# GOVERNMENT BUDGET DEFICITS
# IN SOUTH AFRICA

BY

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**A DISSERTATION SUBMITTED TO THE DEPARTMENT OF ECONOMICS UNIVERSITY OF NATAL, PIETERMARITZBURG, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE MASTER OF COMMERCE DEGREE**

**UNIVERSITY OF NATAL
DEPARTMENT OF ECONOMICS
PIETERMARITZBURG**                                   **JANUARY, 1997**

# DEDICATION

This dissertation is dedicated to my parents,

who have been my source of inspiration, and whose

love, encouragement and support has seen me

through my academic career.

# ACKNOWLEDGEMENTS

My sincere thanks go to my academic supervisor and mentor, Professor Newman K. Kusi. His great wisdom, guidance and individual attention has motivated me to pursue economics to a masters level. I am extremely grateful to him for the long hours and energy he has spent on the various drafts of this dissertation. His unique style of supervision, detailed editorial suggestions, modifications and refinements have been invaluable. I am equally thankful to him for making his personal library so accessible. I also feel a deep sense of gratitude:

- to my family, Dudley, Pam, Anthony, Debbie and Clare, for their constant love, interest, encouragement and motivation. In particular, to my parents, for their great personal sacrifice to ensure we received the highest possible education.

- to Craig Hind for his constant support, motivation and patience, and to his family, Dave, Kim, Mike and Cathy, for their endless support, kindness and generosity.

- to Dr. R. Simson and Mr. M. Kafe for the great time and energy spent helping me with the Shazam package and their many excellent suggestions in the development stages of the dissertation.

- to Cassie Janisch, working with her and seeing her diligence was an inspiration to me. Her present success in her career has been a motivation in itself.

- to all the members of staff in the Economics department for laying the foundations for my post-graduate studies, readily offering information, and for creating a good working environment.

- to all the staff at the University Library and the Natal Society Library for always being so helpful.

- to Mrs Ade and Margie Sparks for their help with the typing and formatting of the dissertation. I am however personally responsible for all typographical and any other errors that might appear in the work.

# DECLARATION

With the exception of quotations

specifically acknowledged in the text,

this dissertation is entirely my own

work, and has not been submitted

in any other

University

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# ABSTRACT

The Government of National Unity, on coming into power in April 1994, indicated its intention to transform the economy through a growth-oriented reconstruction and development programme (RDP). The sustainability of the RDP, however, depends crucially on the maintenance of fiscal discipline as well as the progressive reduction of the overall fiscal deficit. Excessive fiscal deficits will result in higher inflation, higher real interest rates, balance of payments disequilibrium and lower economic growth, thereby putting the whole RDP at risk (Kusi and Fuzile, 1996). The need to understand the problems of the fiscal deficit and its underlying causes cannot be overemphasised.

This study investigates the trend of the fiscal deficit in South Africa over the period 1960-1994, and the impact on it of the changes in its macroeconomic determinants. Our results show that the fiscal deficit has undergone a general trend increase. Many of the changes in the fiscal deficit were the result of the increased government debt and the associated cost of servicing the debt. Other significant factors that affected the deficit were the costs of capital goods imports, changes in domestic prices and the real exchange rate. Revenue was mostly affected by GDP growth and private consumption expenditures. Our findings suggest that tax reform should be directed at broadening the tax base, while expenditure needs to be reallocated from non-productive activities to productive activities. In reducing the level of government expenditure, the Government needs to focus on the current size of the public debt with a view to cutting it to a manageable level.

# CHAPTER ONE

# GENERAL INTRODUCTION

## 1.1    Introduction

The growth and persistence of fiscal deficits is an issue that has received much attention in recent times in both developed and developing countries.  In developed countries, the growth of the United States federal deficit provided impetus for the reassessment of the effect of fiscal deficits on economic activities (Kusi and Kafe, 1996), and in developing countries, fiscal deficits have received much of the blame for the various problems that beset them in the 1980s:  over-indebtedness and the debt crisis, high inflation and poor investment performance and growth.  Attempts to recover macroeconomic stability through fiscal adjustment has achieved mixed success thereby raising questions about the macroeconomic causes and consequences of public deficits and fiscal stabilisation or deterioration (Kusi and Kafe, 1996).  Since fiscal deficits are a result of the imbalance between public spending and revenue, the government can use the budget deficit or surplus to stimulate or slow down the economy.  Fiscal deficits, therefore, provide an overall assessment of governments fiscal initiatives and a measure of the stance of a country's fiscal policy (Heyns, 1982).

In most developing countries, economic growth is initiated and financed mainly by the public sector. The resultant growth in public spending is financed from tax and non-tax sources. However, these revenues are often not sufficient to complement the increased public

expenditure, causing large deficits in the fiscus. The extent to which government expenditure exceeds government revenue or the extent of the public sector borrowing requirement (PSBR) can be attributed to a range of factors. They include exogenous or cyclical factors, such as droughts or wars, (that is, factors that may change under more favourable conditions), and more permanent factors usually associated with the structural characteristics of the economy. These structural factors are economic characteristics of the country that are not changeable in the short run, thus making it significantly more difficult for the government to control the fiscal balance. On the one hand, revenues are restricted by such factors as low per capita incomes, limited direct tax base and a skewed distribution of income, exemption of agricultural income from tax, income tax exemptions in the form of tax holidays, accelerated depreciation rates, tax credits usually granted to the manufacturing sector, and deficiencies in the tax administration. On the other hand, public spending continues to grow mainly due to mismanagement, corruption, increased public participation in the production and control of economic activity, and the sheer inability to control spending (Kusi, 1995).

A persistent budget deficit has a number of harmful effects on economic performance. One such effect is the increase in public debt. The rise in public debt gives rise to various macroeconomic imbalances in the economy. For example, the excessive monetisation of the debt will result in an irreversible increase in the money supply and hence escalating inflation. Domestic financing of the debt can also crowd out private sector investment, while foreign financing can create balance of payments problems. In addition, if real interest rates are greater than real GDP, the interest payments on the debt will increasingly have to be financed by a further increase in public debt, leading to a situation of a "debt trap" (Van Der Merwe, 1993).

Budget deficits are not uncommon in South Africa. Government expenditure has consistently exceeded government revenue for the past three decades. The symptoms of such imbalances are fiscal deficits. While budget deficits are nothing new in the country's history, the recent size of the fiscal deficit and the economic developments of the past decade have led to a renewed interest in fiscal themes. Since 1984, the fiscal deficit began growing steadily, due in part to a substantial drop in gold prices (the country's chief export product), and in part to the country's increased isolation from the international community and external financing sources. As a result, the government's claim on the country's resources began to rise excessively and this had severe consequences for the government finances. In addition, there emerged a substantial rise in government expenditure, a higher tax burden and a high level of government dissaving, leading to a sharp increase in the government debt (Van Der Merwe, 1993). This growth in the government's annual net borrowing requirement has severely constrained the country's fiscal options for the second half of the 1990s.

South Africa has just established a democratic non-racial society. The Government of National Unity (GNU), on coming into power in April, 1994, has endorsed the reconstruction and development programme (RDP) as its broad agenda for the rapid removal of the problems of poverty and gross inequality evident in all aspects of the South African society. The RDP provides a framework for the reorientation of policies and the reprioritisation of activities throughout the public sector (Government of South Africa, (GSA), 1995). But this can only be attained if the economy can be placed firmly on a path of high and sustainable growth. Higher economic growth will, in time, lead to increased resources available to attain the objectives of the RDP, and will give an added impetus to economic and social transformation. Fiscal policy

plays a key role in this regard. In fact, the sustainability of the RDP depends crucially on the maintenance of fiscal discipline. It entails the conscious and deliberate use of the budget (expenditure, taxes and borrowing) to achieve the developmental goals. This implies, *ceteris paribus*, a progressive reduction of the overall fiscal deficit since excessive fiscal deficits result in higher inflation, higher real interest rates, balance of payments problems and lower economic growth, thereby undermining the RDP (Kusi, 1995). However, with an increased need for government spending to provide for the backlog in the social sector, the objective of a gradual reduction of the fiscal deficit becomes more difficult to obtain. The redressing of the social imbalances and pursuit of employment creating policies will place an enormous pressure on the government's budget, which may induce the need for deficit financing in the short run.

Reduction in the fiscal deficit will mean a containment of the debt servicing obligations. This will free resources for investment and capital spending in line with the objectives of the RDP. In addition, the sale of certain unprofitable state assets would result in some capital recepits and it would also enable the public debt and associated interest costs to be reducued. The deficit reduction will thus facilitate the accelerated flow of domestic resources into industrial investment and contribute to the overall growth of the economy. In an attempt to propose solutions to control fiscal deficits, however, it would be grossly inadequate to focus only on the consequences of fiscal deficits rather than the causes of the deficits (Kusi, 1995). Without convincing empirical evidence, any proposal that deals simply with the consequences of budget deficits and the fiscal crisis will more than likely not result in a sustained reduction of the budget deficit. Furthermore, the fiscal authorities need to develop an appropriate policy, taking the country's particular circumstances into account. The present international trend seems to have

moved away from active short-term stabilisation objectives towards concentrating on fiscal policy on the long term structural changes in the economy (GSA, 1995). All these point to the suggestion that the trends and causes of the fiscal deficits in South Africa need to be analysed carefully. Such an analysis will assist the government to reduce the deficit in a sustainable manner without impairing the objectives of the RDP, that is, addressing the social and economic imbalances in the economy.

The issue of growing budget deficits has become a major concern to many in South Africa. It is, however, interesting to notice that much of the debate over deficits has been more related to the effects of unacceptable large deficits rather than with the causes of deficits (Kusi and Kafe, 1996).

## 1.2    Objectives of the Study

The objective of this study is to investigate the underlying trends and causes of fiscal deficits in South Africa. It investigates the changes in the fiscal deficit in each year of the period 1960/61 - 1994/95. It examines whether these changes are mainly a result of changes in expenditure or a changes in revenue, and which structural factors have contributed to such changes. The case of South Africa is interesting because of the major role that fiscal deficits have played in the country's history and the effects on the country's future growth and development (Kusi, 1995). Against the background of a decline in economic activity particularly during the 1989-1993 recession, the strengthening of prospects for sustainable economic growth has to be an important foundation of the government's economic and fiscal

strategies during the second half of the 1990s. The overall growth performance of the economy determines the increase in revenue which will accrue to the fiscus each year given the existing tax structure, while the economic growth objective limits the extent to which either an increased tax burden or borrowing can be used to finance additional outlays. Revenue and deficit targets thus constrain the overall government expenditure levels which the economy and the fiscus can sustain (GSA, 1995).

## 1.3    Method

The analysis is done by decomposing the fiscal deficit into its expenditure and revenue components. The expenditure is further broken down into non-interest current expenditure, interest payments and capital expenditure. The revenue side comprises of both direct and indirect tax revenue, and non-tax revenue. The structural determinants of each of these fiscal variables are then investigated based on estimated behavioural functions representing these variables. The evidence provided enables us to determine the structural causes behind deficit changes

## 1.4    Organisation

The study is organised as follows:  Following the introduction in chapter one, chapter two presents the theoretical issues of public sector deficits, outlining the different measurements of fiscal deficits and discussing the causes, financing sources, and the macroeconomic effects of fiscal deficits. Chapter three reviews the trends and causes of fiscal deficits in South Africa

in the 1960/61 to 1994/95 period. Chapter four provides a framework for analysing the causes of fiscal deficits. The framework is applied to the South African situation and the results of the study and the discussions on them are presented and discussed in chapter five. Finally, chapter six concludes the study with some policy recommendations.

CHAPTER TWO


THEORETICAL ISSUES OF

PUBLIC SECTOR DEFICITS


## 2.1    Measurement of the Fiscal Deficit

The manner in which the fiscal deficit is measured has an important bearing on the macroeconomic implications of the deficits. Two key issues here are the composition of the public sector and the economic relevance of the various types of deficit measures (Easterly and Schmidt-Hebbel, 1993).

The composition of the public sector can be defined in three alternative ways: (i) central government only; (ii) consolidated non-financial public sector, which adds local government, social security and non-financial public enterprises; and (iii) consolidated total public sector, which adds the central bank and sometimes public commercial banks.

The most accurate measure of a country's fiscal position usually results from deficit measures based on the most inclusive definition of the public sector (Easterly and Schmidt-Hebbel, 1993). However, there are often technical and accounting problems and a lack of reliable data, which reduces their usefulness.

Several options exist for measuring the fiscal deficit in ways that are more or less economically relevant. The nominal cash approach permits broad comparability across countries. The "below-the-line" nominal deficit measures the changes in the net public sector

liabilities while the "above-the-line" cash flow deficit measures the difference between total cash flow expenditure and revenue. Either definition is often referred to as the public sector borrowing requirement (PSBR) (Kusi, 1996). Short-term distortions can be removed from the nominal cash deficit measurement by using the operational deficit. The operational deficit adjusts the deficit for the inflation component of interest payments on public debt. According to Easterly and Smidt-Hebbel (1993), this deduction from the PSBR, which reflects the compensation of debt holders for the erosion of the real value of public debt caused by inflation, is an important correction for high inflation in high domestic-debt countries. For instance, estimates of the fiscal deficit in Mexico for 1987 showed a deficit of greater than 15% of GDP, but the operational balance showed a surplus of 3% (Fischer and Easterly, 1990). There is also the primary deficit, which is obtained by subtracting the remaining real interest payments on domestic debt. The primary deficit is useful in providing an indication of the amount of current resources available to a government to service its public debt (Faini and De Melo, 1993). It is also very important when assessing the degree of fiscal stimulus or potential crowding out of financial markets (Ajam, 1995).

Islam and Wetzel (1991) have argued that the nominal cash flow approach may not fully reflect the underlying trends in the fiscal deficit. They explain that with increasing arrears, the cash concept may not reveal, in the current year, that the level of spending has changed. For instance, a structural adjustment programme which employs the cash concept may miss the pressures on resources and on demand associated with expenditure but not yet paid for (Faini and De Melo, 1993). An accrual, or payments-order, approach measures income and spending actions when they occur, even if they do not immediately involve cash flows (that is, actual cash

receipts and payments). Deficits measured on an accrual basis would be larger than those measured on a cash basis when arrears have been allowed to accumulate on government payments of interest, wages or purchases of goods (Easterly and Schmidt-Hebbel, 1993).

The structural deficit corrects for inflation and removes the influences from commodity price fluctuations or domestic output above or below trend (Fischer and Easterly, 1990). The sustainable public deficit of Buiter (1983; 1985; 1990), is a deficit that can be financed without raising debt levels (relative to GDP) under feasible rates of growth, real interest, and inflation. The sustainable deficit is comparable in meaning to a sustainable debt, where "sustainability" focuses on the borrowers' willingness and ability to service the debt rather than the lenders' liquidity and investment alternatives. Thus, if a country has serviced debt of a certain level, and if this level does not increase, it will be able to maintain the debt structure and continue to service the debt (Faini and De Melo, 1993). Buiter (1990) also mentions the public sector solvency measure which checks for the solvency of the public sector by comparing the rate of growth of the public debt (relative to GDP) to the real interest rate. According to this measurement, if the debt ratio systematically grows faster than the real interest rate, the public sector is considered insolvent (Easterly and Schmidt-Hebbel, 1993).

There is also the conventional fiscal deficit, which may be viewed as the resource use of the public sector to be financed after the government has offset its receipts against its outlays. This summary statistic has most often been used to measure the fiscal stance and the strength and sustainability of fiscal policy (Ajam, 1995). According to Fischer and Easterly (1990), deficits can be under-estimated because of controls on interest rates, or key prices. For example, negative real interest rates paid on government debt will make the deficit appear to be lower than

if the interest bill were evaluated at the true opportunity cost of capital. In addition, the size of the true deficit would be suppressed if there was an artificially low exchange rate applied to the government's external debt in a system of multiple exchange rates. To correct for such distortions, public deficits would have to be evaluated at the long-run equilibrium values of the interest rate, exchange rate, and other key relative prices.

## 2.2    Causes of Fiscal Deficits

Fiscal deficits are the results of the disparities between government revenue and expenditure. Fiscal deficits thus arise when tax revenue falls while public spending remains the same; or public expenditure increases in the face of stagnating or declining tax revenues. This suggests that any analysis of the causes of fiscal deficits must concentrate on the factors that influence or determine public expenditures and revenues.

Public expenditure reflects the cost of carrying out the policy choices of government. The basic theory of public expenditure concerns itself with the optimal provision of public goods and services. The cost of providing public goods and services constitute public expenditure. Growth of public expenditure has been attributed to a host of factors, working through both the demand and supply sides.

According to the development theorists public expenditure tends to increase with development since the growing complexity of the economy during development creates increased demand for public goods and services (see Musgrave 1969, and Rostow, 1971). Rostow (1971) proposes that all countries pass through a series of development stages and he examines the

changing role of the public sector during the development process. He explains that as an economy passes through the different stages of development, the provision of social services and expenditure on infrastructure will increase, thereby raising expenditure levels. To him, the growth of public expenditure determines the growth of the economy.

The most influential of the demand side explanations is Wagner's 'law of increasing state activity' (Wagner, 1958). The Law concerns itself with why society accepts increasing public expenditures. According to Wagner, social services are income elastic goods so, as per capita income rises, demand for them increases by a larger percentage. In response to the increased demand for its goods and services, the government will have to increase its budgetary outlays. He argued that public demand for an increase in the scope of government be a natural consequence of higher living standards which usually accompany economic industrialisation (OECD, 1984). Three public good categories were singled out by Wagner to account for the shift in societal preferences as incomes increase. These include an increased demand for (i) regulative and protective activity by the state, (ii) cultural and welfare expenditure, i.e., education, health, income redistribution, and (iii) new technology and economies of scale (Kelley, 1976).

Wagner and Musgrave's hypotheses thus rely essentially on structural factors to explain government growth. To them, changes in the society's economic and social structure, such as changes in the level of per capita income or its composition, the age structure of the population, or the stage of development in the country, are crucial factors that influence the growth of governments.

The importance of supply side factors in public expenditure growth has been highlighted

by Peacock and Wiseman (1967) in their study on the growth of the British government between 1890 and 1955. The study focussed on the limits to public expenditure growth which were determined by taxpayers' perceptions of the tolerable burden of taxation. According to Peacock and Wiseman's hypothesis, in normal times, the tolerance burden is subject to a modest change. In times of large-scale upheaval, such as wars and other social emergencies, the supply constraint, imposed by the tolerable tax burden, would be relaxed to permit government expenditure to increase. Once normality is restored, public expenditure does not decline towards its previous level completely, but remains higher as new expenditures displace those contingent upon the disturbance itself (OECD, 1984). Thus, public expenditure undergoes a "displacement effect" or increases in a step-wise fashion following social emergencies.

Peacock and Wiseman also noted that factors such as changes in population, prices and unemployment may influence the growth of government expenditure. However, they felt that relative prices may have little or no bearing on the level of total expenditure since they presume that government expenditures are determined from the financing side, that is, from the supply side, rather than via the demand for public services (see Abedian and Standish, 1984).

