative of contra-cyclical fiscal policy on the part of the province, including significant fiscal retraction during the expansion of the 1980s, which is more consistent with the decline in the debt ratio manifest in that period (see Graph 2).

The methodology for calculating the alternative indicator of sustainability, the "tax gap," is quite distinct from other operations, because the measure is not based on an adjusted **deficit** measure, but on an adjusted **implicit average tax rate** measure (i.e., a different term from the government budget constraint identity). Nor does the tax gap require a reference case or benchmark for GDP. The following data are required to calculate the tax gap:

- Primary Balance/Gross Domestic Product;
- initial debt ratio;
- expenditure forecast (final and public debt interest).

If only final expenditures are forecasted, an explicit interest rate forecast is also required.

Blanchard (1990, p.15) recommends the use of official fiscal forecasts, when available, to take into account planned changes in spending and taxes. Given an n-year forecast, t^*_n is the average of the primary gaps for each of the n years. This is computationally simpler than the

dynamic equation for t^*_n stated in Section 5, p.30. The 1994 Ontario Budget document (p.106) provides the data needed to calculate Blanchard's average primary gap for the next three fiscal years. Based on these official estimates, the provincial (gross) debt ratio will rise from 30.8 to 32 per cent by the end of FY1996-97.[5]

In this application, the interest rate is inferred from public debt interest divided by debt of the previous period, which indicates average interest rates of 9.75 per cent in FY1994/95, 9.4 in FY1995/96, and 8.9 in 1996/97. Tax as a percent of nominal GDP ("t") at the beginning of the period is 15.35 per cent. The primary gap depends on the target debt ratio (b_0). Spreadsheet simulations were run using the debt ratios realized over the previous six fiscal years as targets:

Three-year Average Primary Gap Implied by Target Debt Ratio

FY	Debt Ratio (%)	Tax Gap
1994/95	30.5	1.0680
1993/94	28.1	3.4680
1992/93	24.7	6.8600
1991/92	19.5	12.6000
1990/91	15.5	16.0680
1989/90	14.4*	17.1600

Source: Ontario Budget 1994, p.118 and author's calculations.
* Previous trough.

Assuming that expenditure plans are inflexible,[6] a tax increase of approximately 1.1 per cent would be sufficient to maintain the debt ratio

5. Note that this is the **gross** debt ratio. By comparison, the debt ratio based on net financial assets was just under 12 per cent in 1991.
6. In the last two fiscal years, the provincial government has introduced two major expenditure reduction initiatives: The Expenditure Control Plan ($400 mn reduction) and the Social Contract ($1.7 bn reduction). These two initiatives result in an expenditure decrease from prior base-case levels in subsequent years, but the Medium Term Fiscal Plan embodies no new spending cuts or tax increases.

at the level anticipated for FY1994/95. "Backing down" the debt ratio to the levels of prior years within the forecast period requires much larger increases.

Although public borrowing is, for the time being, a relatively small percentage of total provincial debt, it is important to note that it is largely denominated in US dollars. These are converted into domestic currency equivalents for the purposes of the Public Accounts. Based on the Canadian-dollar value of US-dollar-pay liabilities as of March 31, 1991, a one-cent decline in the value of the Canadian dollar would add about $57 million to provincial liabilities.

A government budget constraint equation, amended to include the exchange-rate risk of foreign current borrowing, would include a "revaluation" term, to incorporate the change in the domestic-currency liabilities as a result foreign-exchange shifts. Without such a term, the government budget constraint would not, in fact, be an accounting identity for a government with foreign borrowings and unhedged foreign-exchange risk. This term could also capture other exogenous changes not related to the regular flow of government revenues and expenditures, such as the write-down of financial assets in the event of default.

7 CONCLUSION

Analysis, calculation and comparison of the cyclically-adjusted balance and the alternative indicators of discretion and sustainability has revealed interesting differences between the two approaches.

Blanchard's Moving-Benchmark indicator of discretion has a theoretical and computational advantage over the cyclically-adjusted balance change, because it does not require a forecast, nor the identification of cycles and calculation of trends. It has the further analytical advantage of satisfying the chain rule (Blanchard 1990, p.11), i.e., the fiscal thrust (discretionary change) for any time period is simply the sum of the discretionary changes of the intervening years.

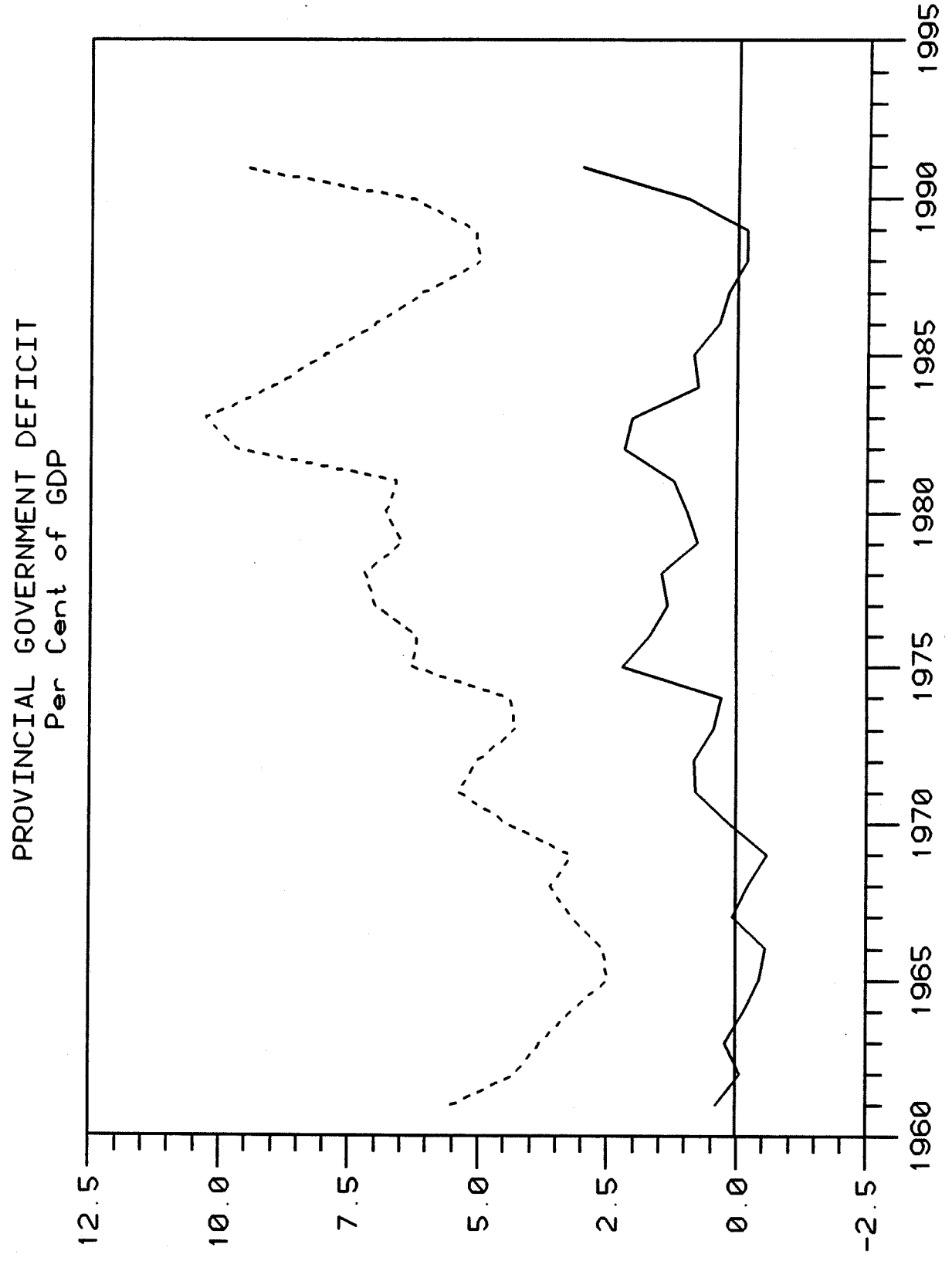
Juxtaposing the Ontario results for both indicators with the provincial unemployment rate suggests a substantial degree of contra-cyclical discretion by the provincial government, especially in periods of increasing unemployment. The strong positive values for the MB-indicator in the mid-1980s, however, are more consistent with the declining debt ratio during that period, than are the values of the CAB.

