

# **The Fiscal Effects of Aid in Zambia**

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**Economic and Statistics Analysis Unit**

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## Acronyms

COMESA	Common Market of Eastern and Southern Africa
DAC	Development Assistance Committee (of the OECD)
DDSR	Debt and Debt-Service Reduction
ESAF	Enhanced Structural Adjustment Facility
GDF	Global Development Finance
GDP	Gross Domestic Product
GDY	Gross Domestic Income (after terms-of-trade adjustment)
GFS	Government Finance Statistics
GNE	Gross National Expenditure
HIPC	Highly Indebted Poor Country
IBRD Bank)	International Bank for Reconstruction and Development (World Bank)
IDA	International Development Association (World Bank)
IFS	International Financial Statistics
IMF	International Monetary Fund
INDECO	Industrial Development Corporation
KfW	Kreditanstalt für Wiederaufbau
NAMBOARD	National Agricultural Marketing Board
MFNP	Ministry of Finance and National Planning
MMD	Movement for Multiparty Democracy
NCDP	National Commission for Development Planning
NERP	New Economic Recovery Programme
ODA	Official Development Assistance
OECD	Organisation for Economic Cooperation and Development
OLS	Ordinary Least Squares
PRGF	Poverty Reduction and Growth Facility
PRSP	Poverty Reduction Strategy Paper
RAP	Rights Accumulation Programme
TC	Technical Cooperation
UDI	Unilateral Declaration of Independence
UNIP	United National Independence Party
VAR	Vector Autoregression
VEC	Vector Error Correction
WDI	World Development Indicators
ZCCM	Zambian Consolidated Copper Mines
ZNCB	Zambia National Commercial Bank
ZPA	Zambia Privatisation Agency

## Executive Summary

The paper asks what the impact has been on Zambia's fiscal aggregates of the large volumes of external assistance provided to the country, in particular since the mid-1980s, and whether these have *prima facie* been growth-inducing. It considers the course of fiscal performance, and of its wider economic context, from independence in 1964 to the start of the 21<sup>st</sup> Century. It applies vector autoregression econometric analysis to data on the main fiscal aggregates.

The paper's principal conclusions are that the main significant net impacts of a one-period injection of aid (ODA and net foreign borrowing) have been (i) sustained higher capital expenditure and (ii) apparently somewhat lower domestic revenue receipts (see below). Recurrent expenditures have also risen contemporaneously with the receipt of aid, as donors have wished. On the other hand, domestic borrowing has also increased in response to injections of ODA, suggesting that, far from using these to stabilise the economy, the government has tended to take the opportunity to relax fiscal and macroeconomic controls. This was contrary to the spirit of the IMF programmes, in the context of which much aid has been provided. Aid has permitted public expenditures to rise well above levels able to be financed from domestic resources, but has not prevented their decline in real terms, nor the decline in the quality and outreach of public services. Large volumes of aid have been devoted to debt and debt-service reduction, the effects of which on fiscal aggregates are diffused through time.

Though the decline of its economy and public expenditures has been prolonged and severe, Zambia's current position is far from being the worst in sub-Saharan Africa. Its per capita income in 2000 in current international dollars was \$760 compared with \$510 and \$1000 respectively for neighbouring Tanzania and Mozambique, and an average for sub-Saharan Africa (including South Africa) of \$1800. Its public expenditure was 25% of (conventionally measured) GDP, compared with the regional average of 26%; and its investment rate was 19% of GDP, which exceeded the sub-Saharan African average of 17%.

Zambia's economic history since independence can be divided into three periods: (i) from 1964 until approximately 1975, a time of high copper prices, economic expansion, public expenditure growth and public sector expansion; (ii) 1975-90 when mineral earnings began to contract, bringing economic decline compounded by mounting macroeconomic mismanagement, fiscal and structural difficulties and largely unsuccessful reforms; and (iii) 1991 to the present when radical structural and economic management reforms have been undertaken, but without adequate attention to macroeconomic stabilisation and fiscal discipline.

In the first period Zambia had a resource surplus, though the government borrowed domestically and from abroad to finance its expanding operations, including nationalisation and ambitious infrastructure projects. In the second period, as domestic revenue receipts fell as a share of GDP, the government borrowed heavily domestically and from foreign creditors. Mounting balance-of-payments and external debt problems in the 1980s elicited for the first time significant concessional assistance from bilateral donors, but flows were interrupted by unsatisfactory relations with the international finance institutions. In the most recent period inflows of concessional assistance from bilateral sources have been on a massive scale, and have been joined by significant inflows of concessional credits for structural and sector adjustment from multilateral sources, mainly the IDA. In election year 1991 there was an exceptional, and very pronounced, spike in public expenditure and domestic borrowing.

Budgeting, fiscal discipline, public expenditure management and the effectiveness of public expenditure programmes declined in standards over the decades under review as a consequence of repeated *ad hoc* adjustments to diminishing resources. There has been repeated recourse to inflationary domestic borrowing. Prior to 2002 there was no effective medium-term expenditure programming. Supplementary budgets have been routine. Dysfunctional cash budgeting arrangements introduced in the 1990s have further blunted the thrust of public expenditure strategy.

The dichotomy has been maintained between the recurrent and capital budgets, with the recurrent budget largely financed by domestic revenue and (largely monetised) domestic borrowing, and over 80% of the capital budget financed from external sources. Falling aggregate real fiscal resources brought declines in all the main economic and functional categories of expenditure, apart from debt interest, between the mid-1980s and mid-1990s. In the later 1990s, however, rising aid inflows and the effects of previous debt and debt-service reduction operations, along with the stabilisation of the domestic economy, helped to stem the tide, leading to increases in real wage and salary payments, other recurrent outlays and expenditure on the social services and transport and communications. The exceptional burden of external debt notwithstanding, debt interest payments have, as a consequence of default and relief, been a less onerous charge on Zambia's recurrent budget than on those of other indebted countries. They peaked at 25% (on average) of the recurrent budgets of the first half of the 1990s, before falling to 10% in the second half.