The role of supply and technological factors on the growth of public sector output has been emphasised in Baumol's model of differential productivity growth (Baumol, 1967). Baumol's hypothesis contends that productive growth in the public sector is slower than in the private sector due to economies of scale and technological improvement available in the latter sector. Because productivity growth in the government sector is lower than for the remainder of the economy, it follows that government expenditure will have to increase at a rate greater than that of the overall economy in order to maintain its real level relative to output (Seeber and

Dockel, 1978).

Apart from the economic aspects, government expenditure cannot be separated from the political and bureaucratic sphere. The Bureaucratic hypothesis states that bureaucrats, who enjoy autonomy and monopoly power in administering the state, pursue their own objectives and maximise the size of their departments, and this increases the size of the public sector (Tridimas, 1985). The expansion of state involvement in economic activity has important implications for the growth of government spending. Peltzman (1980) equates the government's role in economic life with the size of its budget (see also Borcherding and Deacon, 1972; Bergstrom and Goodman, 1973; Poterba, 1994).

The review of the theories above shows that different models exist each tending to emphasize different factors as causing growth in public expenditure. In reality, however, the observed pattern of government expenditure behaviour is a result of systematic interaction of mutually interdependent economic, social, cultural and political factors (Kelley, 1976).

Public expenditure grows as the provision of public goods such as defence, maintenance of law and order, and public administration increase. This is also true of expenditures on social services, such as education and health (OECD, 1984). These expenditures are also partly determined by demographic factors and the average levels of benefit or service provision. Population-induced expenditures are dependent on the size, density, and the age structure of the population. That is, a large and growing population will require a greater provision of public services; high population density may result in diseconomies of scale via congestion; while the age structure of population places its own specific demands on government spending. For example, while an ageing population may cause expenditures on housing, health care and social

security payments to increase, a young population may cause the expenditures on education to expand (see Kelley, 1976).

On the revenue side a major problem facing developing countries is the lack of a steady flow of revenues to finance the ever-increasing expenditures (Idachaba, 1975). Many LDCs tend to have a low level and a highly skewed distribution of income. Most of these countries also have large informal subsistence sectors where it is difficult to levy taxes, and most of their agricultural incomes are exempted from taxation. The low income levels affect the bases on which taxes are levied and since direct taxes form the bulk of government revenue in LDCs, the low taxes in the face of increasing expenditure induces the need for deficit financing. Furthermore, the problem of limited revenues is exacerbated by the fact that in most LDCs, the tax administration is run by inexperienced personnel and is riddled with fraudulence, dishonesty and collusion between tax collectors and tax payers, thus increasing the indirect transaction costs and impairing the efficiency of the tax system (Idachaba, 1975). Without the extra taxes, government purchases have had to be financed through borrowing. The interest payments associated with the debt-financed expenditure in many of these countries have become an important expenditure item, which has tended to cause their fiscal deficits to widen.

## 2.3    Effects and Consequences of Fiscal Deficits

In the pre-Keynesian era, it was presumed that a budget should generally be balanced and that any surpluses should be used to pay off the deficits experienced during the wartime years. It was the Keynesian revolution that provided the basic framework in which the fiscal deficit

could be analysed. The Keynesians saw fiscal policy and the deficit as components of aggregate demand and therefore felt that the balance on the budget must thus follow trends in the business cycle. That is, surpluses must be maintained in boom periods and deficits during recessions. Emphasis subsequently shifted from the effects of fiscal deficits on aggregate demand to its effect on the components of demand (Fischer and Easterly, 1990). Here the savings - investment identity provides a useful insight into the analysis. The review below is based on the works of Kusi and Fuzile (1996), Fischer and Easterly (1990), Easterly and Schmidt-Hebbel, (1993).

Budget deficit = (private saving - private investment) + current account deficit          (1)

Identity (1) illustrates the resource constraint facing the economy. It shows that larger budget deficits must lead to some combination of lower private investment and higher private saving (or lower private consumption at a given level of private income) and a higher current account deficit. The question, however, is which of the components on the right hand side of expression (1) bears the burden of the higher fiscal deficit. This places emphasis on the relationships of these three variables and the fiscal deficit. In addition, their response is influenced by five factors: the flexibility and sophistication of domestic financial markets, access to external financing, the source of domestic financing (money or bonds), the forward-looking behaviour of consumers and investors, and the composition of the deficit .

In analysing the possibility of higher private savings, or more appropriately lower consumption, as well as lower investment, one must take into account the fact that consumers'

and investors' behaviour is constrained by imperfect access to financial markets. Regarding lower consumption effects of a higher deficit, the Keynesians hold that only current taxation affects consumption. However important developments have arisen from the standard Keynesian analysis. A model of saving behaviour has emerged from the life-cycle and permanent income theories of consumption of Modigliani and Friedman. The permanent income hypothesis states that only permanent taxation matters because consumers spend a proportion of the present value of their expected lifetime income. Accordingly a temporary tax change should have a smaller effect on consumption than a permanent tax change. This implies that the effect on spending of changes in the budget deficit is influenced by expectations about the permanence of the deficit (see also Ando and Modigliani, 1963).

Barro (1974) follows this by showing that under certain assumptions, lump-sum changes in taxes would have no effect on consumer spending. Thus a cut in taxes that increases disposable income would automatically increase saving by the same amount. This is the Ricardian equivalence hypothesis which contends that deficits and taxes are equivalent in their effect on consumption and that only permanent government consumption affects private consumption because any increase or decrease in taxes is offset by an equivalent change in the opposite direction in private saving. The explanation is that rational economic agents interpret government budget deficits as postponed tax liabilities, that is, the increased debt is equivalent to a lump-sum transfer to the retired, financed by a lump-sum tax on the younger generation, therefore the debt is neutralised by an appropriate combination of lump-sum taxes and transfers. Taking the implied increase in future taxes into account, the consumer saves the amount necessary to pay them.

The Ricardian equivalence hypothesis has been ruled out by many as merely an interesting theoretical possibility, while empirical evidence has been varied. Its importance lies in the fact that the fiscal deficit does not affect national saving, interest rates or the balance of payments. Regarding identity (1), the hypothesis suggests that an increase in the fiscal deficit would under certain circumstances, be accompanied by an increase in private saving, and that both investment and the trade balance would be unaffected.

The specification of private investment in the identity (1) above points to the fact that it may be the one that bears the burden of the larger fiscal deficit. The deficit effects on private investment may be direct or indirect. The indirect effects occurs through higher interest rates, thereby implying the crowding out problem, as well as whether an increase in public investment causes private investment to rise or fall.

Identity (1) also indicates the relationship between the fiscal deficit and the trade deficit. Empirical evidence has shown a high correlation between budget deficits and trade deficits in industrial countries but not developing countries (see Balassa, 1988). However some countries have run large trade deficits while maintaining a strong fiscal position such as the United Kingdom in 1988-1989 or vice versa such as in South Africa in the late 1980s. The effect on the trade deficit of a reduction in the budget deficit depends on the accompanying monetary policy and its effect on the exchange and real interest rates. The contraction of fiscal policy together with the easing of monetary policy, would reduce the interest rate and lead to a depreciation of the exchange rate, thus tending to increase investment while reducing the trade deficit.

There are three main ways of financing the public sector deficit: by printing money (or

seigniorage), external borrowing (running down foreign exchange reserves and foreign borrowing), and domestic borrowing. That is:

| Budget deficit financing | = | Money financing | + | domestic debt financing | + | external debt financing | (2) |

Each major type of financing, if used excessively, can be associated with a specific macroeconomic imbalance. Money creation leads to inflation, using up foreign exchange reserves and foreign borrowing is associated with exchange crises, a current account deficit, an appreciation of the real exchange rate, and an external debt crisis (if debt is too high). Domestic borrowing leads to a "credit squeeze" and the crowding out of private investment and consumption through higher interest rates. When interest rates are fixed, credit is limited through credit allocation and stringent financial repression. These issues are examined in detail below.

## Money printing

On average, developing countries have relied more on money creation (seigniorage) to finance deficits than industrial countries (Easterly, Rodriques and Schmidt-Hebbel, 1994). The monetarist explanation for the link between base money and inflation is that if money is printed at a rate that is in excess of the demand for it at the current price level, there will be excess cash balances in the hands of the public. When the public reduce these cash balances this will drive up the price level until equilibrium is restored, thus inducing inflation.

Sargent and Wallace (1985) state that there is a limit to the amount of funds the public is willing to hold and therefore the government can no longer finance itself through non-inflationary means, thereby confirming the positive relationship between deficits and inflation. Others, however, have found the relationship to be obscured over the short run due to the influences of various factors, such as unstable demand for money, exchange rate depreciation and widespread indexation (see Kiguel and Liviatan, 1988; Dornbusch and Fischer, 1991). In the long run, however, an increasingly unfavourable trade-off between inflation and money creation becomes evident, and it is for this reason that money creation is often used as a last resort for deficit financing. It was found to be a very small source of financing in a sample of 51 countries over 20 years: three quarters of the annual observations of "inflation tax" were less than 2% of GDP (see Easterly, Rodriques, and Schmidt-Hebbel, 1994).

The amount of revenue that the government can expect to obtain from seigniorage is determined by the demand for base money in the economy, the real growth rate of the economy, and the elasticity of the demand for real balances with respect to inflation and income. These factors enable the government to decide how much money they can print to finance the deficit without inflationary effects. Beyond that rate of growth, given a stable demand function for currency, inflation will result. Subsequently as inflation rises, so the demand for high powered or base money declines. Hence the long-run association between money creation and inflation follows a typical "Laffer curve": revenues from money creation first rise and then fall as the inflation rate rises as shown in Figure 1.

Revenue from money holdings is often identified with the "inflation tax" on money holdings. As the maximum revenue is approached (point A) the trade-off between additional

monetary financing and inflation becomes unfavourable and the government can obtain more revenue by printing money less rapidly. One must also take caution, however, in deciding at what rate of inflation the government revenue from printing money is maximised because there are lags in the process of adaptation of money demand to inflation. Fischer and Easterly (1990) point out that rates of seigniorage of greater than 2.5% of GNP would not be sustainable and that even that rate would be possible only in a very rapidly growing economy.

**Figure 1     Revenue from Seigniorage**
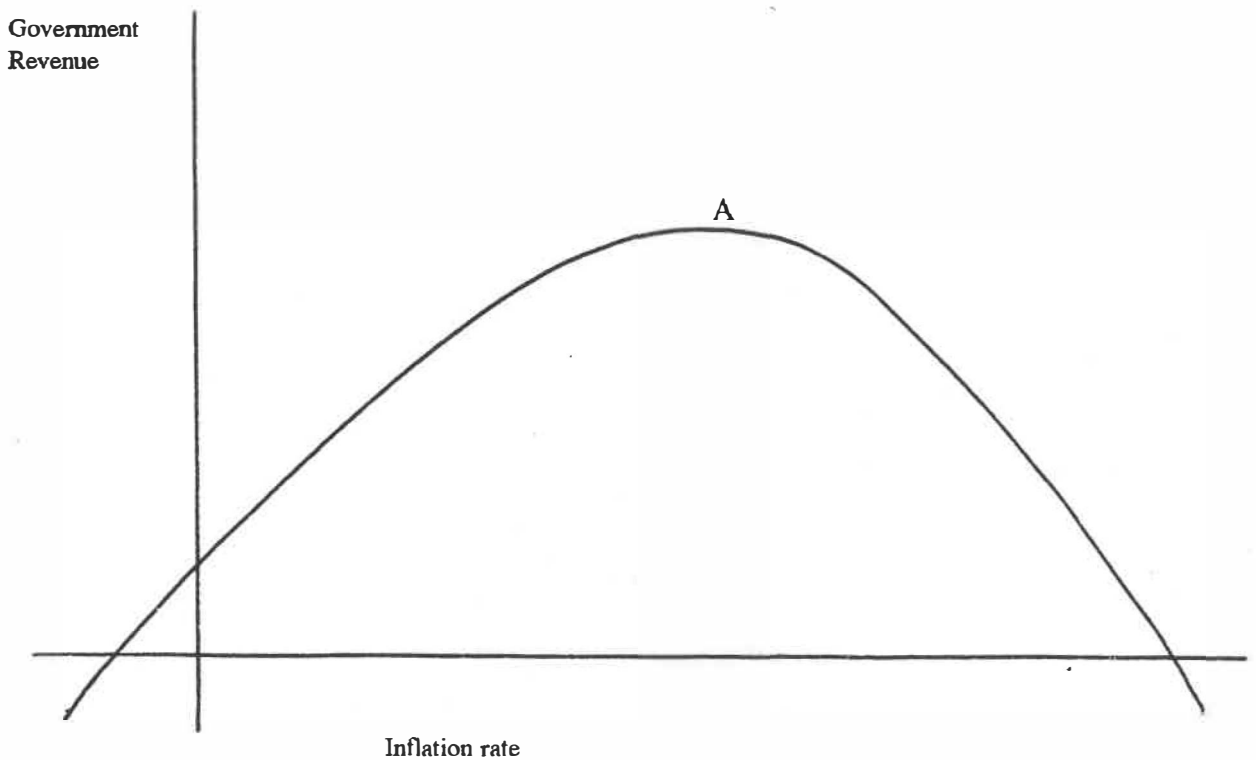


Source: Fischer and Easterly, 1990.

## Domestic financing

Deficits can be funded by two methods other than currency issue: either by increasing tax revenue or by selling interest-bearing bonds to the private sector. The issuance of domestic debt is often thought of as a way to avoid inflation and external crises, however it carries its own dangers if used to excess. It puts pressure on domestic interest rates and the tax burden. Government borrowing reduces the credit that would otherwise be available to the private sector, putting pressure on domestic interest rates. Even when interest rates are controlled, domestic borrowing leads to credit rationing and the crowding out of private sector investment.

The link between fiscal deficits and interest rates has been the centre of much debate recently in view of the high budget deficits in the United States. There is the view that large budget deficits that are financed by the sale of bonds will increase the demand for loanable funds and this causes high interest rates. Tanzi (1985) concluded that cyclically adjusted fiscal deficit has a significant effect on increasing the interest rate.[1] This finding was also supported by Cebula (1993) in his determination of whether budget deficits played a role in the escalation of interest rates that contributed to the failure of the savings and loan industry in the United States. The empirical evidence in this regard is not conclusive: some economists have found a positive significant effect of deficits on interest rates while others have failed to find any systematic support for such a link (Darrat, 1989-90).[2]

The macroeconomic effects of deficits are determined to a large extent by the direct response of private spending - consumption and investment - to changes in the deficit and its composition. There are two propositions in this regard: the first is that an increased budget

deficit increases consumption thereby reducing saving and investment; the second proposition claims that an increased budget deficit actually increases saving and investment (Easterly and Schmidt-Hebbel, 1993).

With regards to the first proposition, a tax reduction increases the public deficit through loss of revenue as well as by raising disposable income thereby boosting private consumption. This is consistent with the standard Keynesian hypothesis that consumers increase spending when their current income rises. If the tax cut is temporary the effect will be minimal according to the permanent income hypothesis, which states that only permanent or long-run tax cuts significantly affect consumer spending. The increased consumption will therefore mean lower private saving and investment (Easterly and Schmidt-Hebbel, 1993).

The second proposition that a reduction in taxes (a higher budget deficit) causes private saving to increase, is in contrast to this and highlights two drawbacks to the traditional Keynesian notion of using deficit-causing fiscal policies as a stimulus of economic activity (Friedman, 1978). The first drawback is highlighted by Barro's Ricardian equivalence hypothesis which contends that consumers foresee that a tax cut today, paid for by a deficit and borrowing, will lead to a tax increase in the future. Thus, in anticipation of the future tax increases, consumers save rather than spend the income from tax cuts. This argument rests on two main assumptions: that consumers are concerned with their own future welfare and that of their descendants and that consumers can shift consumption over time by borrowing or lending as they please.

The second proposition can be clarified further by the direct crowding-out hypothesis. This provides a second drawback to the Keynesian hypothesis. The crowding-out hypothesis

postulates that under conditions of strict credit and interest rate controls, with government having the first claim on credit, an increase in the deficit (a fall in government saving) reduces the credit available to the private sector, forcing consumption to contract and saving to rise.

Empirical evidence is split between both these propositions, but it must be noted that in the cases where the Ricardian explanation is supported, these countries had freely operating financial markets, so that consumers could shift their consumption over time in anticipation of future tax increases. Evidence shows that there are large differences in domestic private credit between countries with deregulated financial markets and those with stringent financial controls (Easterly, Rodriques and Schmidt-Hebbel, 1994). Mexico's experience illustrates the effects of financial repression under rising inflation. Financial controls intensified after 1981 as inflation soared, and the ratio of private credit to GDP dropped below already low levels. Following financial liberalisation, the ratio doubled in two years. Countries that abstained from repressive interest rate controls, such as Chile and Thailand, had very high levels of private credit, and they experienced superior investment growth performance in the late 1980s (see Easterly, Rodriques and Schmidt-Hebbel, 1994).

It is argued that real interest rates rise in response to higher domestic debt financing of deficits. Theory argues that its effect on private consumption is ambiguous because of potentially offsetting substitution, income, and wealth effects. However, it predicts unambiguously that private investment will decline with higher interest rates. If there is domestic financial repression of interest rates, the public sector will be given preferential access to domestic credit, thereby crowding out private investment. When interest rates are not regulated, deficit financing through domestic borrowing tends to push up real interest rates,

diminishing the profitability of investment by raising the user cost of capital thus resulting in lower private investment (Easterly and Schmidt-Hebbel, 1993).

The IS-LM curve argument of crowding out in a closed economy contends that a larger budget deficit, *ceteris paribus*, increases credit demand and hence domestic interest rates. Higher interest rate dampens the interest sensitive components of demand and lowers productive investment, leading to lower capital accumulation (unless the increase in the budget deficit was a result of an increase in public investment rather than public consumption). In an open economy, domestic interest rates are linked to world interest rates. Therefore, productive investment can be maintained despite the larger budget deficit. However, the effect of the increased deficit on the domestic credit market may lead the private sector to borrow more abroad where it can obtain debt more cheaply. Thus although productive investment is maintained, the country's future prosperity declines by a worsened net investment position and an increase in external debt-servicing requirements (Lachman, 1994). This depends, however, on whether the economy is well integrated with efficient international capital markets (Fischer and Easterly, 1990).

Some reservation has been expressed over the crowding out argument in a situation of underemployed resources. According to Lachman (1994), an increase in the budget deficit may crowd-in investment by simulated demand and by reducing excess capacity. Empirical evidence on this issue has been varied, with some countries experience consistent with the crowding-out hypothesis, while others show that private investment is insensitive to interest rates (see Easterly, Rodriques and Schmidt-Hebbel, 1994). In short, deficits under financial repression have stronger instantaneous impacts on private investment than those under decontrolled markets.