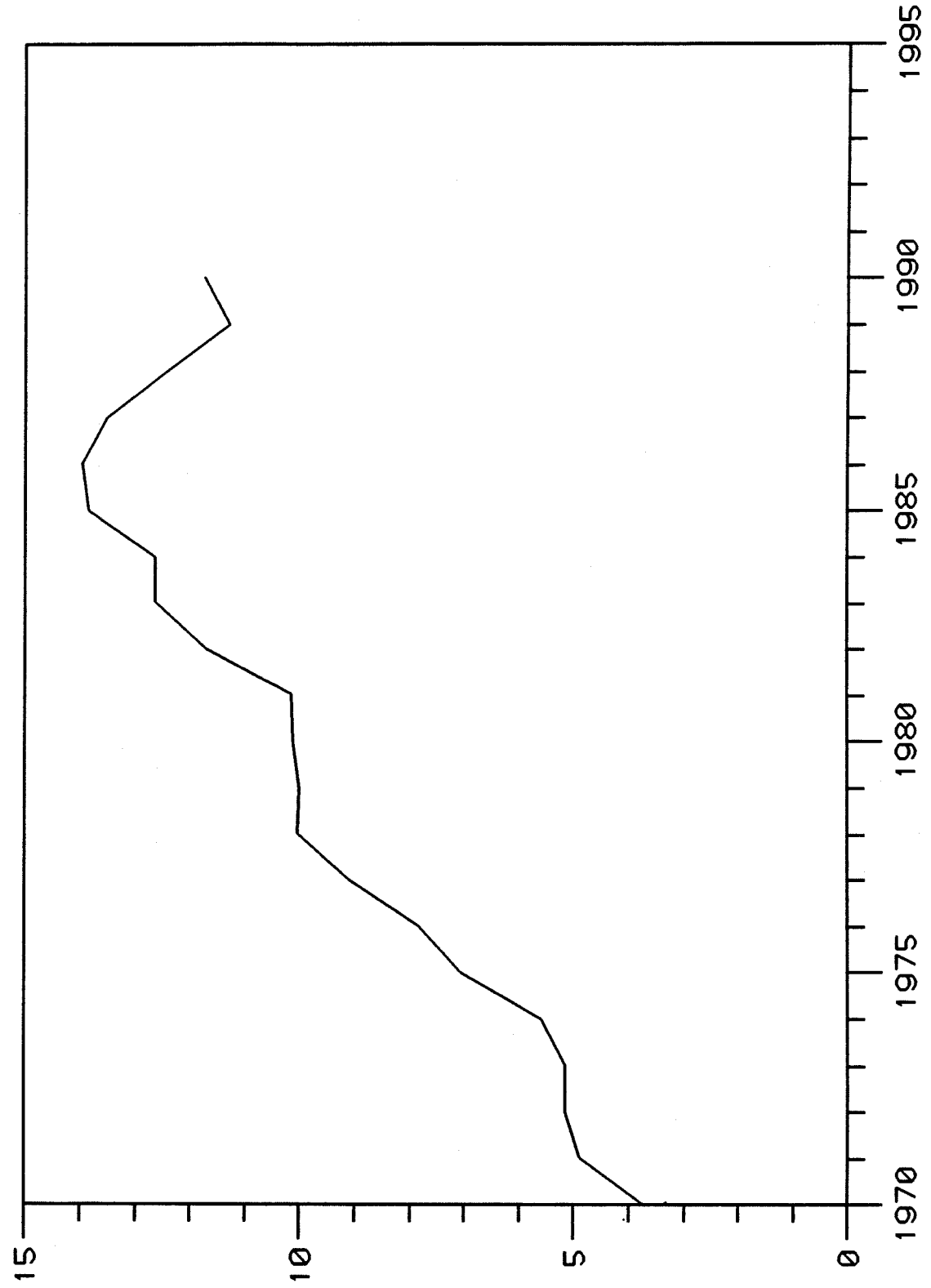
As an indicator of sustainability, the cyclically-adjusted balance has a major theoretical weakness: the measure assumes that economic growth has been, and will continue to be, characterized by regular cyclical fluctuations around a stable trend. Assessment of current policy requires taking a stand on the current position on the cycle, which requires a forecast consistent with the cyclical view of the world. In practice, the level of cyclically-adjusted balance for Ontario from 1961 to 1991 is almost monotonically negative, including periods during which the debt ratio was declining because average growth exceeded the average interest

rate on government debt, a most assuredly sustainable situation. The adjusted measure offers no useful additional information in this happy circumstance.

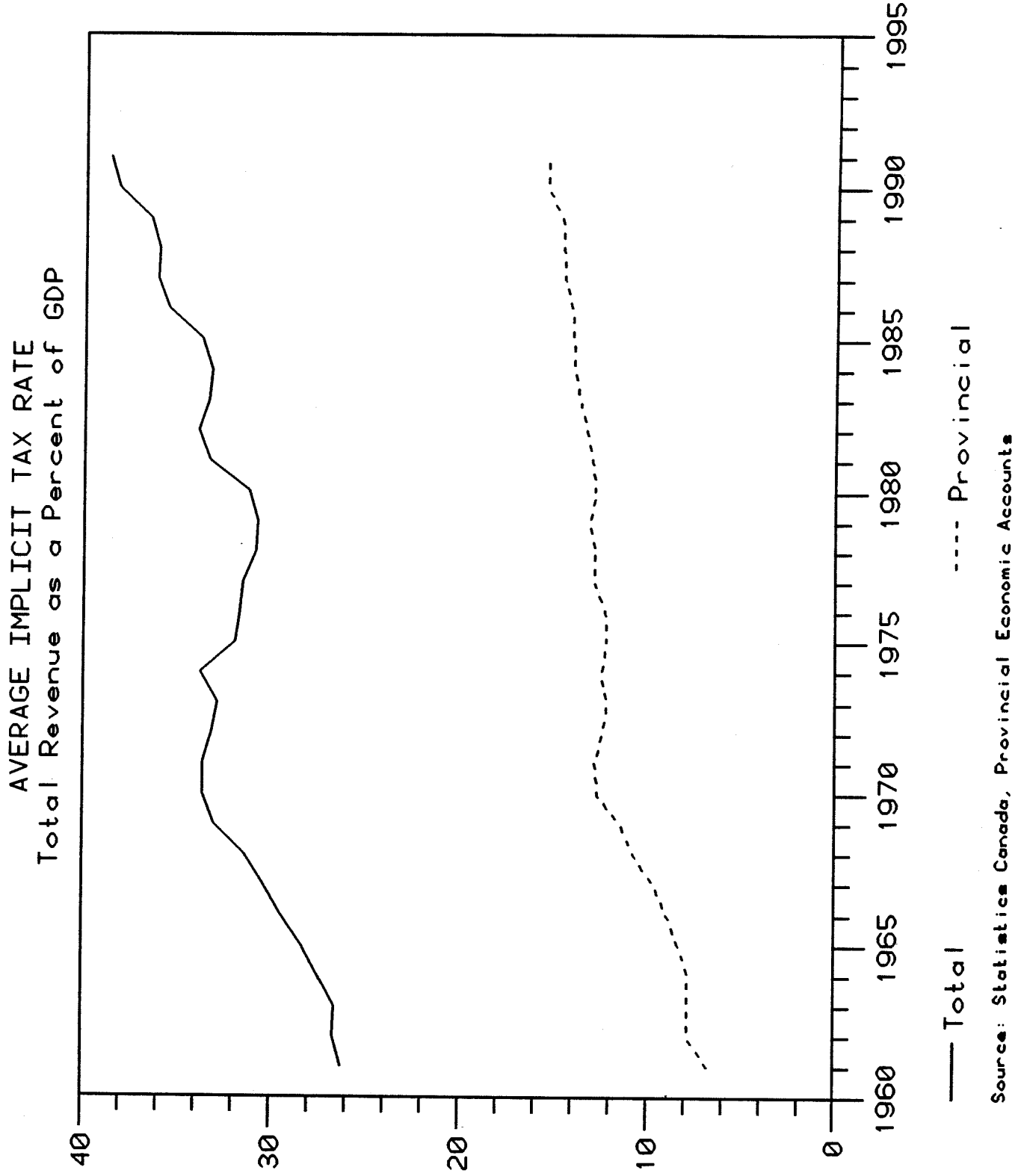
The tax gap, on the other hand, is not founded on a benchmark or reference case for output, but relies only on pre-determined variables, an expenditure forecast, and the discipline of the government budget constraint. Rather than presenting a counterfactual value of the **deficit**, it presents a counterfactual value for the **implicit average tax rate**. This concept may not be quite as straightforward as an adjusted deficit measure, but, as a communications device, it may be a measure to which the general public can easily relate, similar to the Fraser Institute's "Tax Freedom Day."