The story of Zambia's declining economic performance, altering policies and erratic macroeconomic and fiscal management gives rise to the expectation that the fiscal impact of aid on the main fiscal aggregates has been poorly defined because: (i) a substantial proportion of donors' disbursements - on technical cooperation, debt and debt-service reduction, food aid projects, etc. - has passed outside the budget; (ii) Zambia has implemented cash budgeting in an *ad hoc* manner which has made it difficult to pursue a coherent public expenditure allocation strategy; and (iii) a large share of on-budget disbursed aid has been in the form of balance-of-payments and budget support the domestic expenditure counterpart of which is *ex ante* unconstrained - though the donors have exerted pressure on the government to use it to rehabilitate and sustain recurrent outlays on certain services deemed to be pro-poor, notably the social services.

The econometric analysis throws some light on these issues. The weakness of the estimated relationships (low  $R^2$ ) tends to confirm the *ad hoc* character of fiscal resource allocation. The fact that aid has exerted no apparent downward pressure on Zambia's almost constant excessive domestic borrowing also bears witness to the weakness of the budgetary process.

The first principal conclusion of the estimated VAR model is that a one-period injection of external financing appears to have mainly had the effect of promoting a sustained and significant rise in capital budget expenditure (cumulatively by a multiple of itself). The model also reveals a weaker, single-period, effect of aid in raising recurrent expenditure. The strength of the effect on capital expenditure indicates that the practice of dual budgeting - in which external finance is devoted to the capital budget and domestic revenue to the recurrent budget - has survived, in spite of the early unification of responsibility for the recurrent budget and the development plan within one ministry.

The second principal conclusion of the econometric analysis - that aid has had a negative effect on domestic revenues - is harder to explain in terms of policy processes. The IMF and the donors have discouraged any slackening of revenue mobilisation endeavours which might aggravate macroeconomic instability. The result probably reflects the



simultaneous effect of Zambia's economic decline and consequential balance-of-payments problems on revenue receipts - from the copper sector and from taxes on trade - and on donors' willingness to assist.

The effects of aid on Zambia's GDP during the long years of decline have been palliative. They cannot be fully inferred from the econometric results on fiscal effects. Aid has (i) financed most of the capital budget since 1970, (ii) reduced somewhat since 1990 the mountain of external debt inherited from earlier years, reducing the costs of its servicing, and (iii) contributed resources to the recurrent budget, both directly and through debt-service reduction. It has thereby helped to mitigate the deterioration of the country's once admired economic and social infrastructure, and to retard the deterioration of its public services. Since the mid-1990s it has assisted the modest revival of expenditure on public services and helped to reverse their earlier deterioration. It played a role in creating the conditions for the slow economic revival begun in the later 1990s.

However, the flow of aid was erratic and unpredictable - even in the 1990s when disbursements were large - because of relationships with donors characterised by frequent interruptions of dialogue. Aid flows were an insecure financial basis for the planning of public-service development, leading to spasmodic and inefficient implementation and outputs of impaired effectiveness. The efficiency and effectiveness of public programmes have in general been low. Moreover, the policy environment has not been such as to inspire the confidence of private investors on a scale sufficient to engender sustained and rapid growth. Aid contributes to growth most powerfully when it complements expansionary forces operating autonomously in the non-governmental sectors of the economy.

# Chapter 1: Introduction

## *Fiscal impact studies*

This paper is one of a series of three ESAU working papers which seek to identify the fiscal impact of aid receipts, with a view to achieving a better understanding of how aid is absorbed into the economies of different countries, and thus the ways in which it may have stimulated growth and contributed in other ways to poverty reduction. The other studies cover Malawi (Fagernäs and Schurich, 2004) and Uganda (Fagernäs and Roberts, 2004a). A survey of the literature on fiscal impact studies and a discussion of the methodological issues in impact estimation are to be found in the accompanying survey and synthesis working paper (Fagernäs and Roberts, 2004b) which treats themes common to all three country papers.

These studies take as their starting premises the observations that (a) most aid (some 95%) is official, and most official aid is provided to recipient country governments, and (b) most recent cross-country empirical studies of the aid-growth relationship (e.g. Hansen and Tarp, 2000; Morrissey, 2001) find that aid has been beneficial for economic growth – and also for improvements in social indicators. However, this apparently positive impact of aid on growth is a cross-country average, and does not necessarily apply to all countries. The impact is also estimated in reduced form equations which do not reveal the mechanisms at work. It is much harder to identify the aid-growth relationship in the time series analysis of single country data (Easterly, 2001). The ways in which aid promotes growth may be very different from one country to another – acting in some countries to build new capacity for the production of marketed or non-marketed goods and services, and in others to maintain existing public services and, more generally, to sustain or increase the level of effective demand.

Fiscal impact studies, which use econometric analysis of time series data to demonstrate whether, in the cases of particular countries, aid has been used primarily to increase public investment or consumption expenditure, or to reduce the burdens of taxation and debt service, throw useful light on how aid may have affected growth processes. They offer partial illumination of the aid-growth relationship, but still leave important parts of the story untold.

One difficulty with fiscal impact studies is that some aid, though provided to governments, is not accounted for in state budgets. This may be because of the deficiencies in budget processes or inadequate provision of information by donors, leading to the omission from public accounts of some donor-financed activities. Or it may arise because aid finances legitimately off-budget activities such as lending to, or investment in, commercial enterprises and the financing of the work of non-governmental agencies. As will become apparent, this problem arises in the case of Zambia. Where the problem occurs, fiscal impact studies are able to focus only on how aid has affected reported fiscal aggregates and sub-aggregates.

## *The case of Zambia*

Prior to independence in 1964 Zambia (formerly Northern Rhodesia) had been, since 1953, part of the Central African Federation of Rhodesia and Nyasaland whose capital was Salisbury in the then Southern Rhodesia. The government in Lusaka had ceded control over the main sources of revenue generated in the territory to the federal government, and retained only devolved responsibility for certain expenditure programmes. No meaningful economic analysis of the public accounts in these years can therefore be undertaken.