Apart from its effect on private spending, both consumption and investment, a deficit financed by domestic debt can also be particularly damaging in its effect on *public* spending. The evidence presented by Niskanen (1978) for the United States, Provopoulos (1982) for Greece, Khan (1988) for Pakistan and Tridimas (1985) for South Africa. These studies confirm the theoretical proposition, initially put forward by Buchanan and Wagner in 1977, that high public deficits contribute to a rapid increase in public expenditures. They argue that fiscal deficits may increase public spending either through the increased interest payments resulting from debt creation to finance the deficit, or because they reduce the perceived price of social services to the current generation of voters. This occurs conditional upon whether voters are not aware of the future tax liabilities that are a consequence of the current deficits and upon whether voters discount their future tax liabilities at a higher rate than the interest rate on public debt. If these conditionalities are not present, the consumers would reduce their current spending by the amount of the fiscal deficit, and there would be no effect of the deficit on aggregate demand. With regards to the first argument, that is, rising public debt leads to an increasing obligation to service the debt, the rising public debt service will also crowd out investment over time. This results in a "debt spiral", that is, a situation of high debt and high interest rates fuelled by the accumulation of debt. In the case of South Africa, debt is refinanced at maturity by issuing more debt, therefore it is the interest costs that are important for public expenditure when considering the cost of the debt (Gemmell, 1993). Indeed, interest payments on public debt consume a large part of South Africa's resources, and are at present the second largest expenditure item after education.

## External financing

A deficit financed with debt, whether domestic or foreign, will affect the trade surplus only if the reduced taxes affect the rate of private spending. If the private sector used the reduced taxes to acquire the new issues of internal debt (when the deficit is internally financed) or to acquire foreign assets (when the deficit is externally financed), there will be no effects on the rate of private spending, and therefore no relation between the deficit and the trade balance or the real exchange rate (Rodriguez, 1994). In this case the Ricardian equivalence proposition will be valid: that a tax reduction financed with debt will have no real effects on the economy if the public discounts the future taxes to service the debt and increases savings by the exact amount of the tax reduction.

Assuming the Ricardian equivalence does not hold, and that government deficits have a direct impact on government spending, there will be an effect on trade deficits and thus on the real exchange rate (RER). Easterly and Schmidt-Hebbel (1994) find a close association between fiscal and external balances and conclude that external deficits are primarily a result of fiscal deficits (also see Dornbush, 1985 and Sachs, 1989). The explanation is that countries with high deficits are more likely to control the foreign exchange market tightly driving up the premium created by such controls. Evidence confirms the prediction that fiscal deficits financed through external borrowing appreciates the real exchange rates. The magnitude of the change in the real exchange rate depends on the means by which the fiscal deficit is reduced, that is, whether the fiscal deficit is eliminated by increasing taxes or by reducing government expenses on traded and non-traded goods (Easterly and Schmidt-Hebbel, 1993). Khan and Lizondo (1987) show that

the required depreciation of the domestic currency will be smaller if the fiscal deficit is reduced by decreasing government expenditure, rather than by raising taxes. In the former, the required depreciation will be even less if the cuts in expenditure fall on traded rather than non-traded goods.

Other effects of foreign financing of the fiscal deficit can result in a balance of payments crisis. Because the use of international reserves has a clear limit, running down the level of foreign exchange reserves and the private sector's expectation that the limit is about to be reached, can motivate capital flight, and hence a balance of payments crisis. This is because the exhaustion of reserves will be associated with a currency devaluation. The devaluation is in response to rational speculative behaviour by the private sector to the unsustainable public policies (Fischer and Easterly, 1990).

It must be noted that the budget deficit and the trade deficit are not necessarily linked since the budget deficit can be financed by seigniorage and by domestic borrowing. But, as is the case in most developing countries, domestic capital markets are underdeveloped and inefficient, and thus domestic borrowing possibilities are limited. Therefore, most of them resort to external borrowing. Empirical results have shown a strong contribution of fiscal adjustment to external adjustment and accompanied by sharp reductions in the current account deficits resulted in massive depreciations of the real exchange rates (see Easterly, Rodriques and Schmidt-Hebbel, 1994).

## 2.4    Conclusion

This chapter has reviewed the theoretical issues of public sector deficits. Our review shows that the macroeconomic theory concerning fiscal deficits has undergone a considerable transformation since the Keynesian revolution. It has moved from the idea of the budget balances following the trends in the business cycle to using the fiscal balance as a means of fiscal adjustment. One important characteristic of the deficit, however, is that it is not an "unambiguous" measure of the effect of fiscal policy (Fischer and Easterly, 1990). The economic consequences of government deficits are usually alleged to be either inflationary (in the sense of raising prices) or deflationary (in the sense of depressing investment and economic growth), or both (Friedman, 1978). The empirical evidence is not conclusive. They depend on economic and structural factors at work. The ambiguous effect of the fiscal deficit on macroeconomic variables is also a result of the different approaches of the deficit measurement across and within countries. This has come about as a result of the many different macroeconomic consequences of deficits. The linkages between the fiscal deficit and macroeconomic variables, such as inflation, interest rates and current account deficits are addressed in the section that deals with the methods of financing the deficit.

The main causes behind the growth of the fiscal deficits in many developing countries has been that expenditures continue to grow in the face of stagnating revenues. Expenditure increases as the need for the provision of goods and services, investment spending on economic infrastructure, and interest payments on public debt continue to increase. The size of these expenditures are dependent on various factors, such as the size and density of the population,

level of public employment or government involvement in the state, rate of inflation, interest rates and the level of public debt, exchange rates, capital imports and the level of economic development. On the other hand, revenues continue to stagnate due to limited tax bases, the inefficiency of the tax system and the low levels of economic activity.

# CHAPTER THREE

# TRENDS AND CAUSES OF FISCAL DEFICITS

## 3.1 Fiscal Deficits

Government expenditure in South Africa has consistently exceeded revenues for the past three decades. Table 1 shows that government expenditure was about 16.6% of GDP in 1960/61. By 1994/95, the figure had increased to 30.8%. Over the same period the share of total government revenues also increased, but only from 13.6% of GDP in 1960/61 to 25.2% in 1994/95, leaving a large deficit in each year of the period. The deficit increased from some 3.0% in 1960/61 to 7.1% in 1968/69, and thereafter decreased steadily, reaching 2.4% in 1974/75. After this period, the deficit increased sharply, reaching 8.9% in 1977/78 but declined again to 1.6% in 1980/81, and then increased again to 6.6% in 1983/84. The mid- and late-1980s witnessed a steady decline in the deficit but the growth resumed in the early 1990s, reaching 9.8% in 1993/94, before dropping to 5.6% in 1994/95 (Table 1).

The deficits in the early 1990s show a significant trend increase caused in part by the recession and the severe drought experienced during the period. The deficits in the 1990s were also more disturbing than the deficits in the 1970s for two reasons. First, the real growth rate of the economy averaged some 4.5% per annum in the 1970s, whereas in the 1990s, the average growth rate was considerably lower, averaging -0.6% per annum. Second, in the late 1970s when the deficits were recorded, the general government was a net saver (Kusi and Fuzile,

**Table 1    General Government Finances, 1960/61 - 1994/95**

| YEAR | Total Expenditure | | Total Revenue | | Fiscal Deficit | |
|---|---|---|---|---|---|---|
| | amount (million rands) | % of GDP | amount (million rands) | % of GDP | amount (million rands) | % of GDP |
| 1960/61 | 853.1 | 16.6 | 700.5 | 13.6 | 152.6 | 2.96 |
| 1961/62 | 920.5 | 17.0 | 741.7 | 13.7 | 178.8 | 3.31 |
| 1962/63 | 1024.7 | 17.7 | 843.2 | 14.6 | 181.5 | 3.14 |
| 1963/64 | 1150 | 17.9 | 995.8 | 15.5 | 154.2 | 2.41 |
| 1964/65 | 1401.9 | 19.9 | 1163.3 | 16.5 | 238.6 | 3.39 |
| 1965/66 | 1530 | 19.9 | 1152.6 | 15 | 377.4 | 4.91 |
| 1966/67 | 1757.2 | 21.0 | 1285.2 | 15.4 | 472 | 5.64 |
| 1967/68 | 2046.2 | 21.9 | 1490.6 | 15.9 | 555.6 | 5.94 |
| 1968/69 | 2272.6 | 22.4 | 1558.3 | 15.4 | 714.3 | 7.05 |
| 1969/70 | 2413.4 | 21.2 | 1931.6 | 16.9 | 481.8 | 4.23 |
| 1970/71 | 2620.3 | 21.1 | 1993.8 | 15.9 | 626.5 | 5.02 |
| 1971/72 | 3423.9 | 24.8 | 2524.7 | 18.3 | 899.2 | 6.53 |
| 1972/73 | 3678.5 | 23.7 | 2886.5 | 18.6 | 792 | 5.09 |
| 1973/74 | 4845.4 | 25.2 | 3841 | 19.9 | 1004.4 | 5.23 |
| 1974/75 | 5357 | 22.6 | 4782.6 | 20.2 | 574.4 | 2.42 |
| 1975/76 | 7055 | 26.5 | 5469.9 | 20.5 | 1585.1 | 5.95 |
| 1976/77 | 8570 | 28.5 | 6372.7 | 21.2 | 2197.3 | 7.32 |
| 1977/78 | 10081 | 30.3 | 7133.7 | 21.4 | 2947.3 | 8.86 |
| 1978/79 | 11607 | 30.3 | 8397 | 21.9 | 3210 | 8.39 |
| 1979/80 | 12858 | 28.1 | 10206 | 22.3 | 2652 | 5.79 |

| 1980/81 | 14778 | 24.1 | 13827.1 | 22.5 | 950.9 | 1.55 |
|---------|-------|------|---------|------|-------|------|
| 1981/82 | 18476 | 25.9 | 14969.7 | 21.1 | 3506.3 | 4.93 |
| 1982/83 | 21889 | 27.2 | 17912.2 | 22.2 | 3976.8 | 4.94 |
| 1983/84 | 25893 | 28.3 | 19835.3 | 21.7 | 6057.7 | 6.62 |
| 1984/85 | 29642 | 27.6 | 24963.3 | 23.3 | 4678.7 | 4.36 |
| 1985/86 | 35400.3 | 28.0 | 31560 | 25.0 | 3840.4 | 3.0 |
| 1986/87 | 42198.3 | 28.3 | 36488.9 | 24.4 | 5709.4 | 3.8 |
| 1987/88 | 50359.5 | 28.9 | 40846.7 | 23.5 | 9512.8 | 5.5 |
| 1988/89 | 60998.3 | 29.1 | 52069.5 | 24.8 | 8928.7 | 4.3 |
| 1989/90 | 76396.4 | 30.7 | 68529.7 | 27.5 | 7866.6 | 3.2 |
| 1990/91 | 81378.3 | 28.7 | 72434.2 | 25.5 | 8944.1 | 3.1 |
| 1991/92 | 93559 | 29.2 | 78752.5 | 24.6 | 14806.5 | 4.6 |
| 1992/93 | 111465.1 | 32.1 | 84077.4 | 24.2 | 27387.7 | 7.9 |
| 1993/94 | 137043.9 | 34.7 | 98259.6 | 24.9 | 38784.3 | 9.8 |
| 1994/95 | 137363.7 | 30.8 | 112389.6 | 25.2 | 24974.1 | 5.6 |

Sources: Government of South Africa Budget Review, March, 1995

White Papers of Budget Speeches (various issues)

**Figure 2      Expenditure, Revenue and the Fiscal Deficit
(as a percentage of GDP)**
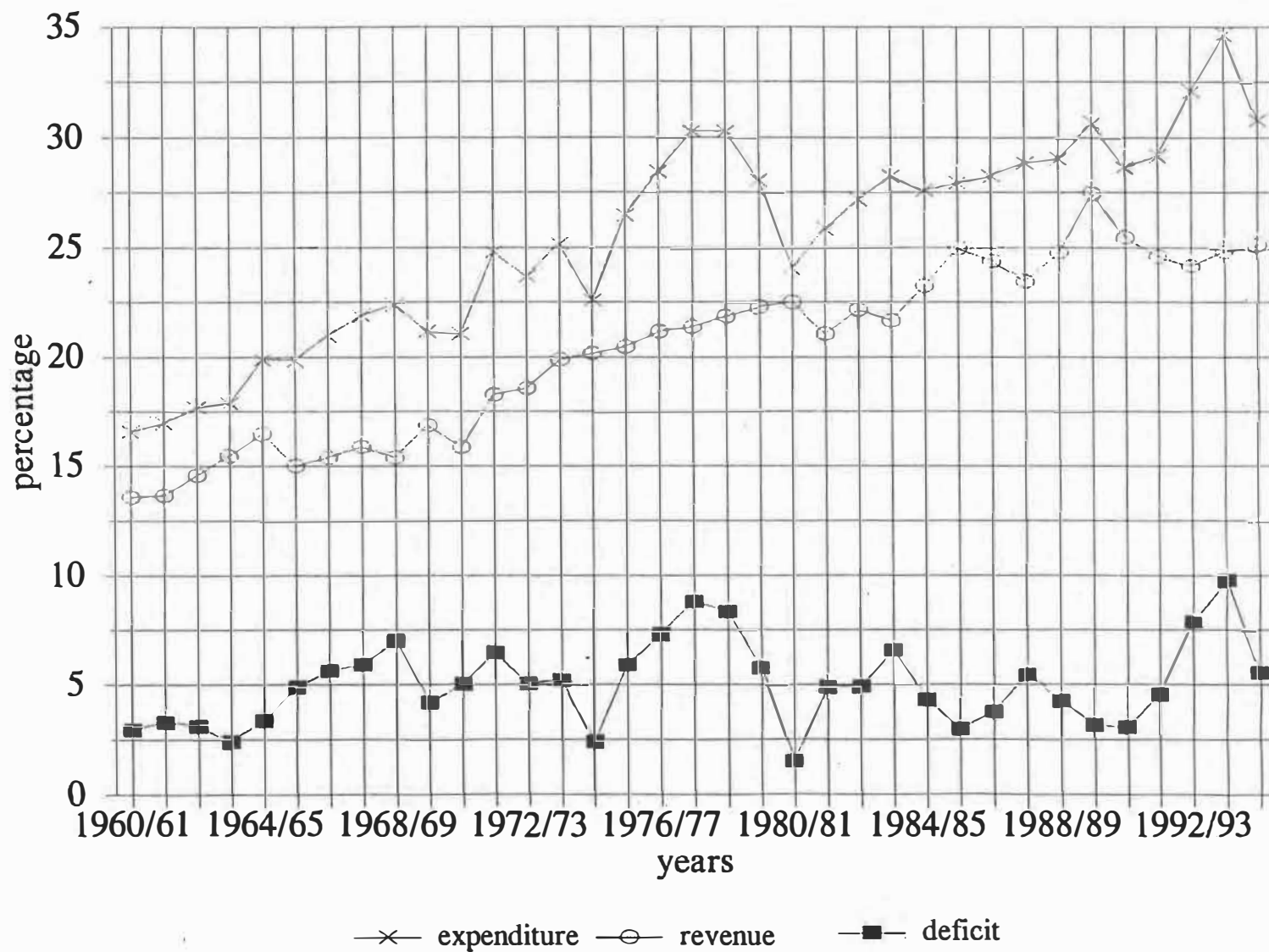
1996). From 1984/85, however, the government became a net dissaver, with the rate of dissaving reaching a level of 5,2% of GDP in 1993/94 (GSA, 1995). The decline in government savings was mainly a result of the narrow tax base, ever-increasing expenditure, and widespread political instability, which caused large capital outflows and the collapse of the capital account (Blumenfeld, 1992). The nominal interest rates also rose sharply in the mid-1980s, and this induced South African firms to borrow heavily from abroad where loans could be obtained more cheaply than at home. This resulted in both the private and the government sectors maintaining a high level of current spending by dissaving and borrowing (Truu and Contogiannis, 1994).

Table 1 also shows that for most part of the 1960/61 to 1994/95 period, the increases in government expenditure were accompanied by increases in revenue, indicating that deficits persisted not because of stagnation in revenue, but also because of the surge in expenditure growth. This suggests that the source of the fiscal deficits during the period could be attributed mainly to the growth in expenditure. Attempts to contain the expenditure growth were concentrated rather severely on the curtailment of capital spending and net lending. Between 1975/76 and 1991/92, for example, current government spending on goods and services as a percentage of total public spending increased by 7.9 percentage points. Over the same period, the share of capital spending in total government spending decreased by some 15.6 percentage points, causing the ratio of capital investment to current expenditure to fall from 33.2% in 1975/76 to 10.3% in 1991/92 (Kusi and Fuzile, 1996). While government capital investment declined over the period, the private sector's resources for financing domestic investment also declined. As a result, gross domestic investment as a percentage of GDP declined from an annual average of 23.4% in 1961/62 to 1984/85, to

19.5% in the period 1985/86 to 1991/92, with severe implications for the growth of the economy as well as tax revenues. The fiscal imbalances that beset South Africa during the review period can, thus, be viewed as a pincer movement. On the one hand, government expenditure escalated as the cost of administering the apartheid system increased. On the other hand, the economic inequality engendered by the apartheid system produced an economy with a very narrow tax base. The effect of this was that the government found itself constantly in a position of shortfalls between current expenditure and current revenue, with the deficits reaching 9.8% of GDP in 1993/94 (Kusi, 1995).

## 3.2    General Government Expenditure

The implementation of the apartheid policy had a very significant impact on the growth of government expenditure and hence the fiscal deficit. Between 1967/68 and 1974/75, government current expenditure increased by 261%, mainly as a result of the cost of administering the apartheid system. The development of separate political and economic structures for blacks, whites, Asians and coloureds resulted in the duplication of government services and functions. It also resulted in increased public employment levels, with serious implications for the public sector wages bill. For example, by the end of the 1980s, some two thirds of government spending were devoted to the payments of wages and salaries. In the Transkei, Bophutatswana, Venda and Ciskei (TBVC) states and self-governing territories, the number of employees rose from 3202 in 1965/66 to 63609 in 1977/78 (Bromberger, 1982), while in the central government, local administration and homelands together, the public employment level rose from 632000 in 1980/81 to 938000 in 1988/89 (Kusi and Kafe, 1996). A census carried out in 1991 showed that almost 15% of the country's entire

economically active labour force was absorbed by the state, and that more than half of the high level manpower resources was concentrated on the public sector (Central Economic Advisory Service (CEAS), 1993). Furthermore, upward pressure was placed on the public wage bill as black trade unions became successful in forcing the government to narrow the gap between black and white wages in an attempt to get rid of discriminatory pay discrepancies. However, this was, in most circumstances, unmatched by productivity increases. In addition, the absence of a properly designed system of checks and balances to coordinate and control the activities of the inter-racial "own-affairs" departments in order to ensure a proper integration of their activities with the central government agenda also created room for uncontrollable expenditures (Kusi and Fuzile, 1996).

The development of separate political and economic structures along racial lines did not only lead to an explosion of government services and functions, but also caused substantial increase in expenditures on security, education, health and housing. Defence expenditures more than doubled from 6% of total government spending in 1960/61 to over 15% in the 1970s as the government and the country as a whole became increasing isolated from the international community. Defence spending more than tripled from R3477 million to R11399 million during 1982/83 to 1991/92. Similarly, during the same period, expenditure on public order and safety increased from R1343 million to R9769 million. Expenditure on education also rose from 7% of total government expenditure in 1960/61 to 17.7% in 1982/83. By 1992/93, the share of education expenditure in the total government expenditure had exceeded 20% (Kusi and Kafe, 1996). It must be mentioned, however, that the high spending on education particularly during the 1970s and 1980s was not directed at improving the literacy ratio of the whole populace. Instead it was used mainly to promote

"white education" and to finance the fragmented administrative network. For example, by 1986, 20.4% of white South Africans over 20 years of age had attained standard 10 education (that is, twelve years of school), while the figure for their black counterpart was only 2%. In fact, by the year 1990, some 45% of the black population were either innumerate or completely illiterate (Kusi, 1995).