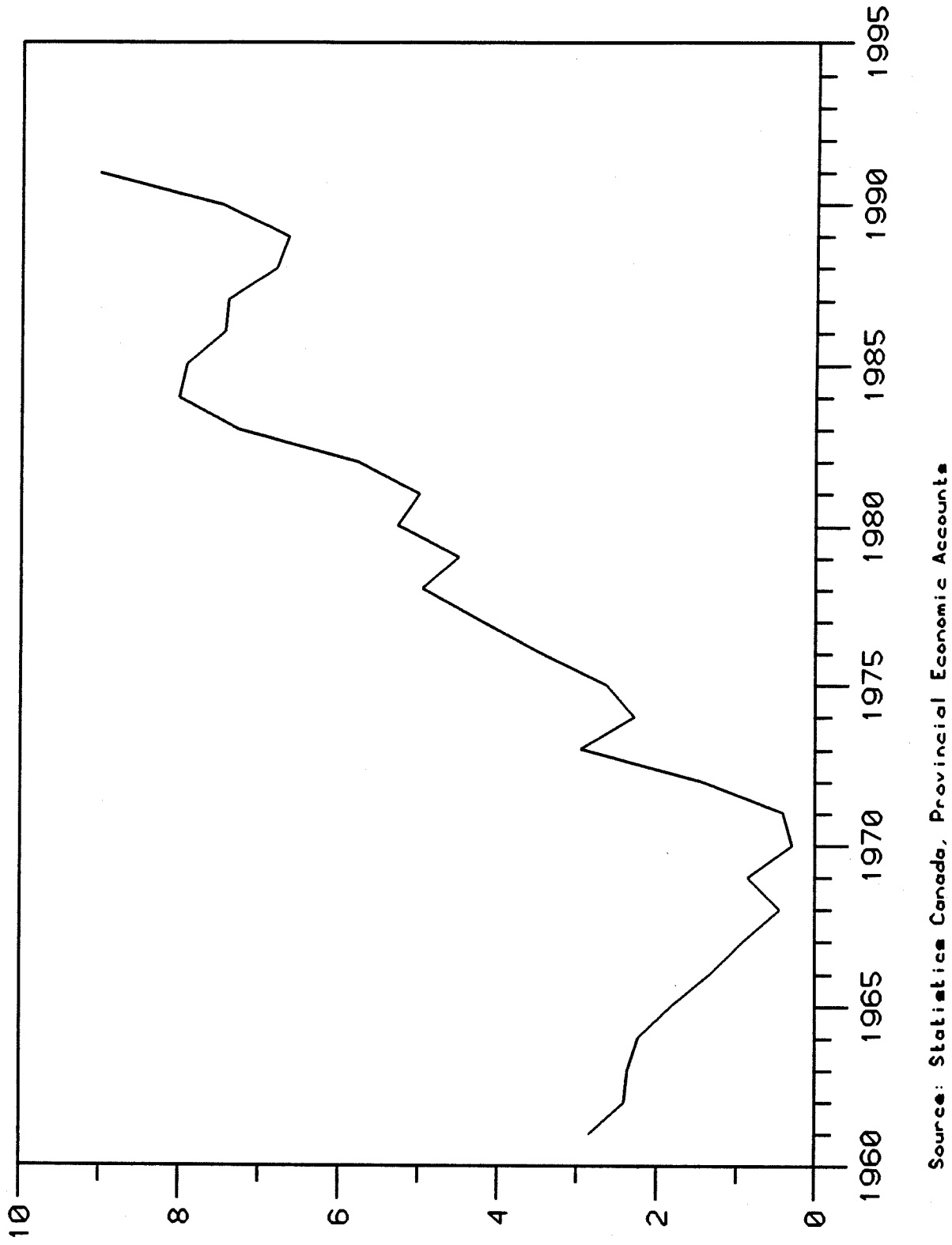
The successive passing from favour of the full-employment surplus and the cyclically-adjusted balance, as medium-term fiscal policy attracts more public and academic attention, suggests that single, summary indicators do not do justice to the multiple aspects of fiscal policy. Blanchard (1990, p.22) suggests that a battery of indicators pertinent to specific questions of discretion, sustainability, aggregate demand impact and aggregate supply distortions be developed, and that those measures that are both informative and relatively easy to understand be regularly published. The availability of distinct measures of specific aspects of fiscal policy, rather than a single indicator, would greatly enrich policy discussion and comparison.

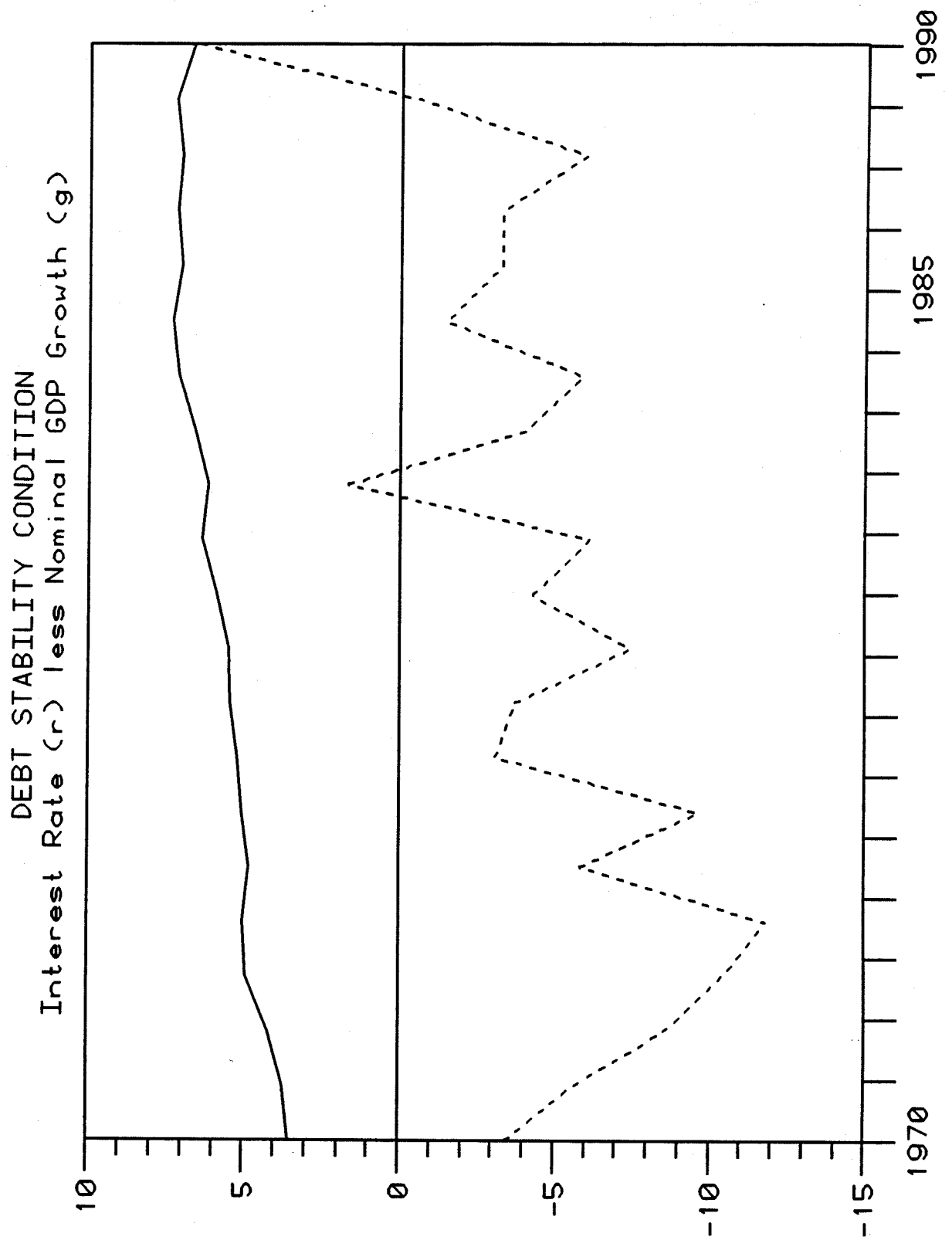

PROVINCIAL GOVERNMENT DEFICIT
Per Cent of GDP
12.5
10.0
7.5
5.0
2.5
0.0
-2.5
1960
1965
1970
1975
1980
1985
1990
1995
Deficit
Unemployment Rate
Sources: Statistics Canada, Provincial Economic Accounts
and Ontario Budget 1994 (forecast)