Since independence, Zambia has in many ways been atypical of aid-receiving countries, because it started with considerable fiscal and economic advantages, notably from the receipt of large revenues from the copper sector. For its first decade it was able to finance large increases in investment expenditure without recourse to significant inflows of official development assistance (ODA).

Thereafter, the price of copper fell and its output began to decline, leading to a relentless decline in Zambia's real per capita income, lasting two decades. Revenues, largely dependent, directly or indirectly, on activity in the copper sector, fell as a share of GDP as the taxable capacity of the sector declined. Economic management difficulties were compounded by an exceptionally heavy burden of external debt incurred during the post-independence period of high creditworthiness, and used *inter alia* to finance the extensive investments in transport, communications and energy infrastructure made in this period. Zambia's absorption of ODA increased in fits and starts throughout this period of per capita income decline, reaching an average of over 20% of GDP in the 1991-2001 period.

The specificity of the Zambian case, therefore, is that aid has been sought and used in good part to help cope with a long-lasting crisis in public finances, and to mitigate the decline of public services which, in earlier years, had been superior to those of other African countries.

Part I of this paper describes the Zambian economy - its main structures, institutions, policies and fortunes - over the 1964-2001 period (Chapter 2) and its macroeconomic and fiscal dilemmas and priorities (Chapter 3). This descriptive background will be used to help formulate hypotheses regarding the fiscal impact of aid and other external financing. These hypotheses will be tested econometrically in Part II using vector autoregression (VAR) analysis. The mechanics and rationale for this approach to the empirical investigation are given in the survey and synthesis paper (Fagernäs and Roberts, 2004b). In brief, it permits the statistical analysis of time series of related endogenous variables, revealing their contemporaneous and lagged interactions when subjected to exogenous shocks.

# PART I: ZAMBIA'S ECONOMY, POLICIES AND FISCAL INSTITUTIONS 1960-2001

## Chapter 2: Economic Fortunes and Policies

### 2.1 Income and growth

Zambia began life as an independent state in 1965 with a per capita GDP of \$614 in 2000 prices. Thirty years later, in 1995, this measure of average income had dropped to \$315; by 2001 it had recovered slightly to \$330. Over the 37 years since independence per capita GDP had declined at an annual average rate of 1.6% (Fig. 2.1). Purchasing power declined more sharply than these constant price figures indicate because of serious losses in the terms of external trade in the 1970s and 1990s causing a 60% fall in gross domestic income (GDY)<sup>1</sup> between 1970 and 1980 (Fig. 2.2). For most of its existence Zambia has had to cope with the management of economic decline and with adjustment to reduced resource availability.

The growth record of the Zambian economy over the past four decades can be divided into three periods – covering approximately the periods of the First Republic (1964-73), the Second Republic (1973-91) and the Third Republic (1991 to date):<sup>2</sup>

- i. *1960 to 1975.* Copper output had doubled between 1953 and 1960. In the 1960s output continued to expand – rising from 632,000 tonnes in 1964 to 747,000 tonnes in 1969 - and prices were high. There was modest real GDP growth averaging some 3.6% p.a., driven by copper and by sharp increases in public and private consumption and investment expenditure in the years after independence. Gross national income increased more rapidly because, as part of the independence settlement, the British South Africa Company agreed to relinquish the mineral royalties which it had previously retained. The copper industry was profitable, and by the late 1960s was paying 73% of pre-tax profits in tax. After independence copper mining and smelting contributed nearly 70% of budget revenue through a combination of corporate income tax, mineral royalties and export tax.
- ii. *1975 to 1990.* By 1975 Zambia's terms of trade had suffered an enduring decline under the dual influence of a collapse in copper prices and the first oil crisis. Between 1970 and 1980 the net barter terms of trade fell by 66%; and they fell by a further 7% between 1980 and 1990. Copper production reached a plateau, and began to decline for lack of investment following progressive nationalisation – falling from 700,000 tonnes p.a. in the early 1970s to 400,000 tonnes p.a. in 1990-1. The copper sector started to incur post-tax losses. Agriculture entered a period of output stagnation and falling real incomes. The government made episodic attempts to curb public expenditure in order to reduce persistent fiscal deficits and overcome mounting balance-of-payments problems. These led to a collapse in real public service wage rates (Chapter 4) and low public investment expenditure. Between 1975 and 1990 real economic growth was a mere 0.7% p.a.

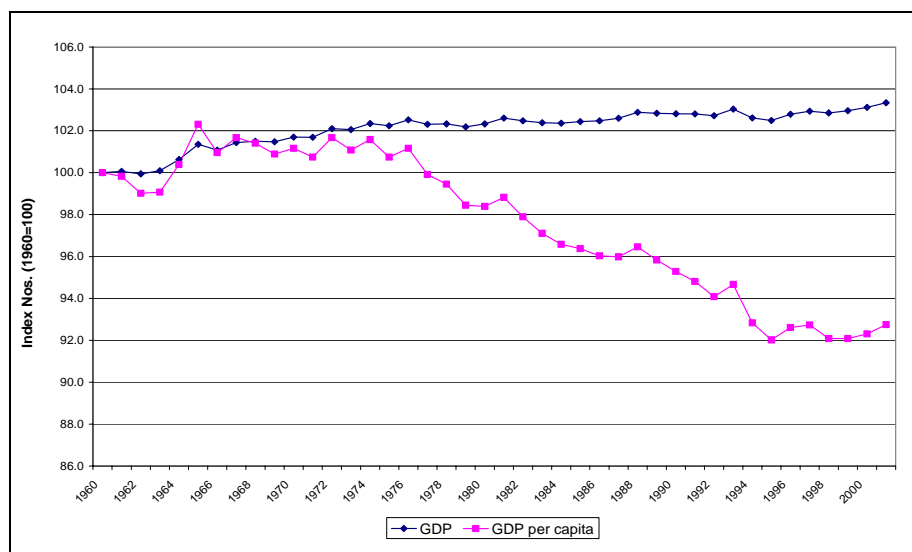
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<sup>1</sup> Gross domestic income (GDY) is GDP corrected for changes in the purchasing power of exports induced by terms-of-trade changes.