The main economic objectives of the government in the early 1960s were to stimulate development and to protect the balance of payments. In pursuit of these objectives, government capital spending increased by about 178% between 1960/61 and 1967/68, with the largest allocations to the railways and harbours, housing and water affairs. By the mid-1960s, the policy emphasis had shifted to economic stability and measures were being taken to encourage saving and prevent inflation (Browne, 1983). As a result, net domestic saving (comprising personal, corporate and government saving) averaged some 13% of GDP per annum in the 1966/67 to1975/76 period (Du Toit and Falkena, 1994). This resulted in surpluses in both the current and loan accounts at the end of 1967/68 (Browne, 1983). The late 1960s and early 1970s were therefore good years for the country and they formed part of the period which Browne (1983) termed the "years of fiscal expansion". The period 1968/69 to 1972/73 witnessed an expenditure surge on both the revenue and the loan accounts. The rate of growth in spending on the revenue account increased from 1.8% in 1968/69 to 32.4% in 1971/72, while capital spending rose by 26% in 1971/72 after a fall of 15% and 0.3% in 1969/70 and 1970/71, respectively. The growth in current spending was again driven by increases in defence expenditure, caused by the military build-up as tensions with Angola and Mozambique escalated (Kusi and Kafe, 1996).

The period of high growth and the long upward trend in per capita incomes ended in

1975/76 when the effect of the world recession was felt in the country (Van der Berg, 1992). This recession was exacerbated by the political uncertainty that was triggered by the uprisings in Soweto[4] in 1976 (Nattrass, 1990). These factors induced the need for greater provision of goods and services and especially on defence expenditure. These high levels of expenditure required were further increased by the rising rate of inflation. The OPEC oil embargoes of 1973 and 1979 added two oil price shocks to the already upwardly moving price level, causing the average annual rate of inflation to increase by 11.9% in 1976/77 to 1980/81 to 14% in1980/81 to 1985/86 (Truu and Contogiannis, 1994).

In response to the IMF's insistence on the maintenance of fiscal discipline as part of the preconditions for granting loans to the South African government, the 1976/77 budget ushered a new era of fiscal discipline. Attempts were made to reduce expenditure, however, these were concentrated rather severely on the curtailment of capital spending (Kusi and Kafe, 1996). The decline in investment spending became particularly pronounced after 1985, and was exercabated by the lack of capital inflows due to intensified financial sanctions. In July, 1985, a State of Emergency was declared in the face of black rebellion against the apartheid regime. To stave off the resultant capital outflow, the government reintroduced a two-tier exchange rate and placed a moriatorium on debt repayment (Truu and Contogiannis, 1994). The implications of this on the interest payments component of expenditure were severe, as foreign banks raised the interest rates on public debt as long as their funds were blocked (Harris, 1989). At this stage the country was virtually isolated and cut off from all external financial sources due to the unwillingness of the World Bank and other foreign financial institutions to provide further loans. This put pressure on the state's domestic financing sources, and as a result, recurrent expenditure began to be financed out

of loans. After 1985, the government realised that apartheid was coming to an end. As a result, government current expenditures on public sector wages and salaries, provision of goods and services, transfers and subsidies increased as the government tried to enhance its political base. Capital expenditure, on the other hand, declined from 17.4% of total general government expenditure in 1982/83 to 8.9% in 1992/93 (GSA, 1995). The cutback in investment spending had deleterious effects on productivity in domestic industry, especially in areas with high complementarity between labour and capital, such as the construction industry (Kusi and Kafe, 1996).

## 3.3    General Government Revenue

Apartheid produced, in South Africa, an economy with a low per capita income and hence a very narrow tax base. Up to the 1970s, South Africa had one of the most skewed distributions of income in the world (Gini coefficient of 0.71) as a result of the apartheid system (Abedian and Standish, 1992). Per capita incomes for the whites increased from R5139 in 1960 to R7373 in 1970, representing an increase of 43%, while the corresponding increase for blacks was only 13% (Bundy, 1992). The inhibition of black advancement imposed significant constraints on the country's growth capacity. It also narrowed the country's tax base, limited the market size and access to resources, and restrained the standard of living. As with many developing countries, the dominant proportion of the government revenue consisted of tax revenue, while transfers and income from the sale of goods and services are comparatively insignificant (Kusi and Fuzile, 1996). Yet, only 25% of the economically active population earned 65% of income and paid virtually all the personal income tax (Loots, 1991). The discrimination and inadequate provision and

acquisition of skills resulted in a major section of the labour force becoming unskilled. The resultant shortage of skilled labour led to an increased underutilisation of the available labour force (Smit, 1992). Had the bulk of the labour force been absorbed into the formal sector, it would have had positive consequences for the budget by widening the tax base (CEAS, 1993).

The tax base also weakened as the country's growth capacity deteriorated. The high growth in government consumption expenditure crowded out government capital spending, resulting in a switch in the expenditure-mix against investment goods, particularly after the mid-1980s. Furthermore, the net outflow of capital, amounting to some 2.9% of GDP per annum between 1981/82 to 1994/95 in real terms, following the foreign debt crisis of 1985, had a serious effect on the country's growth capacity, (Kusi and Fuzile, 1996). The country, therefore, had to depend on domestic resources in the form of personal and corporate savings. Unfortunately, the increased tax burden to finance the increasing expenditures, had risen excessively and had impacted adversely on the domestic savings ratio. For example, from an average of 13% of GDP per annum in the 1960s and 1970s, net private domestic saving fell to an average of 9% per annum in the 1980s and to a low of 3% per annum in 1990/91 to 1993/94. These declines were exacerbated by the high inflation rate (estimated at about 14.5% per annum on average in the 1980s), volatile interest rate cycles, and exchange rate depreciation, as well as the intensified labour-related problems and associated production losses (Du Toit and Falkena, 1994). Thus, while government capital spending declined over the period, the private sector's resources for financing domestic investment also dwindled. Consequently, the share of gross fixed investment in GDP declined with severe implications for the growth of the economy and thus tax revenue (Kusi and Kafe,

1996).

The narrow tax base and the fluctuating and unpredictable revenues from gold and other primary products together limited the ability of the authorities to employ taxes as fiscal regulators. To address this issue, the fiscal authorities made their first major attempt to reform the system of taxation in the country in the 1968/69 to 1972/73 period. The Schumann Commission was appointed to review the financial relations between the central government and the provinces. The Commission's report submitted in 1964 recommended, among others, that personal income tax should be accrued to the provinces. The government, however, felt this source of revenue was too important to relinquish and so sought an alternative solution. A formula was introduced in 1971 by which the government granted subsidies according to the difference between the needs of the various provinces and their capacity to pay. This formula, often referred to as the Du Plessis formula, still formed the basis of subsidies to the provinces in the 1980s (Kusi and Kafe, 1996).

The Franzen Commission was appointed in 1967 to investigate into the taxation system in South Africa and to make recommendations for reform. Among others, the Franzen Report recommended that the country should broaden the tax base by introducing indirect forms of taxation, reduce individual income tax, and introduce a form of capital gains tax. The efficiency of the tax administration also came under consideration, and the Commission recommended that the central government take over the task of levying and collecting the provincial personal income tax. In response to the Commission's recommendations, the maximum marginal income tax rate was reduced from 78% in 1972/73 to 68% in 1974/75 (Browne, 1983). Between 1968/69 and 1974/75, current revenue rose almost proportionately with current expenditure, as a result of the increased

income tax revenues and the effects of "fiscal drag" on personal income tax as well as revenues associated with the rise in gold prices (Browne, 1983).

The late 1970s and early 1980s saw an increase in revenue of some 149% (Browne, 1983). This was mainly attributed to the introduction of general sales tax (GST) in 1978 and the phasing out of the old sales duty. This indirect form of taxation proved to be a success for the economy in that it provided a broader tax base and had built-in growth as consumption expenditure increased (Browne, 1983). The introduction of GST made it possible for the income tax rate to be lowered further to 50% over the following years. In addition, a special duty was imposed on all imports in 1977/78, which helped raise import tax revenues from R0.3 million in 1976/77 to R600 million in 1982/83 (GSA, 1996).

The late 1970s witnessed undesirable bracket creep effects on productivity and an increased tax burden on the middle income group as a result of high inflation rates on the progressive income tax structure. Under pressure from the general public that the tax system had become increasingly unfair and complicated, the government appointed the Margo Commission in November 1984 to enquire into the tax structure of the country. In its report, the Commission recognised the need to increase tax contributions to total real revenue, since domestic sources of borrowing were being diminished. It recommended that the income tax base be broadened and the marginal rates of personal and corporate income taxes be held as low as possible. To achieve a tax structure characterised by low rates and an ever-increasing base, a major source of new revenue had to be found. For this purpose, the Margo Commission recommended that GST be transformed into an invoice-type value added tax (VAT), at a single rate on a very broad base, including food.

Following the Commsission's recommendations, the VAT was introduced in 1990

at 13% and was subsequently lowered to 10% (Kusi and Fuzile, 1996). As a result, revenues accounted for 20.5% of GDP in 1975/76 and increased to 24.9% in 1993/94. The share of individual income tax in total revenue increased from 20% in 1980/81 to 38% in 1993/94. Similarly the contribution of indirect taxes to total revenues increased from 13% to 26% over the same period. In contrast, company taxes reduced from 22% of total revenue in 1980 to 12% in 1993 (Mohr and Fourie, 1995). However, the revenue growth was slower than the increase in expenditure during this period, particularly during the 1989 to 1993 recession. This necessitated an increase in the public sector borrowing requirement leading to an escalation of the public debt and the associated interest costs.

In June 1994, the government appointed the Katz Commission to inquire into certain aspects of the tax structure of the country. In its interim report, the Commission recommended (i) a personal income tax structure that avoids discrimination on grounds of gender and marital status, and which imposes an equitable bearing on the fiscal burden and prevents unnecessary bracket creep; (ii) internationally competitive and domestically appropriate corporate tax rates; (iii) an efficient VAT system; (iv) adequate poverty relief with effective delivery to overcome the existence of poverty and compensating also for the regressive effect of VAT; (v) an efficient tax administration that prevents distortions and secures the proper collection of taxes that are legally due, in a manner considered to be fair, constitutionally defensible, and promotes certainty for economic planning by the business community; (vi) a tax system that is friendly to foreign investors, while not discriminating against domestic investment and trade; (vii) a tax system that is not burdensome or interventionist, yet provides the fiscus with the necessary revenues for government expenditure (Katz Commission Report, 1994).

Following the Commissions recommendations, the government introduced in 1994/95 and 1995/96 fiscal years, a uniform personal income tax structure with new rate adjustments and base broadening. The income tax system of the former homelands and self-governing territories were also harmonised with those of the Republic of South Africa, and a once-off tax amnesty granted to those who were not previously registered as tax payers. The basic corporate taxation rate was maintained at 35%, while the secondary tax on companies (STC) was reduced to 12.5%. Non-resident shareholders tax was scrapped in 1996, and all surcharges on intermediate and capital goods have been removed. Furthermore, the government took steps to increase the efficiency of the tax administration in an attempt to reduce tax avoidance and tax evasion (Kusi and Fuzile, 1996). The impact of the tax reforms on revenue growth has been significant. Revenues rose from 24.6% of GDP in 1992/93 to 25.2% in 1994/95 (Table 1).

## 3.4 Conclusion

The fiscal record of South Africa as outlined in this chapter reflects an unmistakeable process of deterioration. Government expenditure rose sharply in the 1960/61 to 1994/95 period, mainly as a result of the phenomenal cost of administering the apartheid system, and increased expenditures on subsidies and drought assistance as well as expenditure to provide for the growing socio-economic needs of the country. The upward trend in expenditure growth has also been attributed to the rise in the cost of education, administration, defence and interest payments and such costs have been exacerbated by the rate of inflation and exchange rate fluctuations. At the same time, although revenue has shown a gradual upward trend, it has not been able to keep pace with the growing government expenditure. Revenues

from taxation have been limited due to the very narrow tax base and the very high tax burden borne by the individual and the business sector. The tax system undermined the incentives of individuals to work harder and business to invest in job creating capital investments. Non-tax revenue has also been undermined by the low level of domestic activity. The persistent shortfall between total revenue and expenditure resulted in the growing need to borrow causing the level of public debt and associated interest costs to rise significantly. As a result the fiscal deficit has persisted and grown over the past three decades.

# CHAPTER FOUR

# EMPIRICAL ANALYSIS

## 4.1    The Framework

In chapter two, we saw that high levels of budget deficits are  attributed to both fiscal and structural factors. The fiscal variables  generally comprise of the expenditure and revenue components of the budget while the structural factors include such things as the level of economic development or growth, inflation, interest rates, exchange rates, demographic changes, income distribution, unemployment, and the tax system. The structural factors explain why some countries are more likely to incur larger budget deficits than others.

The approach we use to analyse the determinants of budget deficits in South Africa is based on the framework developed by Marshall and Schmidt-Hebbel (1991). This framework has also been used by Kusi (1996) to investigate the fiscal impact of exchange rate adjustment in Ghana and Cote d'Ivoire. The approach starts by identifying the main budgetary items of the conventional government budget deficits, categorising them into expenditure and revenue components. By making use of estimated expenditure and revenue functions, changes in the conventional budget deficit are decomposed according to changes in their fiscal and structural determinants.

## 4.2  Deficit Decomposition

The decomposition process is based on the behavioural structure of the fiscal variables

and it is performed for the main above-the-line budgeting items, while the remaining budgeting items are captured as residuals. The starting point of the process is the conventional fiscal deficit (FD), which is defined as the difference between total government expenditure (GE) and total government revenue (TR):

$$FD = GE - TR \tag{1}$$

The total expenditure comprises of non-interest current expenditure (NIE), interest payments on public debt (IP), and capital expenditure (KGE). The revenue side is made up of direct tax revenues (TD), indirect tax revenues (TI) and revenues from non-tax sources (NTR). That is:

$$GE = NIE + IP + KGE \tag{2}$$

$$TR = TD + TI + NTR \tag{3}$$

Substituting equations (2) and (3) into (1) we obtain the following:

$$FD = (NIE + IP + KGE) - (TD + TI + NTR) \tag{4}$$

Changes in any one or all of the items on the right handside will lead to a change in the fiscal deficit. Equation (4) can, therefore, be rewritten as:

$$\Delta FD_t = \Delta NIE_t + \Delta IP_t + \Delta KGE_t - \Delta TD_t - \Delta TI_t - \Delta NTR_t \tag{5}$$

where $\Delta$ represents changes.

Table 2 shows the list of the budgetary items of the conventional fiscal deficit, the methodology of their estimation, and the macroeconomic or structural variables used in the estimation. On the expenditure side, four variables - non-interest current expenditure, interest payments on domestic debt, interest payments on foreign debt, and capital expenditure - are estimated, using the OLS estimation technique. The interest payments on public debt are broken down into their domestic and foreign components to allow for the effect of the

exchange rate changes on the latter (that is to capture the valuation effect of exchange rate changes on the budget). Three revenue items - direct tax revenue, indirect tax revenue and non-tax revenue - are estimated, also using the OLS estimation technique.

**Table 2    Composition of government budgetary items**

| Variable | Method | Structural or macroeconomic variables |
|---|---|---|
| Non-interest current expenditure | OLS estimation | central government employment levels total population domestic consumer prices (CPI) |
| Interest payments on domestic public debt | OLS estimation | domestic interest rate real domestic public debt stock |
| Interest payments on foreign public debt | OLS estimation | foreign interest rate real foreign public debt stock real exchange rate |
| Capital expenditure | OLS estimation | level of economic activity (GDP) public capital imports real exchange rate |
| Direct tax revenue | OLS estimation | domestic income (GDP) efficiency of the tax system |
| Indirect tax revenue | OLS estimation | private consumption expenditure real exchange rate efficiency of tax system |
| Non tax revenue | OLS estimation | level of domestic activity (GDP) |

## 4.3    The Behavioural Fiscal Functions

### Non-interest current expenditure

Non-interest current expenditure is specified to relate to the level of public employment, total population, and domestic consumer prices. That is:

$$NIE_t = a_o + a_1 PEMPL_t + a_2 POP_t + a_3 CPI_t \tag{6}$$

where,

NIE = non-interest current expenditure (comprising of expenditure on wages and salaries, expenditure on other goods and services, transfer payments and subsidies)

PEMPL = public sector employment level

POP = total population

CPI = consumer price index

The level of public sector employment is considered as one of the primary causes of the surge in government spending in South Africa. Increases in the public sector employment level arose out of the need to administer the proliferated institutions and sub-government structures created by the apartheid system. The development of separate political and administrative structures along racial lines resulted in the duplication of public services and bureaucratic redundancies. The associated increases in the level of public employment had serious implications for the public sector wages bill and thus current expenditure. The public sector employment variable is therefore included in equation (6) to capture the effects of the expenditure on wages and salaries on the non-interest current expenditure. Since high levels of employment lead to a high wage bill and thus high current expenditure, the coefficient $a_1$ is expected to be positive.

The apartheid system did not only lead to an increase in the direct costs of the duplication of government services and functions, but also in the indirect costs, such as expenditures on housing, education, health, security and defence. The spending pressures

on these government services were reinforced as the government sought to remove the backlogs created by demographics, discrimination and suppression of urbanisation (McGregor, 1990). The competing pressures to spend contributed to the increases in domestic prices, which in turn had an enormous impact on the level of current expenditure. Although the aggregate demand schedule is downward sloping suggesting that higher prices will lead to lower demand, and hence lower expenditure levels, recurrent expenditure by the government is not a choice variable. The government cannot simply cut expenditure on the basic needs of the people simply because of increasing costs, since public goods have relatively low elasticities. Thus a positive association between rising prices and total current expenditure is expected.

The population variable has been included in the non-interest current expenditure equation to capture the expenditure effect of demographic changes, including expenditure on transfers and subsidies. A fundamental problem faced by South Africa is the provision of jobs and the means of survival for its rapidly growing population. The higher the rate of growth of the population, the greater the need for the government to make provision for the associated socio-economic needs. Such needs may include social pensions, unemployment compensation, expenditure to redress the race-based disparities in employment levels, disability allowances, and other social grants. We expect a positive relationship between the population variable and non-interest current expenditure.

## Domestic interest payments

The domestic interest rate and the stock of domestic debt are assumed to be the principal factors determining the level of domestic interest payments.

$$IP_{Dt} = b_o + b_1 i_{Dt} + b_2 RDD_t \tag{7}$$

where,

$IP_{Dt}$ = domestic interest payments

$i_{Dt}$ = domestic interest rate

$RDD_t$ = real domestic debt stock

Increased interest rates imply an increasing cost of debt-service and as more debt is accumulated, there will be an increased obligation to service the debt. The government of South Africa has been running a budget deficit since 1960, and has been financing these deficits mainly through domestic debt issuance. As the government resorts to the debt-financed expenditure, total credit to the private sector reduces, thereby crowding out private sector investment. The debt-finance process also leads to financial repression and interest rate increases, which in turn causes debt-service costs to rise. For this reason, we expect the interest rate coefficient, $b_1$, to be positive. The coefficient $b_2$ is also expected to be positive as larger debts imply larger servicing costs.