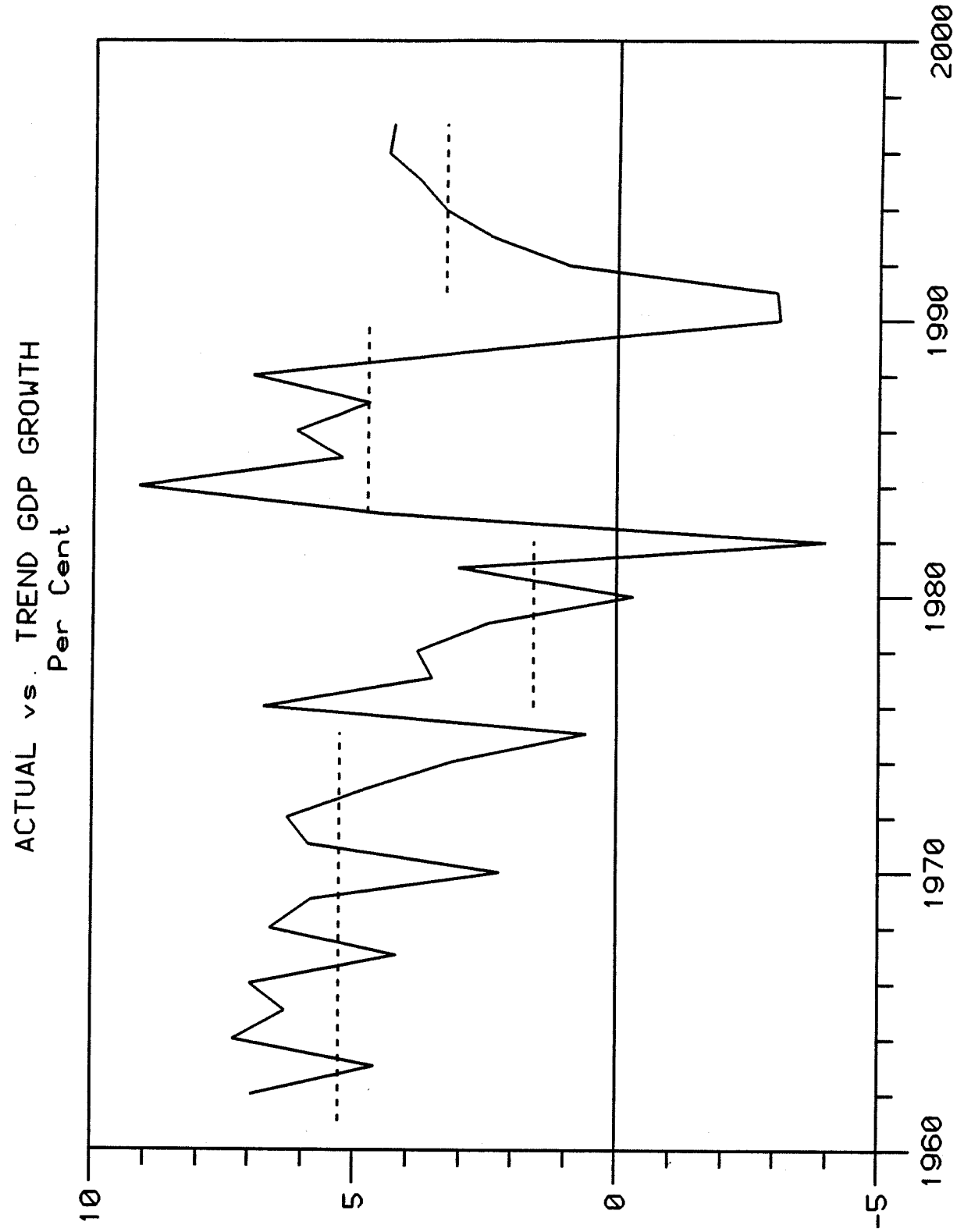
Source: Statistics Canada, Financial Management System and Provincial Economic Accounts. Debt series starts in 1970


AVERAGE IMPLICIT TAX RATE
Total Revenue as a Percent of GDP
40
30
20
10
0
1960
1965
1970
1975
1980
1985
1990
1995
Total
Provincial
Source: Statistics Canada, Provincial Economic Accounts

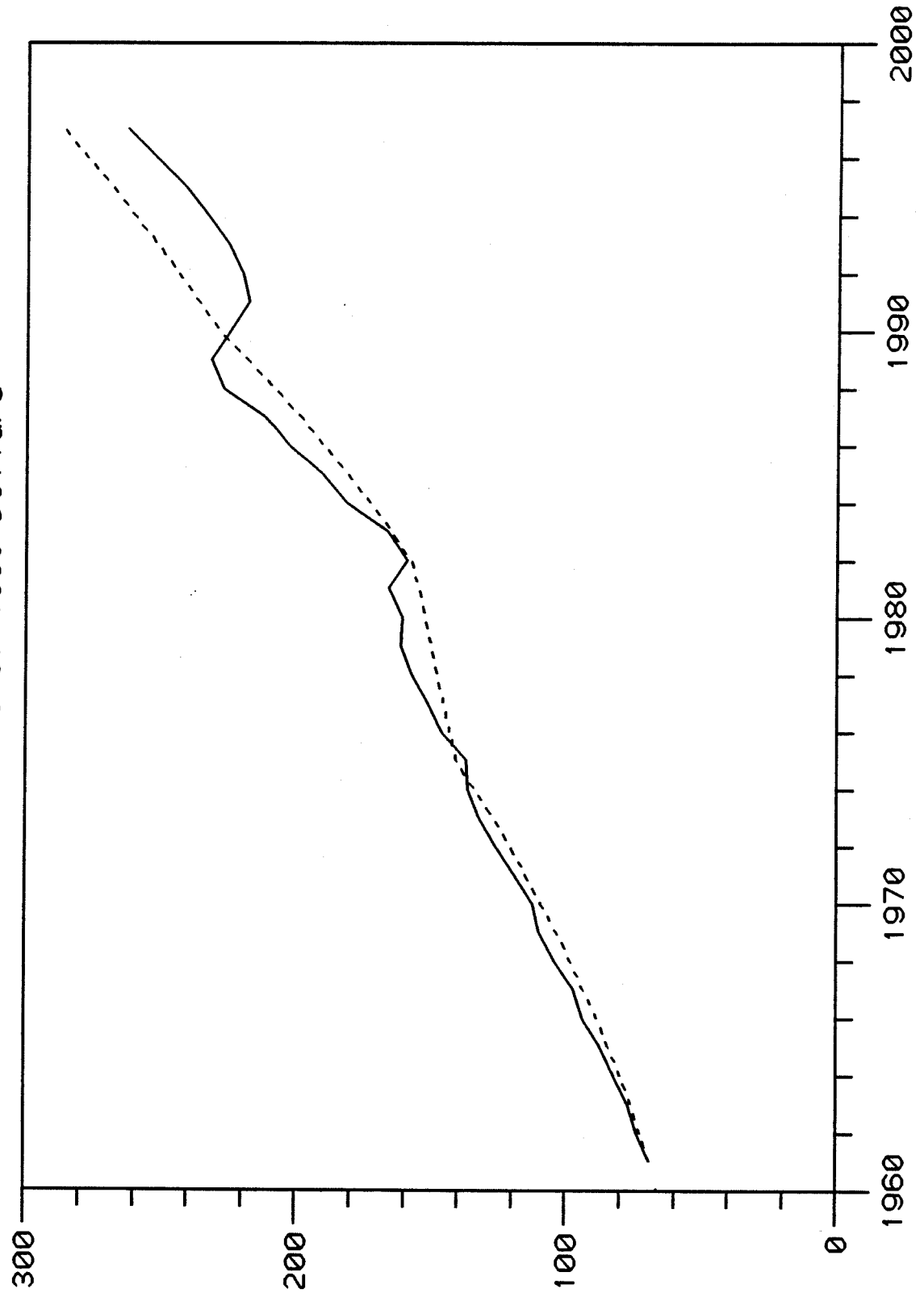

NET PUBLIC DEBT INTEREST
Per Cent of Total Revenue
10
8
6
4
2
0
1960
1965
1970
1975
1980
1985
1990
1995
Source: Statistics Canada, Provincial Economic Accounts