<sup>2</sup> The First Republic was a multiparty democracy, with free elections; the Second Republic had a single-party constitution in which the United National Independence Party was the only recognised party political organisation; the Third Republic saw a return to multiparty democracy with free elections. All three constitutions were presidential, the first two under President Kaunda, and the third under President Chiluba, leader of the Movement for Multiparty Democracy.

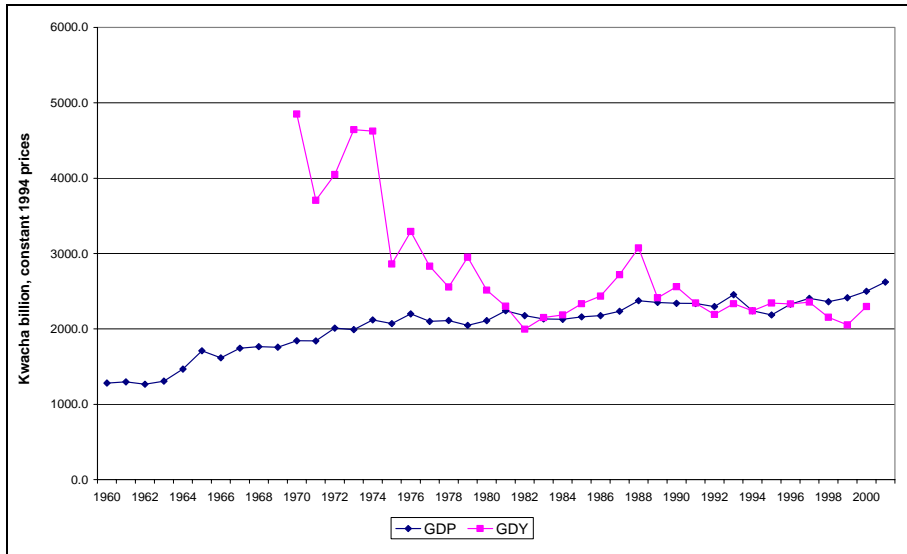
- iii. *1990 to 2001.* After 1990 determined efforts were made to stabilise, reform, liberalise and diversify the still declining economy, and to restructure and reduce Zambia's unsustainable external debt. The copper sector, much diminished as a source of revenue, became a fiscal burden in the later 1990s. However, the benefits for growth of these reforms were retarded and diminished by erratic macroeconomic management and implementation, governance shortcomings and external and climatic shocks. The economy contracted in the early 1990s, in part as a consequence of serious drought in 1992 and under the influence of a further deterioration in the terms of trade (down 35% during 1990-3). By 1995 the area planted to crops was 15% lower than the 1985-90 average as a consequence of reduced availability of credit and the removal of subsidies. There was also a sharp fall of over 20% in the index of manufactured production. The economy was in the grip of high inflation approaching 200% p.a. in 1992 and 1993. It began to grow at some 2% p.a. after 1995 in more stable macroeconomic conditions, with the emergence of significant non-copper export production, and after the resumption of external financing by donors.