## Foreign interest payments

Interest payments on foreign debt are assumed to be positively related to both the foreign interest rates, real stock of foreign debt, and real exchange rate. That is:

$$IP_{Ft} = c_o + c_1 i_{Ft} + c_2 RFD_t + c_3 RER_t \tag{8}$$

where,

$IP_{Ft}$ = foreign interest payments

$I_{Ft}$ = foreign interest rate

RFD  = real foreign debt (in US dollars)

RER  = real exchange rate

The real exchange rate is included in the interest payments on foreign debt to capture the valuation effect of the exchange rate adjustment on the government budget. An increase in the real exchange rate implies a depreciation or devaluation of the domestic currency. This would imply a larger stock of debt in domestic terms arising from the valuation effect and hence greater interest payments. We therefore expect the relationship between the foreign interest payments and the real exchange rate to be positive, that is, $c_3 > 0$. As in equation (7), the coefficients $c_1$ and $c_2$ are expected to be positive.

## Capital expenditure

Government capital expenditure is assumed to relate positively to the real exchange rate, capital imports and the level of domestic economic activity.

$$KGE_t = d_o + d_1\,RER + d_2\,KGM + d_3\,GDP \qquad (9)$$

where,

KGE  =    capital expenditure

RER  =    real exchange rate

KGM  =    capital imports (in US dollars)

GDP  =    level of domestic economic activity (proxied by GDP)

High levels of economic growth requires increases in infrastructural facilities, such as, telecommunications, roads, bridges, hospitals, railway systems, which support domestic

production. The level of economic activity has therefore been used as a determinant of capital expenditure. In the past if economic growth has been slow or stagnant, the government has had to cut back on capital expenditure in order to use the funds to provide for the basic needs of the people. When economic growth is high the economy can afford to increase their capital expenditure in order to enhance development and the infrastructure of the economy. In this case we would expect the coefficient $d_3$ to be positive. On the other hand, the sign of $d_3$ could also be negative. If there is a decline in economic growth the government may try to "kick-start" the economy by building a strong productive base. This would involve an increased spending on capital imports which may result in an increase in government expenditure.

Capital imports have been used in many developing countries to promote economic growth. South Africa, for example, has used foreign capital to develop its mining, manufacturing, commerce and other sectors. As we have mentioned earlier, increases in the public sector capital imports will increase the level of government capital expenditure. Therefore, we expect the coefficient, $d_2$ to be positive.

The impact of the exchange rate fluctuations on the level of government expenditure is captured by the inclusion of the real exchange rate variable in equation (9). If the real exchange rate increases, that is, if the real value of the rand depreciates, capital imports would become more expensive in domestic currency terms. Hence government outlays on capital spending would rise. Therefore, changes in the real exchange rate and capital expenditure are assumed to be positively related.

**Direct tax revenue**

Direct tax revenue is specified to relate to domestic income (the proxy base) and the tax system (proxied by the efficiency of the tax administration).

$$TD_t = e_0 + e_1 GDP_t + e_2 TADM_t \qquad (10)$$

where,

TD = direct taxes

GDP = domestic income (proxy tax base)

TADM = efficiency of the tax administration (defined as the ratio of actual tax collections to budgeted tax levels)

South Africa has a narrow direct tax base and thus a low tax potential. This is a direct consequence of the apartheid policy of previous regimes. During the apartheid era, legislations passed to segregate the racial groups resulted in economic segmentation and unequal access to resources, leading to huge income inequalities between the racial groups. This seriously affected the tax base in the sense that the bulk of the income taxes had to be paid by the few white South Africans who controlled the resources and thus the incomes generated in the country. We expect a positive relationship between domestic income and direct tax revenues, because as the income increases, so does the revenue collections from income taxes.

A narrow tax base forces governments to raise the tax burden, which creates disincentives for productivity and promotes tax avoidance and evasion. In this context, increases in tax revenues will then depend on the efficiency of the tax system. That is, the

more efficient is the tax system, the higher the tax collections will be. Hence we expect the coefficients $e_2$ to be positive.

## Indirect tax revenue

Private consumption expenditure, the real exchange rate and the efficiency of the tax system have been assumed to determine indirect tax revenues. That is,

$$TI_t = f_0 + f_1 PCONS_t + f_2 RER_t + f_3 TADM_t \tag{11}$$

where,

| | | |
|---|---|---|
| TI | = | indirect tax revenue |
| PCONS | = | private consumption expenditure (tax base) |
| RER | = | real exchange rate |
| TADM | = | efficiency of the tax system |

Private consumption expenditure is used as a proxy for the indirect tax base since the amount of indirect tax obtained from individuals would be dictated by their consumption behaviour. Indirect taxes, such as the general sales tax (GST), value added tax, excise duties, customs duties, petroleum taxes, are all levied on consumption expenditure. Indirect taxation thus provides a broader tax base and has a built in growth as consumption expenditure increases. We therefore expect the coefficient $f_1$ to be positive.

The real exchange rate is used as a relevant factor to capture the effects of the trade-based taxes on tax revenues. A depreciation of the exchange rate increases the domestic prices of imports. This has two effects on tax revenues. First, the relative price increases

adversely affect the demand for imports (that is, import value) and thus, indirectly reduce the revenues from tariffs on imports. Second, the increases in the value of imports (converted in domestic currency terms) imply higher tax revenues for given tax rates. The net effect of the exchange rate depreciation then depends on the components of the import basket and their relative demand elasticities. Given the imposition of the multitude of tariffs on imports and the fact that the bulk of the imports, during the period under review, were capital and intermediate goods with low elasticities, we expect the positive effect of the exchange rate changes on the tax revenue to be stronger than the negative effect, thereby producing an overall positive revenue impact. The coefficient $f_2$ is therefore expected to be positive.

The efficiency of the tax system is expected to impact positively on the indirect tax revenue in the same way as it does for the direct tax revenue.

## Non-tax revenue

Non-tax revenue is assumed to relate positively to the level of domestic economic activity.

$$NTR_t = g_o + g_1 GDP_t$$

where,

    NTR  = non tax revenue

    GDP  = the level of domestic economic activity

The higher the rate of economic growth, the more fees, charges, licences and levies that would be collected. Hence a positive relationship is assumed to exist between non-tax revenue and the level of economic activity.

## Table 3    Specification of behavioural fiscal functions

Non interest payment expenditure function:

$$NIE_t = a_o + a_1 PEMPL_t + a_2 POP_t + a_3 CPI_t \tag{6a}$$
$$\Delta NIE_t = a_1 \Delta PEMPL_t + a_2 \Delta POP_t + a_3 \Delta CPI_t + resid_t \tag{6b}$$

Domestic interest payments function:

$$IP_{Dt} = b_0 + b_1 i_{Dt} + b_2 RDD_t \tag{7a}$$
$$\Delta IP_D t = b_1 \Delta i_{Dt} + b_2 \Delta RDD_t + resid_t \tag{7b}$$

Foreign interest payments function:

$$IP_{Ft} = c_o + c_1 i_{Ft} + c_2 RFD_t + c_3 RER \tag{8a}$$
$$\Delta IP_{Ft} = c_1 \Delta i_{Ft} + c_2 \Delta RFD_t + C_3 \Delta RER + resid_t \tag{8b}$$

Capital government expenditure function:

$$KGE_t = d_o + d_1 RER_t + d_2 KGM_t + d_3 GDP_t \tag{9a}$$
$$\Delta KGE_t = d_1 \Delta RER_t + d_2 \Delta KGM_t + d_3 \Delta GDP_t + resid_t \tag{9b}$$

Direct tax revenue function:

$$TD_t = e_o + e_1 GDP_t + e_2 TADM_t \tag{10a}$$
$$\Delta TD_t = e_1 \Delta GDP_t + e_2 \Delta TADM_t + resid_t \tag{10b}$$

Indirect tax revenue function:

$$TI_t = f_o + f_1 PCONS_t + f_2 RER_t + f_3 TADM_t \tag{11a}$$
$$\Delta TI_t = f_1 \Delta PCONS_t + f_2 \Delta RER_t + f_3 \Delta TADM_t + resid_t \tag{11b}$$

Non tax revenue function

$$NTR_t = g_o + g_1 GDP_t \tag{12a}$$
$$\Delta NTR_t = g_1 \Delta GDP_t + resid_t \tag{12b}$$

where,

Endogenous variables:

| | | |
|---|---|---|
| NIE | = | non-interest current expenditure |
| $IP_D$ | = | domestic interest payments |
| $IP_F$ | = | foreign interest payments |
| KGE | = | government capital expenditure |
| TD | = | direct tax revenue |
| TI | = | indirect tax revenue |
| NTR | = | non-tax revenue |

Exogenous variables:

| | | |
|---|---|---|
| PEMPL | = | public employment |
| POP | = | population |
| CPI | = | consumer price index |
| $i_D$ | = | domestic interest rate |
| RDD | = | real domestic debt stock |
| $i_F$ | = | foreign interest rate |
| RFD | = | real foreign debt stock |
| RER | = | real exchange rate |
| KGM | = | government capital goods imports |
| GDP | = | level of domestic activity |
| TADM | = | efficiency of the tax system |
| PCONS | = | private consumption expenditure |

Substituting the "b" equations in Table 3 into equation (5), we obtain:

$$\Delta FD_t = (a_1 \Delta PEMPL_t + a_2 \Delta POP_t + a_3 \Delta CPI_t) + (b_1 \Delta i_{Dt} + b_2 \Delta RDD_t)$$

$$+ (c_1 \Delta i_{Ft} + c_2 \Delta RFD_t + c_3 \Delta RER_t) + (d_1 \Delta RER_t + d_2 \Delta KGM_t + d_3 \Delta GDP_t)$$

$$- (e_1 \Delta GDP_t + e_2 \Delta TADM_t) - (f_1 \Delta PCONS_t + f_2 \Delta RER_t + f_3 \Delta TADM_t)$$

$$- (g_1 \Delta GDP_t) + resid_t \qquad (13)$$

Equation (13) can be rewritten as:

$$\Delta FD_t = a_1 \Delta PEMPL_t + a_2 \Delta POP_t + a_3 \Delta CPI_t + b_1 \Delta i_{Dt} + b_2 \Delta RDD + c_1 \Delta i_{Ft}$$

$$+ c_2 \Delta RFD_t + d_2 \Delta KGM_t - f_1 \Delta PCONS_t + (c_3 + d_1 - f_2) \Delta RER_t +$$

$$(d_3 - e_1 - g_1) \Delta GDP_t + (e_2 + f_3) \Delta TADM_t + resid_t \qquad (14a)$$

or:

$$\Delta FD_t = a_1 \Delta PEMPL_t + a_2 \Delta POP_t + a_3 \Delta CPI_t + b_1 \Delta i_{Dt} + b_2 \Delta RDD + c_1 \Delta i_{Ft}$$
$$+ c_2 \Delta RFD_t + d_2 \Delta KGM_t - f_1 \Delta PCONS_t + \alpha \Delta RER_t + \beta \Delta GDP_t$$
$$+ \delta \Delta TADM_t + resid_t \tag{14b}$$

where,

$$\alpha = (c_3 + d_1 - f_2)$$
$$\beta = (d_3 - e_1 - g_1)$$
$$\delta = (e_2 + f_3)$$

Equation (14b) gives the deficit impact of the changes in the structural or macroeconomic determinants.

**CHAPTER FIVE**

**RESULTS AND DISCUSSION**

## 5.1 Introduction

The results of the estimated behavioural fiscal variables and the deficit effects of the changes in the structural determinants are presented and discussed in this chapter. The fiscal model was estimated using time series data for the period 1960/61 to 1994/95. All the behavioural functions were estimated in logarithm terms using the ordinary least squares (OLS) technique. The computer package used in estimating the model is SHAZAM version 7 (White, 1978). The test of significance of the estimated coefficients was undertaken at the 10% level using the two-tail test procedure.

## 5.2 Data Sources and Reliability

Estimation of the parameters of the fiscal equations required time series data on the consolidated general government expenditure, and their respective components. In addition, time series data on the structural factors, namely: public employment levels, total population, domestic consumer price index, the United States consumer price index, domestic and foreign interest rates and debt stocks, the nominal exchange rate, government capital imports, gross domestic product, private consumption expenditure and budget estimates of expected tax revenue were required for each year. These data were obtained from four main sources:

(1)     The Department of Finance

Various issues of the *Central Government White Paper Reviews* provide data on total government expenditure and revenue for the period prior to 1973. The Department of Finance also publishes the *South African Budget Review*. All data on the fiscal variables were supplemented and cross-checked for consistency using time series data on public finances contained in the 1995 publication.

(2)     Reserve Bank of South Africa (RBSA)

The RBSA published *The Public Finance Statistics of South Africa, 1946-1993* as a supplement to the March 1994 *Quarterly Bulletin*. This publication contains time series data on all public finances. Total government expenditure and revenue for the period 1973 to 1993 were obtained from this publication. The *South Africa's National Accounts, 1946 - 1993* was also published by the South African Reserve Bank as a supplement to its June 1994 Quarterly Bulletin of the Bank. From this publication, time series data on gross domestic product at current and constant 1990 prices were obtained, and the GDP deflator was computed from this source. Data on private consumption expenditure and debt stock were also obtained from this publication. The *Labour, Prices and other Selected Economic Indicators* was published as a supplement to the *South African Reserve Bank Quarterly Bulletin*, September 1994. This document provides data on public employment. Public employment in the non-agricultural sector was taken from this source as a proxy for the total public sector employment level, because consistent time series data on the latter were not available. Since public employment in the agricultural sector is very small, we do not expect to significantly underestimate the public employment figures. The June 1996 issue of the *South African Reserve Bank Quarterly Bulletin* provides data for some of the fiscal variables

up to the year 1994. Various issues of this publication were used to obtain a time series for the budgeted estimates of tax revenues.

(3)    Central Statistical Services

Among others, the CSS publishes annually, the *South African Statistics*, which contains time series data on all socio-economic variables including data on public finance. Various issues of this publication provided data on total population and capital imports. The time series data on capital imports were converted into US dollar terms by using the nominal exchange rate.

(4)    International Monetary Fund

*The International Financial Statistics Yearbook* is published annually by the International Monetary Fund. This document contains time series data on the nominal exchange rates, consumer price indices, etc., of all member countries of the Fund. The long term government bond yield was obtained from this publication and was used as a proxy for the domestic interest rate.

Few of the data for the empirical analysis were obtained from our own calculations. These include:

(a)    The real exchange rate:

The real exchange rate was calculated as : nominal exchange rate x $\dfrac{\text{US CPI}}{\text{SA CPI}}$

(b)    Efficiency of the tax administration:

This is calculated as: $\dfrac{\text{actual tax collections in year t}}{\text{budgeted tax collections in year t}}$

(c)    Capital imports:

Data on government capital imports are not available. To obtain a proxy for the government's share in the capital imports, therefore, we applied the ratio of government

investment to total domestic investment to the capital imports. That is:

$$GKM = \frac{GKE}{TDKF} \times TKM$$

where,

GKM = government capital imports

GKE = government investment expenditure

TDKF = total domestic investment

TKM = total capital imports

(d)     Domestic and foreign components of interest payments:

Published data on interest payments on public debt are not decomposed into domestic and foreign interest payments. However, having obtained data on total interest payments, foreign and domestic stocks of debt, and the domestic interest rate, we were able to calculate the domestic component of the interest payments by multiplying the current domestic interest rates by the previous period's domestic debt stock. From this we were able to obtain time series data on the foreign interest payments component by subtracting the domestic interest payments from the total interest payments. The foreign interest rates were obtained by taking the ratio of current foreign interest payments to the previous period's foreign debt.

## 5.3     Results

### (I)     The behavioural fiscal functions

The results of the estimated behavioural fiscal functions are presented in Table 4. The figures in parentheses below the coefficients represent the t - ratios of the individual estimates.

**Table 4**      **Results of the Estimated Behavioural Fiscal Functions:**

Non-interest current expenditure:

$$\Delta NIE_t = -12.910 + 1.7228\Delta PEMPL_t + 1.1202\Delta POP + 0.96344\Delta CPI \qquad (14)$$
$$(-7.3470) \quad (12.259) \qquad\qquad (5.3564) \qquad\quad (28.706)$$

Adj   $R^2$   =   0.999      DW   = 1.7854    SEE   = 0.0513

Domestic interest payments:

$$\Delta IP_{Dt} = 1.4775 + 0.752\Delta i_{Dt} + 0.33419\Delta RDD_t \qquad (15)$$
$$(0.52284) \quad (1.7677) \qquad (1.6704)$$

Adj   $R^2$   = 0.9865      DW   = 1.078    SEE   = 0.23295

Foreign interest payments:

$$\Delta IP_{Ft} = -7.3743 + 1.0941\Delta i_{Ft} + 0.98366\Delta RFD_t + 1.0319\Delta RER \qquad (16)$$
$$(-4.7032) \quad (13.353) \qquad (14.317) \qquad\qquad (5.0850)$$

Adj   $R^2$   = 0.9968      DW   = 0.8974    SEE   = 0.10916

Capital expenditure:

$$\Delta KGE_t = -5,1434 + 0.6538\Delta RER_t + 0.69329\Delta KGM_t + 0.50455\Delta GDP_t \quad (17)$$
$$(-6.2172) \quad (3.2782) \qquad\quad (13.367) \qquad\qquad (12.488)$$

Adj   $R_2$   = 0.9948      DW   = 1.8956    SEE   = 0.099377

Direct tax revenue:

$$\Delta TD_t = -4.8094 + 1.1933\Delta GDP_t + 0.46551\Delta TADM_t \qquad (18)$$
$$(-9.4031) \quad (26.383) \qquad (2.9623)$$

Adj $R^2$ = 0.9983      DW   = 2.1910      SEE   = 0.068627

Indirect tax revenue:

$$\Delta TI_t = -6.6903 + 1.2210\Delta PCONS_t + 0.40486\Delta RER_t + 0.51233\Delta TADM_t \qquad (19)$$
$$(-9.3083) \quad (54.609) \qquad\quad (2.4291) \qquad\quad (2.4726)$$

Adj   $R^2$   = 0.9975      DW   =1.6789    SEE   = 0.08293

Non tax revenue:

$$\Delta NTR_t = -2.3777 + 0.85280\Delta GDP_t \qquad (20)$$
$$(-3.1258) \qquad (11.896)$$

Adj   $R^2$   = 0.9046      DW   2.190    SEE   = 0.38855

Generally, the results appear to be very good. The signs of all the estimated coefficients conform to our theoretical and prior expectations, and all the coefficients are statistically significant. Furthermore the adjusted $R^2$ which measures the overall goodness of fit of the estimated regressions, is over 90% for each of the regressions. All the Durbin-Watson (DW) statistics suggest the absence of serial correlation at the 5% level, except for the DW statistic for domestic interest payments function which falls in the zone of indecision at 1% level, while the DW statistic for the foreign interest payments indicates the presence of slight positive autocorrelation at the 1% level. The latter result could be attributed to the way we calculated the foreign interest rate.