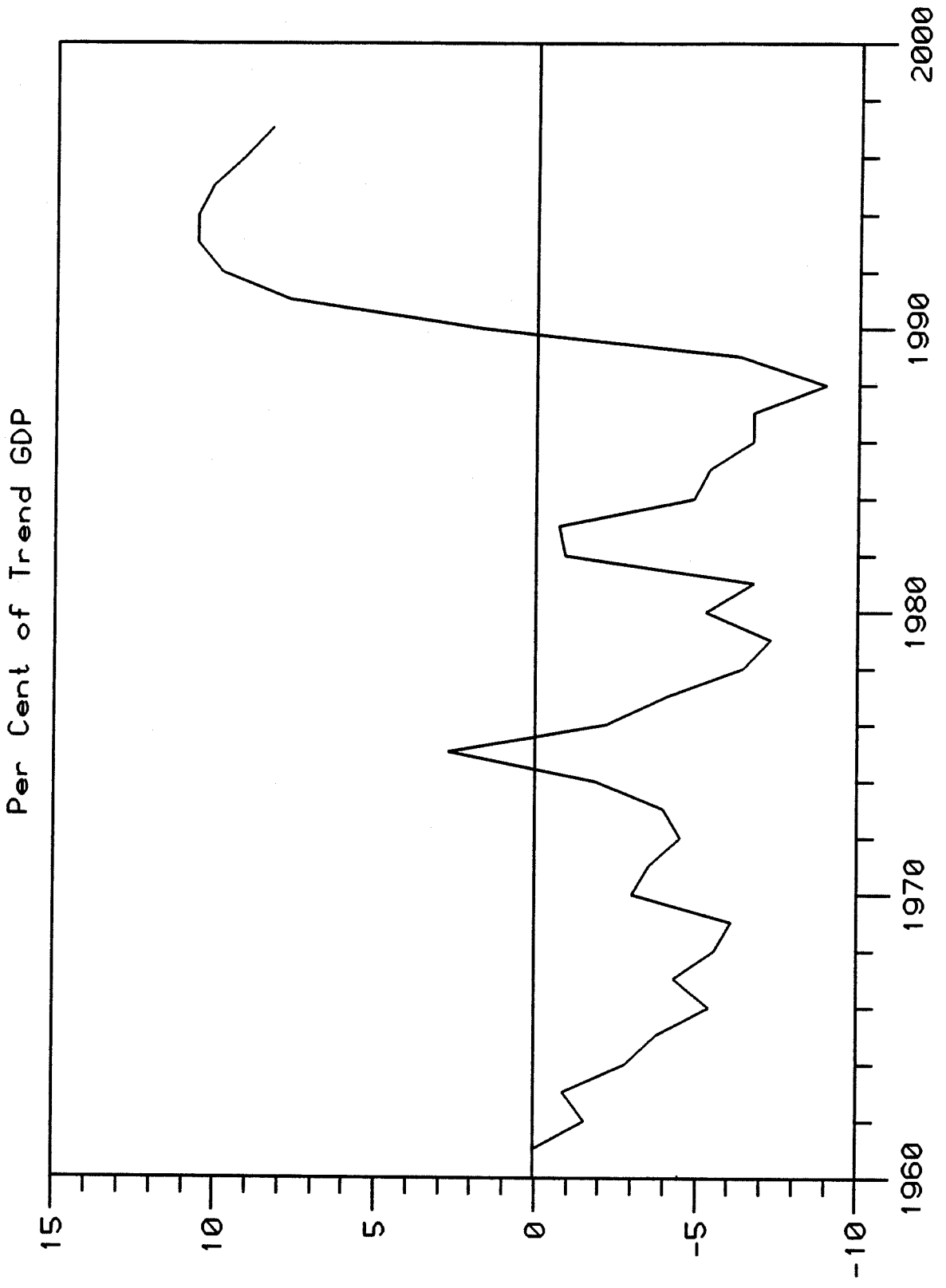
Source: Statistics Canada, Financial Management System and Provincial Economic Accounts. Debt series starts in 1970



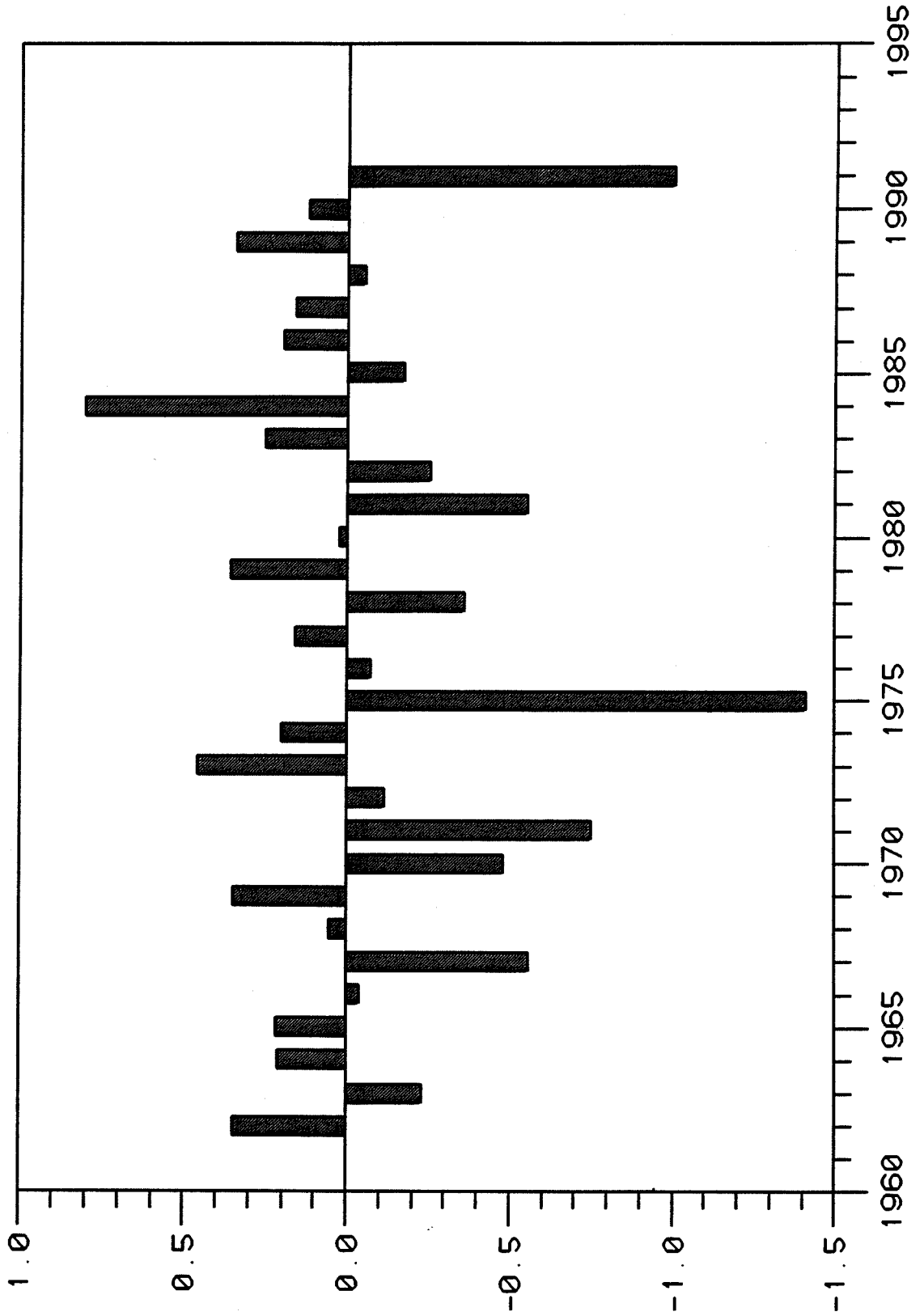
Sources: Statistics Canada, Provincial Economic Accounts and Ontario Budget 1994 (forecast)

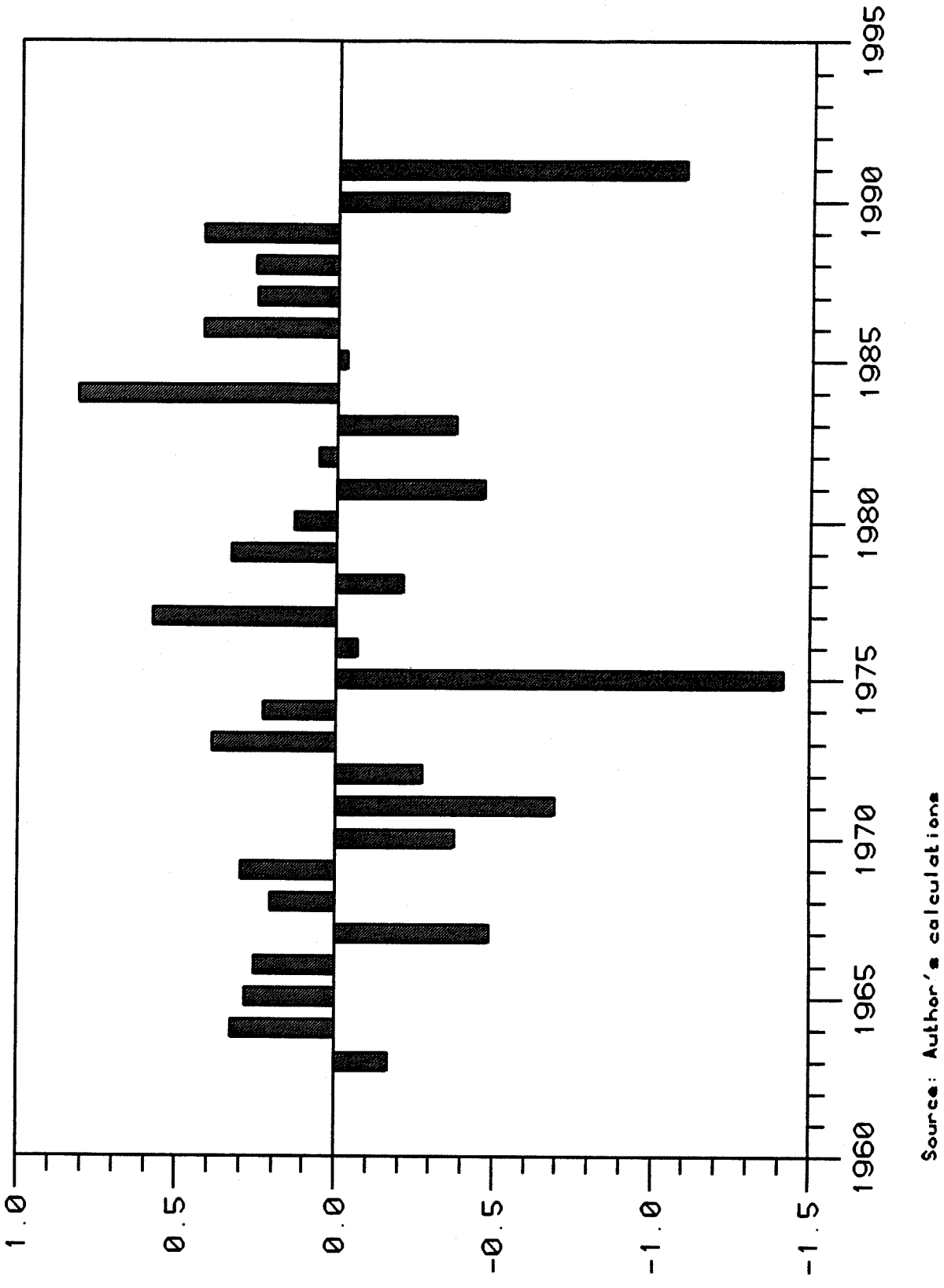


Sources: Statistics Canada, Provincial Economic Accounts and Ontario Budget 1994 (forecast)