**Fig. 2.1 Zambia: Indices of real GDP and GDP per capita 1960-2001**



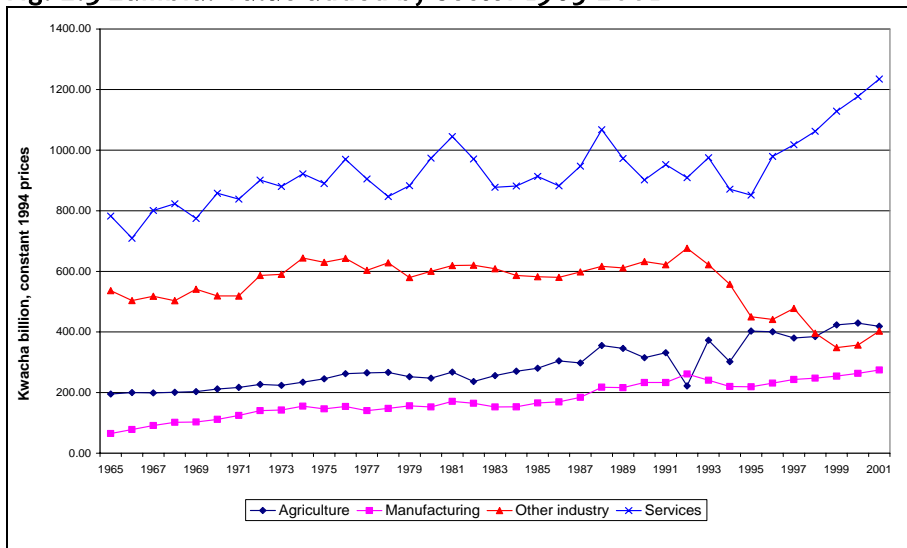
Source: WDI

Fig. 2.2 Zambia: GDP and GDY



Source: WDI and authors' calculation

Fig. 2.3 Zambia: Value added by sector 1965-2001

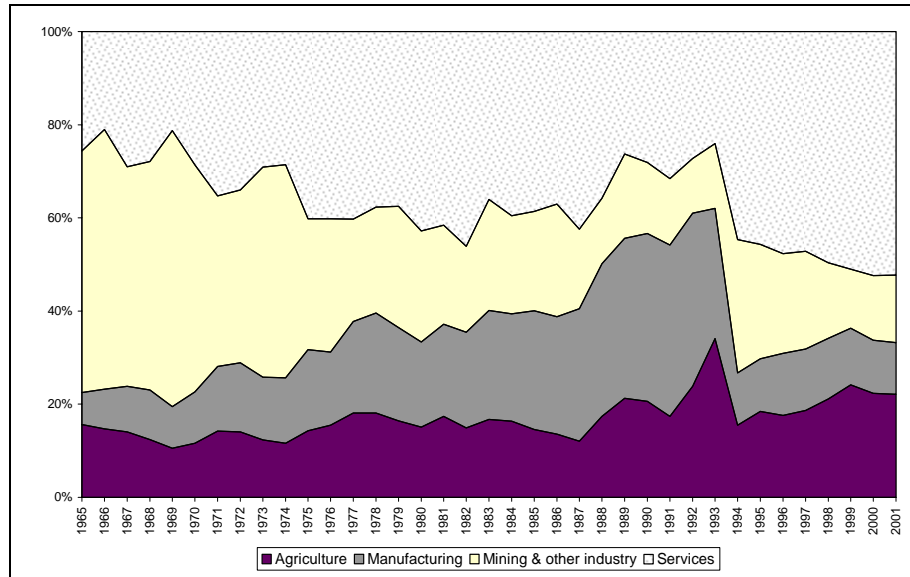


Source: WDI

From the outset Zambia's economy has been based on mining, manufacturing and other industry. These sectors contributed 60% to GDP at current prices in 1965 – 40% from the mining sector alone.<sup>3</sup> By 1980, however, their share had fallen to 40%, and by 2000 it was down to 25% (Fig. 2.4).<sup>4</sup> Their decline has been matched by an increase in the share of the services sector – to a large extent government services.

<sup>3</sup> Rising to a peak of 49% of GDP in 1969.

<sup>4</sup> The sharp drop in the value-added shares of agriculture and manufacturing, and correspondingly in the share of mining, in 1993-4 was a consequence of sharp exchange-rate depreciation on the relative prices of inputs and outputs in these sectors.

**Fig. 2.4 Zambia: Sector shares in value added**

Source: WDI

The personal incomes of rural as well as urban Zambians are heavily dependent on wages and salaries earned in industry, manufacturing and public services. The proportion of the population living in urban areas rose fast before and after independence, increasing from 17% in 1960 to 22% at independence and further to 40% by 1980, at which level it has since stabilised.

## 2.2 Economic structures and policies 1964-1990

At independence most non-governmental economic activity in Zambia was in the private sector. The mining industry and the associated rail and power infrastructure belonged to expatriate interests. Manufacturing was still on a small scale, with most manufactured products being imported. Agriculture was divided between African farmers, many of whom supplemented their subsistence incomes with off-farm wages, while some produced food surpluses for sale to urban areas, and some 1200 European-owned farms, mainly located along the line of rail, which supplied maize to the local market and produced Virginia tobacco for export. Almost all grain sold in the domestic market was domestically produced – of which 75% came from settler farms, and the balance from some 20,000 small African commercial farms (Wood et al., 1990). It was marketed through provincial marketing boards.

The new Republic of Zambia set economic policy objectives inspired by President Kaunda's philosophy of 'humanism' intended to eliminate economic disparities, improve the lot of the African population and establish indigenous control over the economy. These policies had significant fiscal and resource allocation implications. The government acquired permanent control of well over 50% of the production of GDP.

*Nationalisation and the creation of a parastatal sector.* Kaunda's speech at Mulungushi in 1968 set the agenda for the progressive nationalisation of the copper industry, the creation of parastatal enterprises (in food processing, manufacturing, banking and commercial services), and public procurement preferences for indigenous enterprises.

In 1971 the government, through its Zambia Industry and Mining Corporation and later Zambian Consolidated Copper Mines (ZCCM), acquired a 51% shareholding in the copper mines, borrowing \$150 million in the Eurodollar market to compensate foreign shareholders

(Gulhati, 1989). By 1980 this share had risen to 60%, as the minority shareholders declined to participate in rights issues. The tax regime changed with nationalisation from one based on a combination of royalty, export tax (payable when the price exceeded K600/tonne) and corporate income tax to a more onerous mineral tax levied on turnover and corporation tax on profits. Under this regime taxes amounted to about 75% of pre-tax income (ibid.).

A holding company, INDECO, was set up to orchestrate state takeovers and to control the government's parastatal portfolio. The number of parastatal enterprises rose from 17 to 147 in the course of the 1970s. In 1970 banks and insurance companies were nationalised and new parastatal banks like the Zambia National Commercial Bank were established. New manufacturing enterprises were opened, built and equipped with extensive recourse to foreign suppliers' credits. Companies remaining in the private sector were subject to onerous regulation. By the end of the 1970s INDECO's portfolio was incurring sizeable financial losses (ibid.).

Reforms were introduced in the 1980s with a view to achieving the partially contradictory aims of reducing INDECO losses *inter alia* by selective closures, encouraging private investment, and simultaneously lowering effective rates of protection and increasing import duty revenue by a combination of lower tariffs on finished products, higher tariffs on inputs and the elimination of zero tariffs. The measures as implemented were palliatives which did little to overcome structural distortions.

*Agriculture.* Agricultural development marketing policy was torn between the conflicting goals of improving the lot of African farmers by providing them with extension advice and access to inputs and markets, of promoting cooperatives (in accordance with 'humanist' principles) and of supplying the fast-growing urban population with affordable basic food supplies. Some state farms were established to compete with expatriate commercial farmers, and cooperative unions were established to participate in the marketing of smallholder produce. However, the most significant and costly initiatives concerned state agricultural marketing.

Provincial marketing boards were replaced in 1969 by the National Agricultural Marketing Board (NAMBOARD) with a near monopoly in the distribution of fertiliser and marketing of maize. From 1971, it applied 'pan-territorial pricing' which meant paying farmers the same farm-gate procurement price irrespective of transport and marketing costs. In the 1960s official procurement prices had approximated to border prices. By the early 1970s prices to producers had fallen well below border prices, and the government set about partially offsetting this by subsidising fertilisers. It also subsidised NAMBOARD's transport costs for bringing maize from the remote Eastern province, and the retail price of maize meal to consumers (ibid.).