For the non-interest current expenditure, all the structural determinants appeared to be very significant, particularly, the domestic consumer price variable. However, the demographic factors, that is, the levels of public employment and population changes appear to have the greatest impact on the level of non-interest current expenditure, with an elasticity coefficient of 1.7 and 1.1, respectively. This can be attributed to the fact that public employment and its associated wages bill constitute the dominant component of the non-interest current expenditure. Also government expenditure on transfers and social security increased significantly during the review period. As the size of the population increases, so does the demand made on the government for an increased expenditure to meet the social and economic needs of the young and the aged.

The results of the interest payments on domestic debt indicate that the structural variables are weakly significant, as indicated by their t-ratios. For this equation a 1% increase in the interest rate would induce a 0.8% increase in the level of domestic interest payments, while an increase of 1% in the real stock of domestic debt increases domestic

interest payments by 0.3%. The inflation rate was initially included in this regression but was dropped because it was found to be highly correlated with the real stock of domestic debt.

Unlike the interest payments on domestic debt, the structural factors used to estimate the behaviour of the foreign interest payments on public debt proved to be very significant, particularly, the level of real foreign debt. However, the greatest impact on the level of interest payments on foreign debt came from the foreign interest rate, with an elasticity coefficient of 1.09. For the real foreign debt stock, the estimated elasticity was 0.98. The expenditure effect of the real exchange rate adjustment is also notable. For this variable, a 1% depreciation leads to a 1% increase in the level of foreign interest payments, indicating a one-to-one correspondence between interest payments and real exchange rate adjustments. The foreign (US) inflation rate was initially included in this function but it was omitted in the final regression because it was found to be highly correlated with the real stock of foreign debt. In addition, it's inclusion in the foreign interest payment equation rendered the other variables insignificant.

The share of government capital imports has an expenditure elasticity of 0.69, while the income-elasticity of capital expenditure was estimated at 0.15. On the whole, government capital expenditure was found to be inelastic with respect to the level of government capital imports, exchange rate movements, and the level of economic activity.

The results of the direct tax function confirmed our expectations, with an estimated direct tax buoyancy of 1.19. This implies that if domestic incomes were to widen by 1% , revenues from direct taxes would increase by 1.19%. The response of the changes in the direct tax revenues to improvements in the efficiency of the tax administration was found to

be low, some 0.47, but significant.

For the indirect tax revenues, changes in the efficiency of the tax system was also found to be a significant factor but with a low elasticity coefficient of 0.51. As expected, changes in the level of private consumption expenditure proved to be the most significant factor affecting indirect tax revenues. The indirect tax buoyancy was estimated at 1.22. This indicates that for every 1% increase in private consumption expenditure, the government will be able to generate at least 1.22% in indirect tax revenues. The real exchange rate variable, although significant, has the lowest elasticity coefficient, amounting to 0.4.

Lastly, the level of domestic activity was found to be an extremely significant factor affecting non-tax revenues, with an elasticity of 0.85.

## (ii)    Deficit decomposition

Appendices 1, 2, and 3 present the results of the decomposition of the changes in the fiscal deficit according to changes in the structural or macroeconomic determinants.

## Deficit effects

Table 5 summarizes the combined structural effect on the fiscal deficit. The table shows that between 1961 and 1970 changes in the structural determinants caused the fiscal deficit to expand in half the period. In the remaining half of the period, the deficit contracted. Fiscal deficits expanded in 1961, 1965 - 1966, 1968 and 1970 (Appendix 1) as

## Table 5  Structural Effect on the Deficit

| Period | Structural effect | | Periods of large | | Sources of major | |
|---|---|---|---|---|---|---|
| | expansionary (number of years) | contractionary (number of years) | expansion in deficit | contraction in deficit | expansion in deficit | contraction in deficit |
| 1961 - 1970 | 5 (50%) | 5 (50%) | 1965 (62.5%) 1970 (97.7%) | 1963 (42.7%) | 1965 - expenditure surge 1970 - expenditure surge | 1963 - revenue increases |
| 1971 - 1980 | 5 (50%) | 5 (50%) | 1971 (62.5%) 1974 (61.9%) 1975 (62.2%) | 1979 (86.4%) 1980 (85.5%) | 1971 - expenditure surge 1974 - expenditure surge 1975 - expenditure surge | 1979 - revenue increases plus expenditure decline 1980 - revenue surge |
| 1980 - 1990 | 5 (50%) | 5 (50%) | 1981 (59.6%) 1984 (51.7%) 1988 (83%) | 1989 (87.1%) | 1981 - expenditure surge 1984 - expenditure surge 1988 - expenditure surge | 1989 - revenue increases plus expenditure decline |
| 1990 - 1993 | 2 (67%) | 1 (33%) | 1993 (105%) | 1992 (24.1%) | 1993 - expenditure surge | 1992 - revenue increases accompanied by expenditure decline |
| 1961 - 1993 | 17 (51.5%) | 16 (48.5%) | 1970 (97.7%) 1993 (105%) | 1979 (86.4%) 1980 (85.5%) 1989 (87.1%) | | |

Source: Appendix 1, 2 and 3.

a result of the changes in the structural factors, but the expansion was much more pronounced in 1965 and 1970. Table 5 shows that during the 1965 and 1970 periods, a 1% change in the combined structural factors caused fiscal deficits to expand by some 62.5% and 97.7%, respectively. The major source of the deficit expansion during these years was the surge in expenditure. The contractionary effect of the structural changes was much more severe in 1963 when a 1% change in the combined structural factors caused the fiscal deficit to contract by some 42.7%. During this period, increases in revenue were the major cause of the deficit contraction.

Like the 1960s, changes in the structural factors produced an expansionary effect in half of the 1970s, and a contractionary effect in the other half of the period. Table 5 shows that the large expansions in the deficit occurred in the first half of the 1970s, that is, 1971, 1974 and 1975, during which periods increases in expenditure caused by changes in the structural determinants were the dominant force behind the deficit expansion. Contraction in the deficit occurred in 1972 -1973, 1977, 1978 - 1980, but was much more severe in 1979 and 1980. In 1979, the combined effect of the structural changes was an increases in revenue of some 48.1% and a contraction in expenditure of some 38.3%, leading to a contraction of some 86.4% in the deficit. On the other hand, the major source of deficit reduction in 1980 was the increases in revenue (Table 5), amounting to some 102.6% compared to an increase in expenditure of some 17.1% (Appendix 2).

Table 5 also shows that the expansionary effect of the structural factors was concentrated in the early part of the 1980s, with the major expansions occurring in 1981 and 1984. However, the only expansion that was experienced in the second half of the 1980s was in 1988. The fiscal deficit expanded by 83% in 1988, caused largely by the expansionary

effect of the structural factors on the expenditure side of the budget. Except in 1983, all the deficit reductions took place in the second half of the 1980s, with the largest reduction of 87.1% occurring in 1989 (Table 5). The large reduction in the fiscal deficit was attributable to the expansionary effect of the structural changes on revenues accompanied by the declines in expenditures.

Fiscal deficits contracted by some 24.1% in 1992, caused mainly by the expansionary effect of the structural changes on revenue, which was reinforced by the contractionary effect on the expenditure. In 1993, however, fiscal deficit expanded by over 100%, caused largely by the expansionary effect of the structural changes (Table 5).

## Expenditure effects

The structural effect on government expenditure is summarised in Table 6. The table shows that during 1961 and 1970 changes in the structural determinants caused government expenditure to expand in nine out of the ten years of the period. The largest expansions occurred in 1965 and 1970 where increases in interest payments, caused by increases in interest rates and debt stock, caused expenditure to increase by 75.8% and 120.9%, respectively. The contractionary effect occurred only in 1963 when lower foreign interest payments due to lower interest rates and debt stock changes caused expenditure to decline by 3.7%.

Like the decade of the 1960s, changes in the structural factors produced an expansionary effect in the greater part of the 1970s. Table 6 shows that the most severe expansions in expenditure occurred in the first half of the 1970s, where changes in the structural factors caused large increases in expenditure. The increase in expenditure in 1971

## Table 6     Structural Effect on Expenditure

| Period | Structural effect | | Periods of large | | Sources of major | |
|---|---|---|---|---|---|---|
| | expansionary (number of years) | contractionary (number of years) | expansion in expenditure | contraction in expenditure | expansion in expenditure | contraction in expenditure |
| 1961 - 1970 | 9 (90%) | 1 (10%) | 1965 (75.8%) 1970 (120.9%) | 1963 (3.7%) | **1965** - increase in interest payments caused mainly by debt and interest rate increases **1970** - increase in foreign interest payments caused mainly by changes in public debt | **1963** - decrease in foreign interest payments, caused mainly by lower interest rates and debt stock |
| 1971 - 1980 | 9 (90%) | 1 (10%) | 1971 (125%) 1974 (112%) 1975 (113%) 1978 (77.8%) | 1979 (38%) | **1971** - increases in interest payments on public debt mainly by changes in total debt stock. **1974** - surge in foreign interest payments due to an increase in public debt and interest rates -increase in capital spending due to increases in capital goods imports. **1975** - increase in foreign interest payments caused mainly by increases in foreign debt stock. **1978** -surge in foreign interest payments resulting from higher interest rates. | **1979** - decrease in interest payments, due mainly to lower interest rates. |

| 1981 - 1990 | 8 (80%) | 2 (20%) | 1981 (122.7%)<br>1984 (118.8%)<br>1988 (156%) | 1989 (20.5%)<br>1990 (8.4%) | **1981** - increase in capital spending and foreign interest payments, due mainly to growth in capital imports and interest rate changes, respectively.<br>**1984** - surge in foreign interest payments, as a result of higher interest rates, higher debt stock and real exchange rate changes<br>**1988** - increase in foreign interest payments, caused mainly by higher interest rates. | **1989** - mainly a decrease in foreign interest payments resulting from a lower interest rate effect.<br>**1990** - fall in capital expenditure arising from lower capital goods imports. |
| 1991 - 1993 | 2 (67%) | 1 (33%) | 1993 (148%) | 1992 (5.1%) | **1993** - increase in foreign interest payments caused mainly by higher stock of debt<br> - increase in capital expenditure due to a surge in capital goods imports. | **1992** - decrease in capital expenditure due to lower capital goods imports. |
| 1961 - 1993 | 28 (84%) | 5 (15.2%) | 1970 (120%)<br>1981 (122.7%)<br>1971 (125.2%)<br>1974 (112%)<br>1975 (113%)<br>1981 (122.7%)<br>1984 (118.8%)<br>1988 (156%)<br>1993 (148.3%) | 1979 (38%)<br>1989 (20.5%) | | |

Source: Appendix 1, 2 and 3.

was attributed to the increases in interest payments on public debt that arose out of a greater stock of total debt. The expenditure surge in 1974 was again due to higher interest payments, due both to higher foreign debt and foreign interest rates. The expansion in expenditure was also a result of an increase in capital spending on capital goods imports. The main source of the expansionary effect in 1975 was an increase in foreign interest payments resulting from higher interest rates. The contractionary effect on expenditure occurred in 1979, where a decline in interest payments due to lower interest rates caused expenditure to decline by 38%.

Table 6 also shows that between 1981 and 1990, the expansionary effects of the structural factors on expenditure were much pronounced in 1981, 1984 and 1988. In 1981, expenditure expanded by 122.7% caused largely by an increase in capital spending on capital goods imports as well as an increase in foreign interest payments due to interest rate hikes. In 1984, an expansion of 118.8% in expenditure occurred. This was caused by a surge in foreign interest payments resulting from higher interest rates, higher debt stock and real exchange rate changes. In 1988, increases in the combined structural factors caused expenditure to increase by a large amount of 156%. Once again, higher foreign interest payments caused mainly by higher interest rates were the dominant force behind this expansion. Interest rates reached their peak levels after the debt crisis of 1985. The debt crisis was caused by the sudden withdrawal of bank credit for basically non-economic reasons. In the event, a debt moratorium was declared and interest rates were raised due to the delay of debt repayment. The contribution of the foreign interest rate alone was 120% in 1988 (Appendix 1).

Table 6 shows that between 1981 and 1990, expenditure expanded in 80% of the

period. Expenditure contracted in the second half of the 1980s. In 1989 and 1990, expenditure declined by 20.5% and a 8.4%, respectively. The decrease in 1989 was due mainly to a reduction in foreign interest payments resulting from a lower interest rate effect, and in 1990, capital expenditure fell as a result of lower capital goods imports.

In the early 1990s, expenditure contracted by 5.1% in 1992 and expanded by 148% in 1993. The contraction in 1992 was caused mainly by lower capital expenditure on capital goods imports, while the expansion in 1993 was a result of greater foreign interest payments due to a higher debt stock as well as greater capital spending on capital goods imports.

Over the 1961 - 1993 period, the combined effect of the structural factors produced an expansionary effect 84.8% of the period, while in the remaining 15.2%, they exhibited a contractionary effect on expenditure (Table 6).

## Revenue effects

Table 7 shows that the impact of the changes in the structural factors on government revenue was expansionary throughout the period, but were much severe in 1980 and 1988. During the period 1961 to 1970, the expansionary effects were much more felt in 1963, 1967 and 1969. In these years government revenue increased by 39.9%, 36.6% and 49.9%, respectively. The major source of the revenue expansion in 1963 was increases in both direct and indirect taxation resulting from the increase in GDP. The revenue expansion in 1967 was due to a surge in direct tax revenue resulting from domestic income growth, while the larger expansion in 1969 was caused mainly by GDP growth and private consumption expenditures increases.

Table 7 also shows that in the decade of the 1970s, the most significant expansionary

**Table 7    Structural Effect on Revenue**

| Period | Structural effect | | Periods of large | | Sources of major | |
|--------|-------------------|--|------------------|--|------------------|--|
| | expansionary (number of years) | contractionary (number of years) | expansion in revenue | contraction in revenue | expansion in revenue | contraction in revenue |
| 1961 - 1970 | 10 (100%) | 0 (0%) | 1963 (39.9%)<br>1967 (36.6%)<br>1969 (49.9%) | - | **1963** - increase in both direct and indirect tax as a result of increases in GDP<br>**1967** - increase in direct tax revenue as a result of increases in GDP growth.<br>**1969** - increase in tax revenues due mainly to increases in GDP and private consumption. | - |
| 1971 - 1980 | 10 (100%) | 0 (0%) | 1973 (65.8%)<br>1980 (102.6%) | - | **1973** - increase in direct tax and non-tax revenue, due mainly to GDP growth.<br>**1980** - increase in both tax and non-tax revenue, due to the growth in GDP and private consumption expenditures. | - |
| 1981 - 1990 | 10 (100%) | 0 (0%) | 1984 (67.2%)<br>1988 (73.1%)<br>1989 (66.7%) | - | **1984** - increase in both indirect and direct tax revenues, resulting mainly from GDP growth. The activity of the country's private consumption expenditure is also noteworthy.<br>**1988** - increases in both indirect and direct tax revenues, resulting from higher private consumption expenditure and GDP growth.<br>**1989** - increase in both direct and indirect taxes due to the widening of the tax bases, that is, GDP and private consumption expenditure. | - |
| 1991 - 1993 | 3 (100%) | 0 (0%) | 1991 (60.8%) | - | **1991** - increase in indirect tax revenue, caused mainly by changes in private consumption and GDP | - |
| 1961 - 1993 | 33 (100%) | 0 (0%) | 1980 (102.6%)<br>1988 (73.1%) | - | | - |

Source: Appendix 1, 2 and 3.

effects occurred in 1973 and 1980 where revenue expanded by 65.7% and 102.6%, respectively. The major source of the revenue expansion in 1973 was due to the GDP growth. In 1980, however, increases in both tax and non-tax revenue resulting from the growth in GDP and private consumption expenditures were the main cause of the revenue growth.

Between 1981 and 1990 changes in the structural determinants caused government revenue to increase throughout the period, with the major expansions recorded in 1984, 1988 and 1989. Revenue expanded by 62.7% in 1984, 73.7% in 1988 and 66.7% in 1989 (Table 7). An increase in both direct and indirect tax revenues, resulting from GDP growth as well as a substantial contribution of private consumption expenditures were responsible for the increase in revenue in 1984 and 1988. In 1989, a widening of the tax bases, that is, higher domestic income and higher private consumption expenditure were the driving forces behind the expansion in revenues.

In the early 1990s, the most significant increase in revenue occurred in 1991. During this period, government revenue increased by 60.8% caused mainly by increases in private consumption expenditures and GDP growth.

## 5.4  Conclusion

The analysis above has shown that certain structural factors had significant impact on both government expenditure and revenue. On the expenditure side, changes in the level of real foreign debt, capital imports, the consumer price index and the level of economic activity were found to be the most significant factors. Of all these, changes in the stock of public debt proved to be the most dominant factor behind the expansion in expenditure,

followed closely by the effect of interest rate changes. Changes in the level of economic development contributed fairly substantially to the expansion in capital spending, however, the contributions of public employment levels, population and exchange rate changes were not very substantial.

On the revenue side, the most significant variables were found to be changes in domestic income and private consumption expenditures. The level of economic activity was also found to have significantly affected non-tax revenues. GDP growth was found to be the dominant force behind the increases in both tax and non-tax revenues. Real exchange rate changes and the efficiency of the tax system, although significant, only made slight contributions to the changes in revenue.

# CHAPTER SIX

## CONCLUSION

This study examined the factors affecting fiscal deficits in South Africa for the period 1960 to 1994. The major findings include the following:

First, we found that changes in government expenditure contributed greatly to the change in the fiscal deficit during the period under review. Changes in government revenue were also found to have affected the size of the deficit, although to a limited extent.

Second, given that the growth in the fiscal deficit was attributed mainly to the growth in government spending, we examined the relative contributions of the components of expenditure, and found that the foreign interest payments component made the most significant contribution to the changes in government expenditure. The surge in the foreign interest payments was found to have been caused by the increases in the stock of public debt. The growth of interest payments on foreign debt accelerated even more rapidly than the growth of the debt itself, due to the large hikes in interest rates. Capital expenditure played a fairly large role in the expansion of expenditure, influenced mainly by the level of capital goods imports. The real exchange rate effect was minimal, although the determinant itself was significant. The consumer price index made the most substantial contribution to the expansion of non interest current expenditure, while the effects of public employment levels and population were much smaller.

Thirdly, both tax and non-tax sources were found to have contributed significantly to the change in the fiscal deficit, although the contribution of the direct taxes was the

largest. GDP growth and private consumption expenditures were found to be extremely significant variables and accounted for most of the changes in revenue during the review period. The real exchange rate contribution, however, was small. Furthermore, our results indicated that the collection and administration of tax revenue did not substantially contribute to the change in the fiscal deficit although it was found to be a significant structural determinant.

To reduce the fiscal deficit on a sustained basis and to improve social welfare, it may be necessary to reduce government expenditure and/or boost government revenues.