Sources: Statistics Canada, Provincial Economic Accounts
and Ontario Budget 1994 (forecast)


CONVENTIONAL INDICATOR:
CHANGE IN CYCLICALLY-ADJUSTED PRIMARY BALANCE
(Per Cent of GDP)
1.0
0.5
0.0
-0.5
-1.0
-1.5
1960
1965
1970
1975
1980
1985
1990
1995
Source: Author's calculations


ALTERNATIVE INDICATOR:
CHANGE IN MB-ADJUSTED PRIMARY BALANCE
(Per Cent of GDP)
1.0
0.5
0.0
-0.5
-1.0
-1.5
1960
1965
1970
1975
1980
1985
1990
1995
Source: Author's calculations

9 TABLES

The official presentation of government revenue and expenditure in the Provincial Economic Accounts has some shortcomings for macro and fiscal analysis. To facilitate analysis, the tables are reorganized along more Keynesian lines, with due attention to the existence of federal/provincial transfers, and in such a manner that the primary balance is properly calculated and displayed. Specifically:

- The distinction is drawn between own-source revenues and transfers from the federal government.
- The distinction is drawn among final expenditures, transfers to persons, and transfers to other institutions.
- Investment income is split into "Remittances and Royalties", which remain in revenues, and interest income, which is part of financing activity.

Table 1
Provincial Government Revenue and Expenditure
($ millions)

Provincial Economic Accounts	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971
					Levels					
Total Revenues (+)	1418	1532	1673	1960	2365	2765	3380	3969	4707	5225
Own Source Revenues	1143	1225	1401	1635	1967	2309	2785	3278	3789	4140
Direct Taxes, Persons	260	294	340	449	564	724	833	958	1140	1332
Direct Taxes, Corporate	200	218	231	248	258	272	345	382	362	406
Indirect Taxes	538	565	643	713	906	1048	1224	1406	1554	1663
Other Transfers from Persons	128	131	170	205	219	241	360	508	707	716
Remittances and Royalties	17	17	17	20	20	24	23	24	26	23
Federal Transfers	275	307	272	325	398	456	595	691	918	1085
Exhaustive Expenditure (-)	500	553	592	673	812	1019	1258	1368	1924	2058
Goods and Services, net	328	367	388	469	572	765	1010	1115	1639	1730
Investment	172	186	204	204	240	254	248	253	285	328
Capital Consump. Allowance (+)	51	57	62	73	83	87	91	98	108	118
Redistributive Expenditure (-)	171	205	218	273	332	527	666	811	923	1159
Transfers to Persons	170	202	215	267	322	513	652	799	915	1093
Business Subsidies	0	1	1	2	9	9	4	8	1	51
Capital Assistance	1	2	2	4	1	5	10	4	7	15
Transfers to Loc. & Hosp. (-)	751	836	856	945	1128	1298	1467	1649	2001	2431
Local (net)	480	533	519	571	703	781	837	923	1209	1545
Hospitals	271	303	337	374	425	517	630	726	792	886
Primary Balance	47	-5	69	142	176	8	80	239	-33	-305
Net Public Debt Service (-)	34	36	37	35	31	25	15	34	14	21
Interest Income (-)	45	49	56	62	81	117	168	198	274	338
Interest on Debt (+)	79	85	93	97	112	142	183	232	288	359
Net Lending (Balance)	13	-41	32	107	145	-17	65	205	-47	-326

Table 1
Provincial Government Revenue and Expenditure
($ millions)

Provincial Economic Accounts	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
					Levels					
Total Revenues (+)	5678	6462	7734	8346	9689	10989	11977	13750	14903	16851
Own Source Revenues	4518	5260	6242	6357	7325	8607	9550	11027	12015	13737
Direct Taxes, Persons	1450	1541	1747	2004	2252	3125	3835	3951	4429	5434
Direct Taxes, Corporate	475	620	871	866	763	712	838	1100	1319	1261
Indirect Taxes	1928	2407	2881	2720	3274	3590	3566	4553	4756	5391
Other Transfers from Persons	640	666	714	704	930	1027	1189	1290	1313	1417
Remittances and Royalties	25	26	29	63	106	153	122	133	198	234
Federal Transfers	1160	1202	1492	1989	2364	2382	2427	2723	2888	3114
Exhaustive Expenditure (-)	2333	2523	3029	3744	3980	4434	5023	5405	5951	6771
Goods and Services, net	1921	2078	2494	3172	3422	3846	4384	4709	5233	5975
Investment	412	445	535	572	558	588	639	696	718	796
Capital Consump. Allowance (+)	130	153	204	240	262	292	333	374	434	504
Redistributive Expenditure (-)	1042	1136	1423	1856	2107	2222	2367	2660	3205	3568
Transfers to Persons	973	1068	1316	1634	1837	1963	2183	2296	2832	3117
Business Subsidies	42	42	86	141	186	218	162	349	365	439
Capital Assistance	27	26	21	81	84	41	22	15	8	12
Transfers to Loc. & Hosp. (-)	2732	3003	3497	4266	4860	5308	5686	6248	6496	7779
Local (net)	1698	1902	2120	2610	2901	3240	3393	3793	3817	4533
Hospitals	1034	1101	1377	1656	1959	2068	2293	2455	2679	3246
Primary Balance	-299	-47	-11	-1280	-996	-683	-766	-189	-315	-763
Net Public Debt Service (-)	82	190	176	218	333	460	593	616	785	842
Interest Income (-)	381	422	538	635	723	767	875	1033	1130	1476
Interest on Debt (+)	463	612	714	853	1056	1227	1468	1649	1915	2318
Net Lending (Balance)	-381	-237	-187	-1498	-1329	-1143	-1359	-805	-1100	-1605

Table 1
Provincial Government Revenue and Expenditure
($ millions)

Provincial Economic Accounts	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
					Levels					
Total Revenues (+)	18053	20599	23938	26227	29197	33015	37460	40654	42756	42381
Own Source Revenues	15141	17051	19703	21434	24584	28000	32206	35296	37134	36174
Direct Taxes, Persons	6084	6789	7912	8410	10060	11835	13869	14822	18748	19005
Direct Taxes, Corporate	1020	1214	1523	1804	2264	2517	2862	3080	2749	2230
Indirect Taxes	6200	6946	7956	8819	9626	10885	12576	14244	14329	13592
Other Transfers from Persons	1603	1830	1921	1964	2032	2128	2244	2427	646	679
Remittances and Royalties	234	272	391	437	602	635	655	723	662	668
Federal Transfers	2912	3548	4235	4793	4613	5015	5254	5358	5622	6207
Exhaustive Expenditure (-)	7651	8528	8767	9784	10450	11612	13096	14524	15862	16862
Goods and Services, net	6736	7728	7913	8936	9666	10685	12177	13474	14605	15547
Investment	915	800	854	848	784	927	919	1050	1257	1315
Capital Consump. Allowance (+)	556	594	622	631	644	662	707	765	816	872
Redistributive Expenditure (-)	4182	4526	4843	5325	5977	7009	7722	8571	9378	11259
Transfers to Persons	3601	3996	4373	4827	5374	6109	6778	7618	8243	10095
Business Subsidies	568	519	448	467	470	565	645	736	818	770
Capital Assistance	13	11	22	31	133	335	299	217	317	394
Transfers to Loc. & Hosp. (-)	8684	9692	10323	11246	11970	13013	14422	15180	17776	19520
Local (net)	4932	5509	5796	6237	6615	7261	8104	8409	9894	11115
Hospitals	3752	4183	4527	5009	5355	5752	6318	6771	7882	8405
Primary Balance	-1908	-1553	627	503	1444	2043	2927	3144	556	-4388
Net Public Debt Service (-)	1040	1496	1917	2079	2170	2445	2545	2706	3193	3825
Interest Income (-)	1504	1574	1771	2121	2164	2173	2284	2448	1988	1978
Interest on Debt (+)	2544	3070	3688	4200	4334	4618	4829	5154	5181	5803
Net Lending (Balance)	-2948	-3049	-1290	-1576	-726	-402	382	438	-2637	-8213

Source: Statistics Canada Cat. No. 13-213 Provincial Economic Accounts, Tables 7 and 14.