In 1982 the government acceded to pressure from the World Bank to restore producer incentives by raising farm-gate prices to import parity. There followed five years of policy instability in which successive producer price increases, made necessary by devaluations, caused the consumption subsidy to rise, forcing the government to make unpopular increases in retail prices, culminating in widespread unrest in urban areas and the Copperbelt in 1986-7. The government felt obliged to restore subsidies as part of a wider policy reversal, which included abandoning the currency auction.

*Import substitution.* At independence Zambia had a very open economy, with a high (85-90%) external trade/GDP ratio and high import dependence. This situation was perfectly tolerable so long as the copper sector - which brought in over 90% of export earnings - was prosperous. The government, nevertheless, was resolved to make the country more self-sufficient and less import-dependent. It therefore adopted a trade policy which implied the taxation of agriculture (through low procurement prices) and subsidising manufacturing - through tariff protection, import controls and currency overvaluation. Zambia's trade/GDP ratio was not reduced: by the



mid-1980s it had risen to around 90%. By 1975 effective rates of protection on consumer goods ranged from 67% for food products to 470% on durables. This protection permitted brisk growth in manufacturing up to the mid-1970s, but burdened the country thereafter with inefficient, loss-making, manufacturing industries of no value in diversifying export earnings away from copper. The economy was dogged by persistent problems of foreign-exchange shortage between 1975 and 1990 affecting access to imported inputs, which contributed to the stagnation in these years of manufacturing output. Agriculture, meanwhile, stagnated, and imports of foodstuffs burgeoned, doubling between 1964 and 1974, by which time they constituted 40% of the value of marketed food (Roberts, 1976).

Protectionist policies were reversed in the 1990s - and incentives were re-aligned with Zambia's comparative advantage - with the adoption of a floating exchange rate and current account convertibility, and the rationalisation and reduction of import tariffs. One consequence was the closure of inefficient import substitution industries which could no longer compete with imports. Another more encouraging result was the gradual re-emergence of export-oriented commercial agriculture. Smallholder maize production also revived, despite the erratic character of the liberalisation of grain marketing.

*Infrastructure.* Not long after Zambia's independence, the minority government in Rhodesia incurred international sanctions, including a trade boycott, as a result of its Unilateral Declaration of Independence (UDI) in 1965. Zambia, until then heavily dependent on Rhodesia for supplies, including electricity and fuel, and for transit facilities for imports and exports, decided to embark on a large-scale investment programme designed to eliminate dependence on countries to the South for trade, power and transit. This involved constructing pipeline, rail and road links to the Indian Ocean through Tanzania, and new hydroelectric power stations and a coal mine. Oil was flowing through the new pipeline by 1968; the Tazara railway was taking Zambia's copper to Dar-es-Salaam by 1975; and by 1970 imports from Rhodesia, which amounted to 40% of all imports in 1964, had been reduced to 5% (Roberts, 1976). Needless to say, this whole-scale restructuring of a land-locked country's external communications and directions of trade required heavy investment, which Zambia financed by foreign borrowing.

*Public employment.* At independence few Zambians had education and experience in administration and business. There was heavy dependence on expatriates to run the public administration and private enterprise. The government set out to Zambianise its cadres as fast as reasonably possible, and to eliminate the discrimination in pay against Africans. It gave effect to the recommendation of the Brown Commission in 1966 that pay scales be unified by raising the African pay to the levels of non-African. It also reduced pay differentials between senior and junior staff, by means of successive cost-of-living adjustments, which affected levels and structures of remuneration in all formal sector employment. By 1970 average real earnings in the formal sector were 45% higher than in 1964.

Public service employment increased apace in the first two decades of independence, and continued to rise thereafter, albeit more slowly, until 1992. Employee numbers rose from 45,000 in 1965 to 67,000 in 1970, and 110,000 in 1980 (Republic of Zambia CSO; World Bank, 2003). They reached a peak of 140,000 in 1992, before declining under the influence of a Public Service Reform Programme to 105,000 in 2000. Personal emoluments were to constitute a major element in budgetary expenditure (cf. Chapter 4). Mounting economic and fiscal difficulties in the later 1970s and 1980s forced the government to restrain these costs, not by reducing staffing levels but primarily by permitting wage and salary increases only lower than the rate of inflation, thus reducing real earnings.

*Reform and crisis 1985-91.* In 1985 mounting macroeconomic management problems - balance-of-payments and debt-service difficulties - and domestic labour unrest persuaded the

government, guided by its technocratic advisers, to collaborate with the IMF and the donors in a programme of adjustment and liberalisation measures. The main purposes were to rebalance the macroeconomy through fiscal adjustment and to restore incentives to sectors producing tradeable goods. The centrepieces of the programme were the introduction of an auction of some of Zambia's foreign-exchange receipts to eligible importers, the abrogation of some quantitative restrictions on imports, the liberalisation of interest rates, a reduction in the fertiliser subsidy, and the decontrol of maize and other prices in the parastatal sector. Inflation rose sharply.

The consequent rise in maize meal prices provoked civil unrest in the Copperbelt, which led the government to reverse the reforms. In 1987 it proclaimed a New Economic Recovery Programme (NERP) which ended the foreign-exchange auction, restored price controls, and limited external debt-service payments to 10% of export earnings, net of the requirements of ZCCM, Zambia Airways and fertiliser imports. The international financial institutions and some bilateral donors responded by halting their programme aid commitments.

The NERP was inadequately financed, in spite of some revival in copper prices and revenues after 1987. In 1989 the government reopened dialogue with the IMF, and resumed the decontrol of prices. The doubling of the price of maize meal in 1990 provoked a new and more serious outbreak of civil unrest, which soon took on political overtones. The ruling party, UNIP, yielded to pressure to alter the constitution to legalise opposition and allow multiparty elections, and was resoundingly defeated in the 1991 election by the Movement for Multiparty Democracy (MMD).

In the fevered pre-electoral atmosphere of 1991 restraint on public expenditure was abandoned. Public expenditure leaped from 28% of GDP in 1990 to 60% in 1991, giving rise to a fiscal deficit of 45% of GDP. This was financed by domestic borrowing equivalent to 25% and foreign financing equivalent to 20% of GDP (Figs. 3.4, 3.5 and 3.9 in the next chapter). The incoming MMD government thus inherited a legacy of increased public debt and higher inflation. It was soon to reap the hyper-inflationary consequences.