On the expenditure side, the overall level of expenditure needs to be reduced, and the expenditure-mix restructured. In the past, public investment has taken the brunt of expenditure cuts. However, this expenditure component needs to be increased if the much needed job creation is to be realised. Although capital goods imports have played a substantial role in its contribution to the change in the fiscal deficit, capital expenditure needs to be given priority in order to develop and sustain a sound productive base. Since it is on the expenditure side that the fiscus is most effectively able to contribute to redistribution, the government should direct its expenditure towards the reduction of overall poverty, reduce crime and violence. This would lead to greater investor confidence in the economy and boost economic growth. The main burden of reducing expenditure must fall on recurrent expenditures. Although the reduction of expenditure on the provision of basic goods and services is difficult to reduce, funding can be cut where communities have the capacity to pay or where the standard of living is higher. Other areas to consider would be the reorganisation of government departmental structures and the integration of provincial administrations. This would reduce expenditure considerably by reducing the public sector

wages bill. Also the social security and welfare payments need to be integrated and coordinated. The restructuring of state assets, in the sense of increasing competition and privatising unprofitable enterprises, such as Autonet and Sun Air, will also release resources for reallocation and contribute to the empowerment of disadvantaged communities and sectors in the economy (Kusi and Fuzile, 1996).

On the revenue side, the government needs to revisit its revenue generating activities in order to arrest the revenue shortfalls. The government should increase tax revenues to finance the increasing recurrent expenditure of the state, bearing in mind that higher direct taxes reduce incentives and hence productivity. This can be done through increasing the tax base with lower rates and by bringing as much of the informal sector as possible into the tax net. With regards to indirect taxes, the government should explore the revenue possibilities from excise taxes. These excises should be imposed on commodities with an inelastic demand or on those commodities that generate negative externalities, such as tobacco. Furthermore, to increase indirect tax revenues, the efficiency of the tax system with regards to the monitoring and collection of VAT revenue, needs to be enhanced. According to the Katz Commission Report, losses in taxes through inefficiencies in the tax administration were between R5.0 billion and R15.0 billion a year (Kusi and Fuzile, 1996). Therefore steps have to taken to train and retrain revenue officials and counter tax avoidance and evasion. In the regard, the government has announced that the Inland Revenue and Department of Customs and Excise are to amalgamated into an autonomous service to be known as the South Africa Revenue Service (SARS). The SARS will be run along business lines to ensure greater efficiency and professional service, but will remain within the discipline and control of the public service and will be subject to audit by the Auditor General.

Government must also boost non-tax revenues by ensuring a higher level of domestic economic activity. South Africa is characterised by a trade regime that is extremely product specific and biased towards the production for the domestic market, that is, geared towards import substitution. This coupled with sanctions and high tariff protection policies has created an environment in which many South African producers have not expanded into a much larger world market with the result that the economy has not fully benefitted from the efficiency gains associated with international trade (World Bank, 1993). South Africa has now subscribed to the World Trade Organisation (WTO) in order to liberalise trade. The trade stance needs to move from import substitution to export promotion in order to increase the level of foreign reserves and enhance growth.

The financing process of the fiscal deficit also needs major revision. Our results showed that the stock of public debt and the associated interest costs were the main determinants behind the changes in the fiscal deficit during the review period. When borrowing is required, the state needs to decide whether to resort more to external finance or more to internal finance. In the case of the former, real resources may flow in or out of the domestic economy and it must be noted that such flows are subject to factors well beyond the government's control. In the case of financing from domestic sources, real resources are transferred within the economy and the manipulation of this transfer is in the hands of those who hold the debt issue. It is seen that financing deficits by domestic sources would be advantageous in view of the objectives set out in the RDP, that is, accelerated investment and employment creation, sustainable economic growth and social development within a framework of macroeconomic stability. Furthermore the government needs to consider the cost of these financing methods. External financing leads to balance of payments

disequilibrium, exchange rate fluctuations and hence capital flows, while internal financing involves interest rate fluctuations, financial repression and crowding out of private investment. Given the financial crisis facing the economy, the government cannot afford any further capital outflows and exchange rate fluctuations. The government should therefore resort more to internal financing, where the fiscal authorities have much more control over their effects.

Although the measures we are suggesting are aimed at reducing the budget deficit to a sustainable level, it must be noted that incurring a budget deficit *per se* is not necessarily bad. In most circumstances a deficit is viewed and taken on as a welfare-enhancing activity (Bird, 1989) representing a chance to make additional provision for the economy with the extra funds. In the case of South Africa, the implementation of the RDP is likely to put pressure on the state's finances due to dominant role of the government in the RDP. However, a substantial level of government intervention is required for long term planning, even if it means keeping the deficit at its current level in the short to medium term. Our recommendation therefore is that, in trying to reduce the fiscal deficit, government should pay particular attention to reducing the level of foreign debt. Foreign interest payments are a small proportion of the interest payments component of expenditure, yet they play the most significant and substantial role in the contribution of expenditure to the fiscal deficit.

# NOTES

1. It was, however, pointed out by Spiro (1987) that Tanzi had misinterpreted the sign on the deficit variable. The deficit should have had a negative sign thus implying that higher budget deficits would cause lower interest rates.

2. Also see Hoelscher (1983) and Thomas and Abderrezak (1988-89) for evidence of a positive significant relationship between interest rates and budget deficits.

3. A demonstration march representing the political discontent on the part of the black race to the apartheid policy, which resulted in a massacre as the police force opened fire on the march.

4. Soweto uprising was a result of rebellion by the black youth against the unfair educational system in the country.

APPENDIX 1: Decomposition of the changes in the fiscal deficit according to the changes in the structural determinants

| YEAR | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL EXPENDITURE | 0.6057 | 0.0700 | -0.0372 | 0.2897 | 0.7585 | 0.3284 | 0.3524 | 0.6198 | 0.4454 | 1.2087 | 1.2524 | 0.4196 | 0.4821 | 1.1250 | 1.1346 | 0.5141 |
| Non-interest current expenditure | 0.0684 | 0.1040 | 0.1336 | 0.0784 | 0.1060 | 0.1744 | 0.0637 | 0.0906 | 0.0929 | 0.1266 | 0.1694 | 0.1402 | 0.2241 | 0.2213 | 0.2807 | 0.0906 |
| Public employment levels | 0.0227 | 0.0447 | 0.0872 | 0.0311 | 0.0340 | 0.1033 | 0.0063 | 0.0345 | 0.0369 | 0.0391 | 0.0765 | 0.0479 | 0.0986 | 0.0803 | 0.1262 | 0.0530 |
| Population | 0.0319 | 0.0322 | 0.0332 | 0.0343 | 0.0335 | 0.0340 | 0.0336 | 0.0329 | 0.0333 | 0.0321 | 0.0301 | 0.0333 | 0.0329 | 0.0311 | 0.0255 | -0.0694 |
| Consumer price index | 0.0138 | 0.0271 | 0.0132 | 0.0130 | 0.0385 | 0.0371 | 0.0238 | 0.0232 | 0.0227 | 0.0554 | 0.0628 | 0.0590 | 0.0926 | 0.1099 | 0.1290 | 0.1070 |
| | | | | | | | | | | | | | | | | |
| Domestic interest payments | 0.0741 | -0.0390 | -0.0696 | 0.0235 | 0.1433 | 0.0966 | 0.0623 | 0.0304 | 0.0448 | 0.0709 | 0.1122 | 0.0200 | -0.0182 | 0.0945 | 0.0371 | 0.0767 |
| Domestic interest rate | 0.0682 | -0.0495 | -0.0893 | 0.0032 | 0.1309 | 0.0873 | 0.0301 | 0.0000 | 0.0000 | 0.0752 | 0.1293 | -0.0027 | -0.0468 | 0.1085 | 0.0629 | 0.0565 |
| Real domestic debt | 0.0059 | 0.0105 | 0.0197 | 0.0203 | 0.0124 | 0.0093 | 0.0322 | 0.0304 | 0.0448 | -0.0043 | -0.0171 | 0.0227 | 0.0286 | -0.0140 | -0.0258 | 0.0202 |
| | | | | | | | | | | | | | | | | |
| Foreign interest payments | 0.1629 | -0.2064 | -0.1737 | -0.1684 | 0.3883 | 0.0684 | -0.1093 | 0.2499 | 0.2952 | 0.9430 | 0.7669 | 0.2803 | -0.2620 | 0.4531 | 0.5031 | 0.2446 |
| Foreign interest rate | 0.1960 | -0.0208 | 0.0212 | 0.0069 | 0.1239 | 0.3091 | 0.1446 | 0.1490 | 0.3035 | -0.0968 | 0.0515 | 0.1475 | 0.1137 | 0.1840 | -0.0042 | -0.0801 |
| Real foreign debt | -0.0376 | -0.1633 | -0.1949 | -0.1799 | 0.2917 | -0.2360 | -0.2539 | 0.0821 | -0.0451 | 1.0442 | 0.7378 | 0.0734 | -0.2376 | 0.2940 | 0.4715 | 0.1865 |
| Real exchange rate | 0.0045 | -0.0223 | 0.0000 | 0.0046 | -0.0273 | -0.0047 | 0.0000 | 0.0188 | 0.0369 | -0.0044 | -0.0223 | 0.0594 | -0.1382 | -0.0249 | 0.0358 | 0.1382 |
| | | | | | | | | | | | | | | | | |
| Capital expenditure | 0.3003 | 0.2114 | 0.0725 | 0.3563 | 0.1209 | -0.0110 | 0.3357 | 0.2489 | 0.0125 | 0.0682 | 0.2039 | -0.0209 | 0.5382 | 0.3561 | 0.3137 | 0.1022 |
| Real exchange rate | 0.0028 | -0.0142 | 0.0000 | 0.0029 | -0.0173 | -0.0030 | 0.0000 | 0.0119 | 0.0234 | -0.0028 | -0.0142 | 0.0376 | -0.0875 | -0.0158 | 0.0227 | 0.0876 |
| Capital goods imports | 0.2715 | 0.1912 | 0.0173 | 0.3041 | 0.0915 | -0.0528 | 0.2760 | 0.1954 | -0.0741 | 0.0233 | 0.1657 | -0.1233 | 0.5061 | 0.2545 | 0.2281 | -0.0493 |
| Gross domestic product | 0.0260 | 0.0343 | 0.0552 | 0.0493 | 0.0466 | 0.0448 | 0.0598 | 0.0415 | 0.0633 | 0.0477 | 0.0523 | 0.0648 | 0.1196 | 0.1174 | 0.0630 | 0.0639 |
| | | | | | | | | | | | | | | | | |
| TOTAL REVENUE | 0.3638 | 0.2725 | 0.3898 | 0.3353 | 0.1327 | 0.3079 | 0.3666 | 0.2943 | 0.4937 | 0.2316 | 0.4787 | 0.4330 | 0.6576 | 0.5056 | 0.5128 | 0.4800 |
| Direct tax revenue | 0.1625 | 0.1181 | 0.1605 | 0.1166 | 0.0541 | 0.1151 | 0.1503 | 0.0938 | 0.1851 | 0.0593 | 0.1843 | 0.1574 | 0.2911 | 0.1934 | 0.1734 | 0.1558 |
| Gross domestic product | 0.0615 | 0.0812 | 0.1306 | 0.1166 | 0.1103 | 0.1059 | 0.1414 | 0.0982 | 0.1497 | 0.1129 | 0.1238 | 0.1532 | 0.2829 | 0.2777 | 0.1489 | 0.1511 |
| Efficiency of the tax administration | 0.1010 | 0.0369 | 0.0299 | 0.0000 | -0.0562 | 0.0091 | 0.0090 | -0.0044 | 0.0355 | -0.0536 | 0.0605 | 0.0041 | 0.0082 | -0.0843 | 0.0245 | 0.0047 |
| | | | | | | | | | | | | | | | | |
| Indirect tax revenue | 0.1573 | 0.0964 | 0.1360 | 0.1354 | -0.0003 | 0.1171 | 0.1152 | 0.1303 | 0.2015 | 0.0916 | 0.2059 | 0.1661 | 0.1643 | 0.1137 | 0.2330 | 0.2163 |
| Private consumption expenditure | 0.0445 | 0.0645 | 0.1031 | 0.1336 | 0.0722 | 0.1089 | 0.1053 | 0.1278 | 0.1480 | 0.1522 | 0.1480 | 0.1383 | 0.2096 | 0.2163 | 0.1920 | 0.1569 |
| Real exchange rate | 0.0018 | -0.0088 | 0.0000 | 0.0018 | -0.0107 | -0.0018 | 0.0000 | 0.0074 | 0.0145 | -0.0017 | -0.0088 | 0.0233 | -0.0542 | -0.0098 | 0.0140 | 0.0542 |
| Efficiency of the tax administration | 0.1111 | 0.0406 | 0.0329 | 0.0000 | -0.0618 | 0.0100 | 0.0099 | -0.0048 | 0.0390 | -0.0589 | 0.0666 | 0.0045 | 0.0090 | -0.0927 | 0.0270 | 0.0051 |
| | | | | | | | | | | | | | | | | |
| Non-tax revenue | 0.0440 | 0.0581 | 0.0933 | 0.0833 | 0.0788 | 0.0757 | 0.1010 | 0.0702 | 0.1070 | 0.0807 | 0.0885 | 0.1095 | 0.2022 | 0.1984 | 0.1064 | 0.1080 |
| Gross domestic product | 0.0440 | 0.0581 | 0.0933 | 0.0833 | 0.0788 | 0.0757 | 0.1010 | 0.0702 | 0.1070 | 0.0807 | 0.0885 | 0.1095 | 0.2022 | 0.1984 | 0.1064 | 0.1080 |
| | | | | | | | | | | | | | | | | |
| EFFECT ON TOTAL DEFICIT * | 0.24196 | -0.2025 | -0.427 | -0.046 | 0.62581 | 0.0205 | -0.014 | 0.32541 | -0.048 | 0.97712 | 0.77377 | -0.013 | -0.1755 | 0.61938 | 0.62178 | 0.034 |

Appendix 1: contd....

| YEAR | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL EXPENDITURE | 0.1708 | 0.7780 | -0.3835 | 0.1705 | 1.2272 | 0.6967 | 0.0085 | 1.1884 | 0.6420 | 0.1038 | 0.0566 | 1.5601 | -0.2046 | -0.0841 | 0.8000 | -0.0508 | 1.4829 |
| Non-interest current expenditure | 0.1176 | 0.1784 | 0.1492 | 0.1793 | 0.2368 | 0.2370 | 0.1932 | 0.1850 | 0.1859 | 0.2340 | 0.2151 | 0.1751 | 0.1861 | 0.1674 | 0.2013 | 0.1536 | 0.0845 |
| Public employment levels | 0.0425 | 0.0415 | 0.0128 | 0.0508 | 0.0596 | 0.0656 | 0.0440 | 0.0429 | -0.0036 | 0.0256 | 0.0306 | 0.0247 | 0.0174 | 0.0017 | 0.0276 | 0.0017 | -0.0424 |
| Population | -0.0333 | 0.0287 | 0.0099 | -0.0048 | 0.0299 | 0.0305 | 0.0320 | 0.0300 | 0.0320 | 0.0298 | 0.0289 | 0.0278 | 0.0271 | 0.0268 | 0.0263 | 0.0182 | 0.0330 |
| Consumer price index | 0.1084 | 0.1082 | 0.1265 | 0.1333 | 0.1473 | 0.1409 | 0.1172 | 0.1121 | 0.1575 | 0.1786 | 0.1556 | 0.1226 | 0.1416 | 0.1389 | 0.1474 | 0.1337 | 0.0939 |
| | | | | | | | | | | | | | | | | | |
| Domestic interest payments | 0.0678 | -0.0103 | -0.0693 | 0.0686 | 0.1951 | 0.0155 | -0.0218 | 0.1504 | 0.0968 | -0.0334 | -0.0279 | -0.1109 | 0.5104 | -0.0147 | -0.0063 | -0.0235 | -0.0391 |
| Domestic interest rate | 0.0411 | -0.0417 | -0.0824 | 0.0674 | 0.2161 | 0.0301 | -0.0468 | 0.1519 | 0.0770 | -0.0188 | -0.0492 | 0.0526 | 0.0244 | -0.0334 | 0.0089 | -0.0414 | -0.0716 |
| Real domestic debt | 0.0267 | 0.0314 | 0.0131 | 0.0012 | -0.0210 | -0.0146 | 0.0250 | -0.0015 | 0.0198 | -0.0146 | 0.0213 | -0.1635 | 0.4860 | 0.0187 | -0.0151 | 0.0179 | 0.0325 |
| | | | | | | | | | | | | | | | | | |
| Foreign interest payments | 0.0257 | 0.3402 | -0.5975 | -0.3091 | 0.3743 | 0.4408 | -0.0199 | 0.5968 | 0.2043 | -0.1236 | -0.2460 | 1.1446 | -0.8332 | -0.0889 | -0.0869 | -0.0061 | 0.9128 |
| Foreign interest rate | 0.1069 | 0.5616 | -0.2862 | 0.1484 | 0.1061 | 0.1623 | 0.0687 | 0.1183 | 0.0815 | 0.1178 | -0.0046 | 1.2000 | -0.5944 | 0.0776 | -0.0145 | 0.0037 | 0.0485 |
| Real foreign debt | -0.0377 | -0.1850 | -0.2642 | -0.3785 | 0.1987 | 0.1233 | -0.0320 | 0.2620 | -0.2465 | -0.1264 | -0.0363 | -0.0830 | -0.2963 | -0.0757 | -0.0325 | 0.0565 | 0.7890 |
| Real exchange rate | -0.0435 | -0.0364 | -0.0471 | -0.0790 | 0.0695 | 0.1553 | -0.0566 | 0.2165 | 0.3694 | -0.1150 | -0.2051 | 0.0276 | 0.0575 | -0.0908 | -0.0398 | -0.0663 | 0.0753 |
| | | | | | | | | | | | | | | | | | |
| Capital expenditure | -0.0403 | 0.2696 | 0.1341 | 0.2318 | 0.4210 | 0.0034 | -0.1430 | 0.2561 | 0.1550 | 0.0269 | 0.1154 | 0.3514 | -0.0678 | -0.1479 | 0.6918 | -0.1748 | 0.5247 |
| Real exchange rate | -0.0576 | -0.0230 | -0.0299 | -0.0501 | 0.0440 | 0.0984 | -0.0359 | 0.1372 | 0.2340 | -0.0728 | -0.1300 | 0.0175 | 0.0365 | -0.0576 | -0.0252 | -0.0420 | 0.0477 |
| Capital goods imports | -0.0372 | 0.2170 | 0.0647 | 0.1104 | 0.2967 | -0.1621 | -0.1756 | 0.0320 | -0.1539 | 0.0172 | 0.1614 | 0.2332 | -0.2055 | -0.1646 | 0.6549 | -0.1854 | 0.4161 |
| Gross domestic product | 0.0545 | 0.0756 | 0.0993 | 0.1715 | 0.0802 | 0.0671 | 0.0685 | 0.0870 | 0.0749 | 0.0825 | 0.0840 | 0.1007 | 0.1012 | 0.0743 | 0.0622 | 0.0527 | 0.0609 |
| | | | | | | | | | | | | | | | | | |
| TOTAL REVENUE | 0.3225 | 0.4423 | 0.4807 | 1.0258 | 0.6313 | 0.5615 | 0.4175 | 0.6716 | 0.6052 | 0.4786 | 0.5055 | 0.7297 | 0.6669 | 0.3733 | 0.6079 | 0.1899 | 0.4326 |
| Direct tax revenue | 0.1243 | 0.1835 | 0.1887 | 0.4260 | 0.1849 | 0.1686 | 0.1474 | 0.2257 | 0.1914 | 0.1765 | 0.2035 | 0.2622 | 0.2438 | 0.2028 | 0.1427 | 0.0470 | 0.1544 |
| Gross domestic product | 0.1289 | 0.1788 | 0.2348 | 0.4056 | 0.1898 | 0.1587 | 0.1619 | 0.2057 | 0.1770 | 0.1951 | 0.1986 | 0.2382 | 0.2393 | 0.1756 | 0.1470 | 0.1246 | 0.1440 |
| Efficiency of tax administration | -0.0046 | 0.0047 | -0.0461 | 0.0205 | -0.0049 | 0.0099 | -0.0145 | 0.0200 | 0.0144 | -0.0186 | 0.0048 | 0.0240 | 0.0046 | 0.0271 | -0.0043 | -0.0776 | 0.0103 |
| | | | | | | | | | | | | | | | | | |
| Indirect tax revenue | 0.1061 | 0.1311 | 0.1243 | 0.3099 | 0.3109 | 0.2795 | 0.1544 | 0.2989 | 0.2873 | 0.1627 | 0.1601 | 0.2974 | 0.2521 | 0.0450 | 0.3601 | 0.0538 | 0.1753 |
| Private consumption expenditure | 0.1283 | 0.1402 | 0.1935 | 0.3184 | 0.2890 | 0.2077 | 0.1927 | 0.1919 | 0.1265 | 0.2283 | 0.2352 | 0.2602 | 0.2245 | 0.0508 | 0.3804 | 0.1652 | 0.1343 |
| Real exchange rate | -0.0171 | -0.0143 | -0.0185 | -0.0310 | 0.0273 | 0.0609 | -0.0222 | 0.0850 | 0.1449 | -0.0451 | -0.0805 | 0.0108 | 0.0226 | -0.0356 | -0.0156 | -0.0260 | 0.0295 |
| Efficiency of tax administration | -0.0051 | 0.0051 | -0.0507 | 0.0225 | -0.0054 | 0.0109 | -0.0160 | 0.0220 | 0.0158 | -0.0203 | 0.0053 | 0.0264 | 0.0050 | 0.0298 | -0.0047 | -0.0854 | 0.0114 |
| | | | | | | | | | | | | | | | | | |
| Non-tax revenue | 0.0921 | 0.1278 | 0.1678 | 0.2898 | 0.1356 | 0.1134 | 0.1157 | 0.1470 | 0.1265 | 0.1394 | 0.1419 | 0.1702 | 0.1710 | 0.1255 | 0.1050 | 0.0890 | 0.1029 |
| Gross domestic product | 0.0921 | 0.1278 | 0.1678 | 0.2898 | 0.1356 | 0.1134 | 0.1157 | 0.1470 | 0.1265 | 0.1394 | 0.1419 | 0.1702 | 0.1710 | 0.1255 | 0.1050 | 0.0890 | 0.1029 |
| | | | | | | | | | | | | | | | | | |
| EFFECT ON TOTAL DEFICIT * | -0.1518 | 0.3357 | -0.864 | -0.855 | 0.5959 | 0.1352 | -0.409 | 0.5168 | 0.037 | -0.375 | -0.449 | 0.8303 | -0.871 | -0.457 | 0.1922 | -0.241 | 1.0503 |