Table 2
Provincial Government Revenue and Expenditure
(Share of GDP)

Provincial Economic Accounts	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971
Total Revenues (+)	7.85	7.94	7.88	8.39	9.03	9.73	10.77	11.43	12.68	12.88
Own Source Revenues	6.33	6.35	6.60	7.00	7.51	8.12	8.87	9.44	10.20	10.20
Direct Taxes, Persons	1.44	1.52	1.60	1.92	2.15	2.55	2.65	2.76	3.07	3.28
Direct Taxes, Corporate	1.11	1.13	1.09	1.06	0.99	0.96	1.10	1.10	0.97	1.00
Indirect Taxes	2.98	2.93	3.03	3.05	3.46	3.69	3.90	4.05	4.19	4.10
Other Transfers from Persons	0.71	0.68	0.80	0.88	0.84	0.85	1.15	1.46	1.90	1.76
Remittances and Royalties	0.09	0.09	0.08	0.09	0.08	0.08	0.07	0.07	0.07	0.06
Federal Transfers	1.52	1.59	1.28	1.39	1.52	1.60	1.90	1.99	2.47	2.67
Exhaustive Expenditure (-)	2.77	2.87	2.79	2.88	3.10	3.58	4.01	3.94	5.18	5.07
Goods and Services, net	1.82	1.90	1.83	2.01	2.18	2.69	3.22	3.21	4.41	4.26
Investment	0.95	0.96	0.96	0.87	0.92	0.89	0.79	0.73	0.77	0.81
Capital Consump. Allowance (+)	0.28	0.30	0.29	0.31	0.32	0.31	0.29	0.28	0.29	0.29
Redistributive Expenditure (-)	0.95	1.06	1.03	1.17	1.27	1.85	2.12	2.34	2.49	2.86
Transfers to Persons	0.94	1.05	1.01	1.14	1.23	1.80	2.08	2.30	2.46	2.69
Business Subsidies	0.00	0.01	0.00	0.01	0.03	0.03	0.01	0.02	0.00	0.13
Capital Assistance	0.01	0.01	0.01	0.02	0.00	0.02	0.03	0.01	0.02	0.04
Transfers to Loc. & Hosp. (-)	4.16	4.33	4.03	4.05	4.31	4.57	4.67	4.75	5.39	5.99
Local (net)	2.66	2.76	2.44	2.44	2.69	2.75	2.67	2.66	3.26	3.81
Hospitals	1.50	1.57	1.59	1.60	1.62	1.82	2.01	2.09	2.13	2.18
Primary Balance	0.26	-0.03	0.32	0.61	0.67	0.03	0.25	0.69	-0.09	-0.75
Net Public Debt Service (-)	0.19	0.19	0.17	0.15	0.12	0.09	0.05	0.10	0.04	0.05
Interest Income (-)	0.25	0.25	0.26	0.27	0.31	0.41	0.54	0.57	0.74	0.83
Interest on Debt (+)	0.44	0.44	0.44	0.42	0.43	0.50	0.58	0.67	0.78	0.88
Net Lending (Balance)	0.07	-0.21	0.15	0.46	0.55	-0.06	0.21	0.59	-0.13	-0.80

Table 2
Provincial Government Revenue and Expenditure
(Share of GDP)

Provincial Economic Accounts	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Total Revenues (+)	12.42	12.25	12.56	12.24	12.39	12.98	12.96	13.18	12.96	13.03
Own Source Revenues	9.88	9.97	10.13	9.33	9.37	10.17	10.33	10.57	10.45	10.62
Direct Taxes, Persons	3.17	2.92	2.84	2.94	2.88	3.69	4.15	3.79	3.85	4.20
Direct Taxes, Corporate	1.04	1.18	1.41	1.27	0.98	0.84	0.91	1.05	1.15	0.97
Indirect Taxes	4.22	4.56	4.68	3.99	4.19	4.24	3.86	4.36	4.14	4.17
Other Transfers from Persons	1.40	1.26	1.16	1.03	1.19	1.21	1.29	1.24	1.14	1.10
Remittances and Royalties	0.05	0.05	0.05	0.09	0.14	0.18	0.13	0.13	0.17	0.18
Federal Transfers	2.54	2.28	2.42	2.92	3.02	2.81	2.63	2.61	2.51	2.41
Exhaustive Expenditure (-)	5.10	4.78	4.92	5.49	5.09	5.24	5.44	5.18	5.18	5.23
Goods and Services, net	4.20	3.94	4.05	4.65	4.38	4.54	4.74	4.51	4.55	4.62
Investment	0.90	0.84	0.87	0.84	0.71	0.69	0.69	0.67	0.62	0.62
Capital Consump. Allowance (+)	0.28	0.29	0.33	0.35	0.34	0.34	0.36	0.36	0.38	0.39
Redistributive Expenditure (-)	2.28	2.15	2.31	2.72	2.69	2.62	2.56	2.55	2.79	2.76
Transfers to Persons	2.13	2.03	2.14	2.40	2.35	2.32	2.36	2.20	2.46	2.41
Business Subsidies	0.09	0.08	0.14	0.21	0.24	0.26	0.18	0.33	0.32	0.34
Capital Assistance	0.06	0.05	0.03	0.12	0.11	0.05	0.02	0.01	0.01	0.01
Transfers to Loc. & Hosp. (-)	5.98	5.69	5.68	6.26	6.22	6.27	6.15	5.99	5.65	6.01
Local (net)	3.71	3.61	3.44	3.83	3.71	3.83	3.67	3.63	3.32	3.50
Hospitals	2.26	2.09	2.24	2.43	2.51	2.44	2.48	2.35	2.33	2.51
Primary Balance	-0.65	-0.09	-0.02	-1.88	-1.27	-0.81	-0.83	-0.18	-0.27	-0.59
Net Public Debt Service (-)	0.18	0.36	0.29	0.32	0.43	0.54	0.64	0.59	0.68	0.65
Interest Income (-)	0.83	0.80	0.87	0.93	0.92	0.91	0.95	0.99	0.98	1.14
Interest on Debt (+)	1.01	1.16	1.16	1.25	1.35	1.45	1.59	1.58	1.67	1.79
Net Lending (Balance)	-0.83	-0.45	-0.30	-2.20	-1.70	-1.35	-1.47	-0.77	-0.96	-1.24

Table 2
Provincial Government Revenue and Expenditure
(Share of GDP)

Provincial Economic Accounts	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Revenues (+)	13.36	13.78	14.17	14.27	14.40	14.75	14.81	14.91	15.66	15.64
Own Source Revenues	11.21	11.41	11.66	11.67	12.13	12.51	12.73	12.95	13.60	13.35
Direct Taxes, Persons	4.50	4.54	4.68	4.58	4.96	5.29	5.48	5.44	6.87	7.01
Direct Taxes, Corporate	0.75	0.81	0.90	0.98	1.12	1.12	1.13	1.13	1.01	0.82
Indirect Taxes	4.59	4.65	4.71	4.80	4.75	4.86	4.97	5.23	5.25	5.02
Other Transfers from Persons	1.19	1.22	1.14	1.07	1.00	0.95	0.89	0.89	0.24	0.25
Remittances and Royalties	0.17	0.18	0.23	0.24	0.30	0.28	0.26	0.27	0.24	0.25
Federal Transfers	2.16	2.37	2.51	2.61	2.28	2.24	2.08	1.97	2.06	2.29
Exhaustive Expenditure (-)	5.66	5.71	5.19	5.33	5.16	5.19	5.18	5.33	5.81	6.22
Goods and Services, net	4.99	5.17	4.68	4.86	4.77	4.77	4.81	4.94	5.35	5.74
Investment	0.68	0.54	0.51	0.46	0.39	0.41	0.36	0.39	0.46	0.49
Capital Consump. Allowance (+)	0.41	0.40	0.37	0.34	0.32	0.30	0.28	0.28	0.30	0.32
Redistributive Expenditure (-)	3.10	3.03	2.87	2.90	2.95	3.13	3.05	3.14	3.44	4.15
Transfers to Persons	2.67	2.67	2.59	2.63	2.65	2.73	2.68	2.79	3.02	3.73
Business Subsidies	0.42	0.35	0.27	0.25	0.23	0.25	0.25	0.27	0.30	0.28
Capital Assistance	0.01	0.01	0.01	0.02	0.07	0.15	0.12	0.08	0.12	0.15
Transfers to Loc. & Hosp. (-)	6.43	6.48	6.11	6.12	5.90	5.81	5.70	5.57	6.51	7.20
Local (net)	3.65	3.69	3.43	3.39	3.26	3.24	3.20	3.08	3.62	4.10
Hospitals	2.78	2.80	2.68	2.73	2.64	2.57	2.50	2.48	2.89	3.10
Primary Balance	-1.41	-1.04	0.37	0.27	0.71	0.91	1.16	1.15	0.20	-1.62
Net Public Debt Service (-)	0.77	1.00	1.13	1.13	1.07	1.09	1.01	0.99	1.17	1.41
Interest Income (-)	1.11	1.05	1.05	1.15	1.07	0.97	0.90	0.90	0.73	0.73
Interest on Debt (+)	1.88	2.05	2.18	2.29	2.14	2.06	1.91	1.89	1.90	2.14
Net Lending (Balance)	-2.18	-2.04	-0.76	-0.86	-0.36	-0.18	0.15	0.16	-0.97	-3.03

Source: Statistics Canada Cat. No. 13-213 Provincial Economic Accounts, Tables 7 and 14.