## 2.3 Economic reforms in the 1990s

Major economic reforms were implemented by the new government under President Chiluba which took power after the 1991 election, which reversed many of the policies pursued during the previous two decades and started to dismantle the institutions of state involvement in the economy. The major elements of the structural adjustment reforms were put in place early in the 1990s, soon after the change of government. They were:

*Exchange and external payments policy.* The dual exchange system which allowed imports of oil, fertiliser and supplies for ZCCM to enter the country at a highly overvalued rate was brought to an end in 1991 when the official exchange rate was abolished. Formerly controlled current account transactions were liberalised, starting with the legalisation of *bureaux de change* in 1992. In 1994 most restrictions on current account payments were abrogated, and the Kwacha was floated.

*Import liberalisation.* The open general licence system of attenuated quantitative restrictions was widened considerably in 1990. Import licensing was abolished in 1993. Over a five-year period all licensing and quantitative restrictions on imports and exports were eliminated, tariff bands were reduced in number from 11 to 4, and the maximum tariff was reduced, in stages, from 100% to 50% in 1990 and then to 25% in 1996. Formerly very high levels of import protection were thus reduced to moderate levels - with effective rates of protection for imports from outside

the Common Market of Eastern and Southern Africa (COMESA) area in the range 40-70% (World Bank, 1995).

*Financial sector.* Restrictions on bank lending and on domestic interest rates were rescinded by the Bank of Zambia in 1993.

*Agricultural marketing.* In 1993 pan-territorial pricing was abandoned, and private traders were allowed to operate in competition with NAMBOARD and the provincial cooperative unions. The government withdrew from input distribution, and subsidies on the distribution of fertiliser and marketing of maize were removed. They were later reintroduced through the medium of special credit programmes because, with very high nominal interest rates, the private sector proved unable to mobilise finance to cope with the consequences of the disastrous drought of 1992 and with the bumper harvest of the following year.

*Privatisation.* There was a programme for the divestiture or closure of parastatal enterprises, including banks, orchestrated by the Zambia Privatisation Agency (ZPA) set up in 1992. Privatisation proceeded slowly at first, with early priority given to small enterprises (Rakner, 2003). The pace accelerated in 1995: in December 1994 only 15 companies had been privatised, but by April 1997 the sale of a further 189 had been either completed or agreed.

The privatisation of ZCCM, however, was seriously delayed, and only occurred in 1998 (on less favourable terms than were available earlier) after persistent pressure from the international financial institutions. The sale (to Anglo-American) was completed only in 2000, prior to which the government had to service ZCCM's mounting burden of debt. Within two years of the acquisition, Anglo-American announced that it was relinquishing ZCCM's main Nchanga and Nkana divisions.

*Taxation.* The tax base was broadened with the introduction of a value added tax in 1995. Zambia enjoyed buoyant domestic revenues in the 1990s, contributed in equal measure by income taxes, trade taxes and other indirect taxes including VAT.

*Inward investment.* Inward direct investment was given political and regulatory encouragement, with the abrogation of former restrictions. Agriculture, manufacturing and the financial sector were all opened up to foreign investment.

## **2.4 Implications for fiscal management**

The implications of Zambia's long-drawn-out duration economic decline and of its economic policy gyrations will be discussed in more detail in the following chapter. It is clear from the foregoing that Zambia consumed its economic seedcorn in the first decade of its independence, eating up the natural resource rents it was receiving from copper. The boost to its fiscal resources which came from its independence settlement and from high copper output and prices in the later 1960s was used to expand the size and cost of government, to create the extensive and ultimately uncompetitive public sector based on import substitution, to subsidise agriculture and/or urban consumers and to construct an extensive new transport and energy infrastructure needed to reduce dependence on Rhodesia. This expansionary period not only bequeathed to later years a highly distorted economy, ill-prepared to adapt to an altered and less favourable economic environment; it also passed on a high level of running costs and the burden of servicing debt incurred to finance parastatal industries and infrastructure.

When the receipts needed to sustain these commitments declined in the later 1970s the government was forced with two options: to adjust its expenditure commitments as best it could,

or to seek additional domestic and foreign financing. Between 1975 and 1990 there was no effective strategy for confronting the prospects of decline and adjusting the economy. As will be seen later, there was simply a series of *ad hoc* reactions to successive crises, confronted without commitment to reform, in unsatisfactory dialogue with the international financial institutions. More structured and radical reforms were implemented in the 1990s, attracting much higher aid receipts, but their impact was blunted by further external shocks and persistently negative investor perceptions of Zambia. External resources, including those now provided from debt relief, were still, as in the previous period, required to mitigate decline and supplement falling resources rather than to build the foundations of pro-poor growth.

## Chapter 3: Macroeconomic Management: Imbalance and Instability

This chapter contributes the macroeconomic and external financing dimensions to the background on Zambia's economy. It depicts a long history of economic imbalance, with a resource gap financed externally on terms which gave rise to an exceptional burden of debt and, while the exchange rate was fixed at an overvalued rate, to persistent foreign-exchange rationing. It also shows a government chronically overestimating its resource availability, and relying extensively on domestic financing. This financing was in part funded outside the Bank of Zambia, but in good part was also monetised, with serious inflationary consequences, particularly after the precipitate liberalisation of the economy in the early 1990s. On the other hand, the chapter also shows that the government corrected its excessive absorption vigorously, albeit often insufficiently and in disorderly fashion.

The chapter considers in turn the aggregate income-expenditure balance, the fiscal balance, the external balance and the accumulation of debt, the monetary and inflationary consequences, and attempts at adjustment. It also summarises the evolution of concessional external financing to Zambia, from largely project-focused beginnings in the late 1970s to high-volume inflows of balance-of-payments and budget support in the 1990s. It notes (Section 3.2) a *prima facie* relationship between recorded external and domestic financing of the budget (the causality of which could run either way).