* positive values indicates expansion and negative values otherwise

ecomposition o e proportionate c anges in cit accoi ing to t e proportionate c anges in e major scal components

## APPENDIX 2: D f th h he fiscal defi d h h h fi

| Fiscal component | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | **YEAR** | | | | | | | | |
| Non-interest expenditure | 0.0684 | 0.1040 | 0.1336 | 0.0784 | 0.1060 | 0.1744 | 0.0637 | 0.0906 | 0.0929 | 0.1266 | 0.1694 | 0.1402 | 0.2241 | 0.2213 | 0.2807 | 0.0906 |
| Domestic interest payments | 0.0741 | -0.0390 | -0.0696 | 0.0235 | 0.1433 | 0.0966 | 0.0623 | 0.0304 | 0.0448 | 0.0709 | 0.1122 | 0.0200 | -0.0182 | 0.0945 | 0.0371 | 0.0767 |
| Foreign interest payments | 0.1629 | -0.2064 | -0.1737 | -0.1684 | 0.3883 | 0.0684 | -0.1093 | 0.2499 | 0.2952 | 0.9430 | 0.7669 | 0.2803 | -0.2620 | 0.4531 | 0.5031 | 0.2446 |
| Capital expenditure | 0.3003 | 0.2114 | 0.0725 | 0.3563 | 0.1209 | -0.0110 | 0.3357 | 0.2489 | 0.0125 | 0.0682 | 0.2039 | -0.0209 | 0.5382 | 0.3561 | 0.3137 | 0.1022 |
| Total expenditure | 0.6057 | 0.0700 | -0.0372 | 0.2897 | 0.7585 | 0.3284 | 0.3524 | 0.6198 | 0.4454 | 1.2087 | 1.2524 | 0.4196 | 0.4821 | 1.1250 | 1.1346 | 0.5141 |
| Direct tax revenue | 0.1625 | 0.1181 | 0.1605 | 0.1166 | 0.0541 | 0.1151 | 0.1503 | 0.0938 | 0.1851 | 0.0593 | 0.1843 | 0.1574 | 0.2911 | 0.1934 | 0.1734 | 0.1558 |
| Indirect tax revenue | 0.1573 | 0.0964 | 0.1360 | 0.1354 | -0.0003 | 0.1171 | 0.1152 | 0.1303 | 0.2015 | 0.0916 | 0.2059 | 0.1661 | 0.1643 | 0.1137 | 0.2330 | 0.2163 |
| Non-tax revenue | 0.0440 | 0.0581 | 0.0933 | 0.0833 | 0.0788 | 0.0757 | 0.1010 | 0.0702 | 0.1070 | 0.0807 | 0.0885 | 0.1095 | 0.2022 | 0.1984 | 0.1064 | 0.1080 |
| Total revenue | 0.3638 | 0.2725 | 0.3898 | 0.3353 | 0.1327 | 0.3079 | 0.3666 | 0.2943 | 0.4937 | 0.2316 | 0.4787 | 0.4330 | 0.6576 | 0.5056 | 0.5128 | 0.4800 |
| TOTAL DEFICIT | 0.2420 | -0.2025 | -0.4270 | -0.0456 | 0.6258 | 0.0205 | -0.0142 | 0.3254 | -0.0482 | 0.9771 | 0.7738 | -0.0135 | -0.1755 | 0.6194 | 0.6218 | 0.0341 |

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## APPENDIX 2: Contd

| Fiscal Component | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | **YEAR** | | | | | | | | |
| Non-interest expenditure | 0.1176 | 0.1784 | 0.1492 | 0.1793 | 0.2368 | 0.2370 | 0.1932 | 0.1850 | 0.1859 | 0.2340 | 0.2151 | 0.1751 | 0.1861 | 0.1674 | 0.2013 | 0.1536 | 0.0845 |
| Domestic interest payments | 0.0678 | -0.0103 | -0.0693 | 0.0686 | 0.1951 | 0.0155 | -0.0218 | 0.1504 | 0.0968 | -0.0334 | -0.0279 | -0.1109 | 0.5104 | -0.0147 | -0.0063 | -0.0235 | -0.0391 |
| Foreign interest payments | 0.0257 | 0.3402 | -0.5975 | -0.3091 | 0.3743 | 0.4408 | -0.0199 | 0.5968 | 0.2043 | -0.1236 | -0.2460 | 1.1446 | -0.8332 | -0.0889 | -0.0869 | -0.0061 | 0.9128 |
| Capital expenditure | -0.0403 | 0.2696 | 0.1341 | 0.2318 | 0.4210 | 0.0034 | -0.1430 | 0.2561 | 0.1550 | 0.0269 | 0.1154 | 0.3514 | -0.0678 | -0.1479 | 0.6918 | -0.1748 | 0.5247 |
| Total expenditure | 0.1708 | 0.7780 | -0.3835 | 0.1705 | 1.2272 | 0.6967 | 0.0085 | 1.1884 | 0.6420 | 0.1038 | 0.0566 | 1.5601 | -0.2046 | -0.0841 | 0.8000 | -0.0508 | 1.4829 |
| Direct tax revenue | 0.1243 | 0.1835 | 0.1887 | 0.4260 | 0.1849 | 0.1686 | 0.1474 | 0.2257 | 0.1914 | 0.1765 | 0.2035 | 0.2622 | 0.2438 | 0.2028 | 0.1427 | 0.0470 | 0.1544 |
| Indirect tax revenue | 0.1061 | 0.1311 | 0.1243 | 0.3099 | 0.3109 | 0.2795 | 0.1544 | 0.2989 | 0.2873 | 0.1627 | 0.1601 | 0.2974 | 0.2521 | 0.0450 | 0.3601 | 0.0538 | 0.1753 |
| Non-tax revenue | 0.0921 | 0.1278 | 0.1678 | 0.2898 | 0.1356 | 0.1134 | 0.1157 | 0.1470 | 0.1265 | 0.1394 | 0.1419 | 0.1702 | 0.1710 | 0.1255 | 0.1050 | 0.0890 | 0.1029 |
| Total Revenue | 0.3225 | 0.4423 | 0.4807 | 1.0258 | 0.6313 | 0.5615 | 0.4175 | 0.6716 | 0.6052 | 0.4786 | 0.5055 | 0.7297 | 0.6669 | 0.3733 | 0.6079 | 0.1899 | 0.4326 |
| TOTAL DEFICIT | -0.1518 | 0.3357 | -0.8642 | -0.8553 | 0.5959 | 0.1352 | -0.4090 | 0.5168 | 0.0368 | -0.3748 | -0.4488 | 0.8303 | -0.8715 | -0.4574 | 0.1922 | -0.2407 | 1.0503 |

APPENDIX 3: Contribution of the changes in the structural determinants to changes in the deficit.

| YEAR | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Public employment levels | 0.0227 | 0.0447 | 0.0872 | 0.0311 | 0.034 | 0.1033 | 0.0063 | 0.0345 | 0.0369 | 0.0391 | 0.0765 | 0.0479 | 0.0986 | 0.0803 | 0.1262 | 0.053 |
| Population | 0.0319 | 0.0322 | 0.0332 | 0.0343 | 0.0335 | 0.034 | 0.0336 | 0.0329 | 0.0333 | 0.0321 | 0.0301 | 0.0333 | 0.0329 | 0.0311 | 0.026 | -0.0694 |
| Consumer price index | 0.0138 | 0.0271 | 0.0132 | 0.013 | 0.0385 | 0.0371 | 0.0238 | 0.0232 | 0.0227 | 0.0554 | 0.0628 | 0.059 | 0.0926 | 0.1099 | 0.1255 | 0.107 |
| Interest rate * | 0.2642 | -0.0702 | -0.0681 | 0.0101 | 0.2548 | 0.3964 | 0.1747 | 0.149 | 0.3035 | -0.0216 | 0.1808 | 0.1448 | 0.0669 | 0.2925 | 0.0587 | -0.023 |
| Debt * | -0.0317 | -0.1528 | -0.1752 | -0.1596 | 0.3041 | -0.2266 | -0.2217 | 0.1125 | 0 | 1.0399 | 0.7207 | 0.0961 | -0.209 | 0.28 | 0.4457 | 0.206 |
| Real exchange rate | 0.0073 | -0.0365 | 0 | 0.0746 | -0.0445 | 0.0076 | 0 | 0.0306 | 0.0602 | -0.007 | -0.0364 | 0.0969 | -0.2257 | -0.0407 | 0.0584 | 0.225 |
| Capital goods imports | 0.2715 | 0.1912 | 0.0173 | 0.3041 | 0.0915 | -0.0528 | 0.2759 | 0.1954 | -0.0741 | 0.0233 | 0.1657 | -0.1233 | 0.5061 | 0.2545 | 0.2281 | -0.049 |
| Gross domestic product | 0.026 | 0.0343 | 0.0552 | 0.0493 | 0.0466 | 0.0447 | 0.0597 | 0.0415 | 0.0632 | 0.0477 | 0.0523 | 0.0648 | 0.1196 | 0.1174 | 0.0629 | 0.063 |
| TOTAL EXPENDITURE | 0.6057 | 0.07 | -0.0372 | 0.2897 | 0.7585 | 0.3284 | 0.3524 | 0.6198 | 0.4454 | 1.2087 | 1.2524 | 0.4196 | 0.4821 | 1.1249 | 1.1346 | 0.514 |
| Gross domestic product | 0.1055 | 0.1393 | 0.2239 | 0.1999 | 0.1891 | 0.1817 | 0.2424 | 0.1684 | 0.2566 | 0.1936 | 0.2123 | 0.2628 | 0.4851 | 0.4761 | 0.2553 | 0.259 |
| Private consumption | 0.0444 | 0.0645 | 0.1031 | 0.1336 | 0.0722 | 0.1089 | 0.1053 | 0.1278 | 0.148 | 0.1522 | 0.148 | 0.1383 | 0.2096 | 0.2163 | 0.192 | 0.1569 |
| Real exchange rate | 0.0018 | 0.0088 | 0 | 0.0018 | -0.0107 | -0.002 | 0 | 0.0073 | 0.0144 | -0.002 | -0.009 | 0.0233 | -0.0542 | -0.01 | 0.014 | 0.0542 |
| Efficiency of the tax system | 0.2121 | 0.0774 | 0.0627 | 0 | -0.118 | 0.0192 | 0.0188 | -0.009 | 0.0745 | -0.1125 | 0.1271 | 0.0086 | 0.0172 | -0.177 | 0.0514 | 0.009 |
| TOTAL REVENUE | 0.3638 | 0.2725 | 0.3898 | 0.3353 | 0.1327 | 0.3079 | 0.3666 | 0.2943 | 0.4937 | 0.2316 | 0.4787 | 0.433 | 0.6576 | 0.5056 | 0.5128 | 0.4 |
| TOTAL DEFICIT | 0.2419 | -0.2025 | -0.427 | -0.0455 | 0.6258 | 0.0205 | -0.0142 | 0.3254 | -0.0482 | 0.9771 | 0.7738 | -0.0134 | -0.1755 | 0.6194 | 0.6218 | 0.034 |

APPENDIX 3 contd...

| YEAR | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Public employment levels | 0.0425 | 0.0415 | 0.0128 | 0.0508 | 0.0596 | 0.0656 | 0.044 | 0.0429 | 0 | 0.0256 | 0.0306 | 0.0247 | 0.017 | 0.002 | 0.0276 | 0.002 | -0.042 |
| Population | -0.033 | 0.0287 | 0.01 | 0 | 0.0299 | 0.0305 | 0.032 | 0.03 | 0.032 | 0.0298 | 0.0289 | 0.0278 | 0.027 | 0.0268 | 0.0263 | 0.0182 | 0.033 |
| Consumer price index | 0.1083 | 0.1082 | 0.1265 | 0.1333 | 0.1473 | 0.1409 | 0.1172 | 0.1121 | 0.1575 | 0.1786 | 0.1556 | 0.1226 | 0.1416 | 0.1389 | 0.1474 | 0.1337 | 0.0939 |
| Interest rate* | 0.148 | 0.5199 | -0.3685 | 0.2158 | 0.3222 | 0.1924 | 0.0219 | 0.2702 | 0.1585 | 0.099 | -0.054 | 1.2526 | -0.57 | 0.0441 | -0.056 | -0.038 | -0.023 |
| Debt* | -0.011 | -0.1535 | -0.2511 | -0.3773 | 0.1777 | 0.1087 | -0.01 | 0.2605 | -0.2267 | -0.141 | -0.015 | -0.2465 | 0.1897 | -0.058 | -0.048 | 0.0744 | 0.8215 |
| Real exchange rate | -0.1011 | -0.059 | -0.077 | -0.1291 | 0.1135 | 0.2537 | -0.092 | 0.3537 | 0.6034 | -0.1878 | -0.3351 | 0.045 | 0.094 | -0.1483 | -0.065 | -0.1083 | 0.1229 |
| Capital goods imports | -0.037 | 0.217 | 0.0647 | 0.1104 | 0.2967 | -0.1621 | -0.1755 | 0.0319 | -0.1538 | 0.0171 | 0.1614 | 0.2332 | -0.205 | -0.1645 | 0.6549 | -0.1854 | 0.4161 |
| Gross domestic product | 0.0545 | 0.0756 | 0.0993 | 0.1715 | 0.0802 | 0.067 | 0.0684 | 0.0869 | 0.0748 | 0.0825 | 0.0839 | 0.1007 | 0.1012 | 0.0742 | 0.0621 | 0.0526 | 0.0609 |
| TOTAL EXPENDITURE | 0.1707 | 0.7779 | -0.3835 | 0.1705 | 1.2272 | 0.6967 | 0.009 | 1.1884 | 0.642 | 0.1038 | 0.0566 | 1.5601 | -0.205 | -0.084 | 0.8 | -0.051 | 1.4829 |
| Gross domestic production | 0.221 | 0.3066 | 0.4026 | 0.6954 | 0.3254 | 0.2721 | 0.2776 | 0.3527 | 0.3035 | 0.3345 | 0.3405 | 0.4084 | 0.4103 | 0.3012 | 0.252 | 0.2136 | 0.2469 |
| Private consumption | 0.1282 | 0.1402 | 0.1935 | 0.3184 | 0.2889 | 0.2076 | 0.1927 | 0.1919 | 0.1265 | 0.2283 | 0.2352 | 0.2602 | 0.2245 | 0.0508 | 0.3804 | 0.1652 | 0.1343 |
| Real exchange rate | -0.017 | -0.014 | -0.018 | -0.031 | 0.0272 | 0.0609 | -0.022 | 0.0849 | 0.1449 | -0.045 | -0.08 | 0.0108 | 0.023 | -0.036 | -0.016 | -0.026 | 0.0293 |
| Efficiency of the tax system | -0.01 | 0.01 | -0.097 | 0.0429 | -0.01 | 0.0208 | -0.031 | 0.042 | 0.0302 | -0.039 | 0.0101 | 0.0504 | 0.01 | 0.0569 | -0.01 | -0.1629 | 0.0217 |
| TOTAL REVENUE | 0.3225 | 0.4423 | 0.4807 | 1.0258 | 0.6313 | 0.5615 | 0.4175 | 0.6716 | 0.6052 | 0.4786 | 0.5055 | 0.7297 | 0.6669 | 0.3733 | 0.6079 | 0.1899 | 0.4320 |
| TOTAL DEFICIT | -0.1517 | 0.3357 | -0.8642 | -0.8552 | 0.5959 | 0.1352 | -0.4089 | 0.5168 | 0.0378 | -0.3747 | -0.4488 | 0.8303 | -0.871 | -0.4573 | 0.1922 | -0.2406 | -1.050 |

* base year = 1990

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