Table 3
Composition of Sources and Uses of Funds
(Per Cent)

Provincial Economic Accounts	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971
					Levels					
Sources of Funds:										
Own Source Revenues	77.8	77.1	80.7	80.4	80.4	81.0	80.2	80.6	78.7	77.5
Direct Taxes, Persons	17.7	18.5	19.6	22.1	23.0	25.4	24.0	23.6	23.7	24.9
Direct Taxes, Corporate	13.6	13.7	13.3	12.2	10.5	9.5	9.9	9.4	7.5	7.6
Indirect Taxes	36.6	35.6	37.1	35.1	37.0	36.7	35.3	34.6	32.3	31.1
Other Transfers from Persons	8.7	8.2	9.8	10.1	8.9	8.5	10.4	12.5	14.7	13.4
Remittances and Royalties	1.2	1.1	1.0	1.0	0.8	0.8	0.7	0.6	0.5	0.4
Federal Transfers	18.7	19.3	15.7	16.0	16.3	16.0	17.1	17.0	19.1	20.3
Capital Consumption Allowances	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0
Uses of Funds:										
Exhaustive Expenditure	34.3	33.9	34.7	34.9	35.2	35.5	36.9	35.4	39.6	36.3
Goods and Services, net	22.5	22.5	22.7	24.3	24.8	26.6	29.6	28.9	33.7	30.5
Investment	11.8	11.4	12.0	10.6	10.4	8.8	7.3	6.5	5.9	5.8
Redistributive Expenditure	11.7	12.5	12.8	14.1	14.4	18.3	19.5	21.0	19.0	20.4
Transfers to Persons	11.6	12.4	12.6	13.8	14.0	17.9	19.1	20.7	18.8	19.3
Business Subsidies	0.0	0.1	0.1	0.1	0.4	0.3	0.1	0.2	0.0	0.9
Capital Assistance	0.1	0.1	0.1	0.2	0.0	0.2	0.3	0.1	0.1	0.3
Transfers to Loc. & Hosp.	51.5	51.2	50.2	49.0	48.9	45.2	43.0	42.7	41.1	42.9
Local (net)	32.9	32.6	30.4	29.6	30.5	27.2	24.6	23.9	24.9	27.2
Hospitals	18.6	18.5	19.7	19.4	18.4	18.0	18.5	18.8	16.3	15.6
Net Financing Activity	2.3	2.2	2.2	1.8	1.3	0.9	0.4	0.9	0.3	0.4
(Per cent of total revenue)	2.4	2.3	2.2	1.8	1.3	0.9	0.4	0.9	0.3	0.4

Table 3
Composition of Sources and Uses of Funds
(Per Cent)

Provincial Economic Accounts	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
					Levels					
Sources of Funds:										
Own Source Revenues	77.8	79.5	78.6	74.0	73.6	76.3	77.6	78.1	78.3	79.2
Direct Taxes, Persons	25.0	23.3	22.0	23.3	22.6	27.7	31.2	28.0	28.9	31.3
Direct Taxes, Corporate	8.2	9.4	11.0	10.1	7.7	6.3	6.8	7.8	8.6	7.3
Indirect Taxes	33.2	36.4	36.3	31.7	32.9	31.8	29.0	32.2	31.0	31.1
Other Transfers from Persons	11.0	10.1	9.0	8.2	9.3	9.1	9.7	9.1	8.6	8.2
Remittances and Royalties	0.4	0.4	0.4	0.7	1.1	1.4	1.0	0.9	1.3	1.3
Federal Transfers	20.0	18.2	18.8	23.2	23.8	21.1	19.7	19.3	18.8	17.9
Capital Consumption Allowances	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uses of Funds:										
Exhaustive Expenditure	37.7	36.8	37.3	37.1	35.3	35.7	36.7	36.2	36.2	35.7
Goods and Services, net	31.0	30.3	30.7	31.4	30.3	30.9	32.1	31.5	31.8	31.5
Investment	6.7	6.5	6.6	5.7	4.9	4.7	4.7	4.7	4.4	4.2
Redistributive Expenditure	16.8	16.6	17.5	18.4	18.7	17.9	17.3	17.8	19.5	18.8
Transfers to Persons	15.7	15.6	16.2	16.2	16.3	15.8	16.0	15.4	17.2	16.4
Business Subsidies	0.7	0.6	1.1	1.4	1.6	1.8	1.2	2.3	2.2	2.3
Capital Assistance	0.4	0.4	0.3	0.8	0.7	0.3	0.2	0.1	0.0	0.1
Transfers to Loc. & Hosp.	44.1	43.8	43.0	42.3	43.1	42.7	41.6	41.8	39.5	41.0
Local (net)	27.4	27.7	26.1	25.9	25.7	26.1	24.8	25.4	23.2	23.9
Hospitals	16.7	16.1	16.9	16.4	17.4	16.6	16.8	16.4	16.3	17.1
Net Financing Activity	1.3	2.8	2.2	2.2	3.0	3.7	4.3	4.1	4.8	4.4
(Per cent of total revenue)	1.4	2.9	2.3	2.6	3.4	4.2	5.0	4.5	5.3	5.0

Table 3
Composition of Sources and Uses of Funds
(Per Cent)

Provincial Economic Accounts	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
					Levels					
Sources of Funds:										
Own Source Revenues	81.4	80.5	80.2	79.8	82.4	83.1	84.4	85.2	85.2	83.6
Direct Taxes, Persons	32.7	32.0	32.2	31.3	33.7	35.1	36.3	35.8	43.0	43.9
Direct Taxes, Corporate	5.5	5.7	6.2	6.7	7.6	7.5	7.5	7.4	6.3	5.2
Indirect Taxes	33.3	32.8	32.4	32.8	32.3	32.3	32.9	34.4	32.9	31.4
Other Transfers from Persons	8.6	8.6	7.8	7.3	6.8	6.3	5.9	5.9	1.5	1.6
Remittances and Royalties	1.3	1.3	1.6	1.6	2.0	1.9	1.7	1.7	1.5	1.5
Federal Transfers	15.6	16.7	17.2	17.8	15.5	14.9	13.8	12.9	12.9	14.4
Capital Consumption Allowances	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uses of Funds:										
Exhaustive Expenditure	35.5	35.2	33.9	34.4	34.2	34.1	34.7	35.4	34.3	32.8
Goods and Services, net	31.2	31.9	30.6	31.4	31.6	31.4	32.2	32.9	31.6	30.2
Investment	4.2	3.3	3.3	3.0	2.6	2.7	2.4	2.6	2.7	2.6
Redistributive Expenditure	19.4	18.7	18.7	18.7	19.6	20.6	20.4	20.9	20.3	21.9
Transfers to Persons	16.7	16.5	16.9	17.0	17.6	17.9	17.9	18.6	17.8	19.6
Business Subsidies	2.6	2.1	1.7	1.6	1.5	1.7	1.7	1.8	1.8	1.5
Capital Assistance	0.1	0.0	0.1	0.1	0.4	1.0	0.8	0.5	0.7	0.8
Transfers to Loc. & Hosp.	40.3	40.0	39.9	39.5	39.2	38.2	38.2	37.0	38.5	37.9
Local (net)	22.9	22.7	22.4	21.9	21.6	21.3	21.4	20.5	21.4	21.6
Hospitals	17.4	17.3	17.5	17.6	17.5	16.9	16.7	16.5	17.1	16.3
Net Financing Activity	4.8	6.2	7.4	7.3	7.1	7.2	6.7	6.6	6.9	7.4
(Per cent of total revenue)	5.8	7.3	8.0	7.9	7.4	7.4	6.8	6.7	7.5	9.0

Source: Statistics Canada Cat. No. 13-213 Provincial Economic Accounts, Tables 7 and 14.
Note: Sources of Funds = Total Revenue + Capital Consumption Allowances.

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