### 3.1 Resource balance

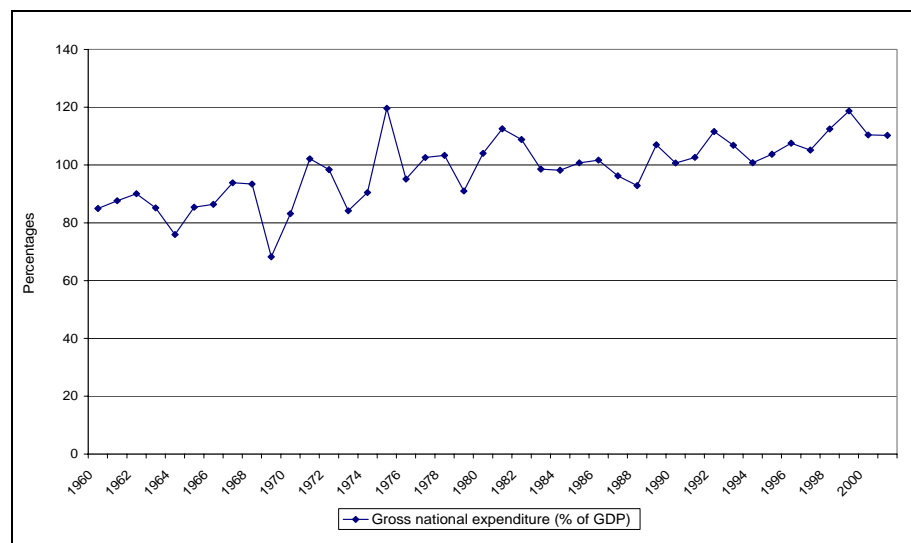
Until 1975 Zambia had an apparent excess of savings over investment.<sup>5</sup> Aggregate domestic income exceeded aggregate (gross national) expenditure at current prices (Fig. 3.1). Zambia had a resource surplus averaging 12.6% of GDP in the years 1964-74, which turned into an average gap of 2% of GDP in 1975-90, and of 8% of GDP in 1991-2001.

This apparently benign transition from comfortable surplus to manageable deficit belies the corrosive effect of adverse movements in the terms of trade on purchasing power, and conceals the cost of factor service payments abroad, often considerable in mineral-based economies.

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<sup>5</sup> The data used as the basis of the narrative in this section and in Section 3.3 are from Zambian national income accounts sources. They seem *prima facie* to understate domestic absorption prior to 1975, and thus seriously to understate Zambia's resource and current account gaps in this period. They are incompatible with the magnitude of Zambia's external borrowing. However, they cannot be directly checked against balance-of-payments data which are not available in the sources used for the years in question.

**Fig. 3.1 Zambia: Gross national expenditure 1960-2001 (% of GDP at current prices)**



Source: WDI

Zambia was able to expand its total final expenditure on consumption and investment (GNE) by some 70% in the years immediately following independence (Fig. 3.2).<sup>6</sup> But it then had to compress expenditure by 30% in real terms between 1975 and 1980, and by a further 20% between 1982 and 1985. Investment and government consumption bore the brunt of the decline in real terms in expenditure in the 1980s and 1990s.

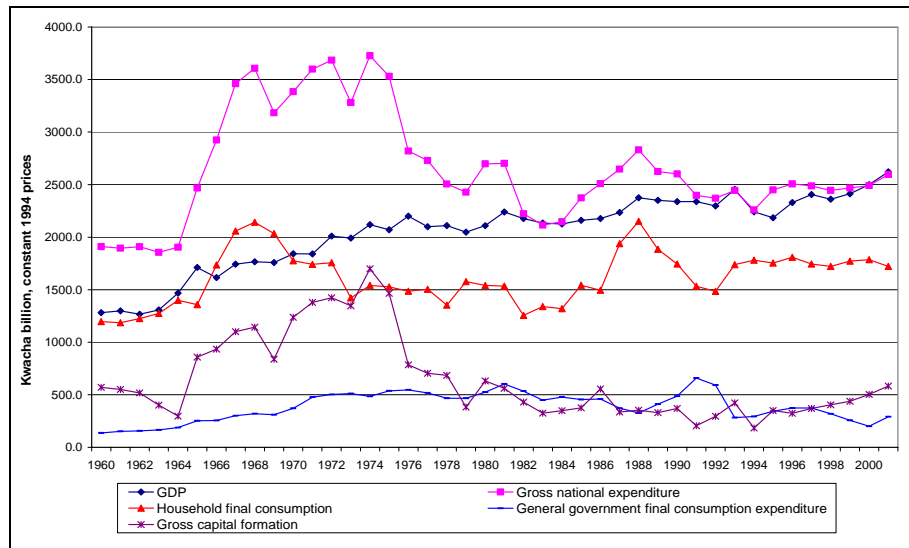
Real investment expenditure declined sharply after 1975, and continued to fall as a share of GDP until the mid-1990s. The period of falling investment coincided with a period in which aid inflows became significant (see below). For reasons described in Chapter 2, most investment occurred in the public sector. This suggests, *prima facie*, that aid was not used primarily for investment financing, but was devoted in the main to financing government consumption and debt service.

Real average government consumption expenditure in the period 1995-2001 was 40% lower than it had been in 1980-5. Real average household consumption, on the other hand, rose by 23% between these two periods.

The implications of these developments for the relative shares of consumption and investment are shown in Fig. 3.3. This shows that investment expenditure rose from an average of 21% of GDP in 1960-4 to an average of 32% of GDP in 1965-75, before falling to 18% in 1976-90. Government consumption was 13% of GDP prior to independence. It rose to 18% of GDP on average in the 1965-75 period, and to 23% in the 1976-90 period, before contracting under the influence of subsequent fiscal adjustment programmes. The domestic expenditure counterpart of the rising use of foreign savings in the 1990s (cf. Fig. 3.1) has therefore been neither higher (absolute or relative) investment, nor higher government consumption, but a higher share of private consumption in total expenditure.

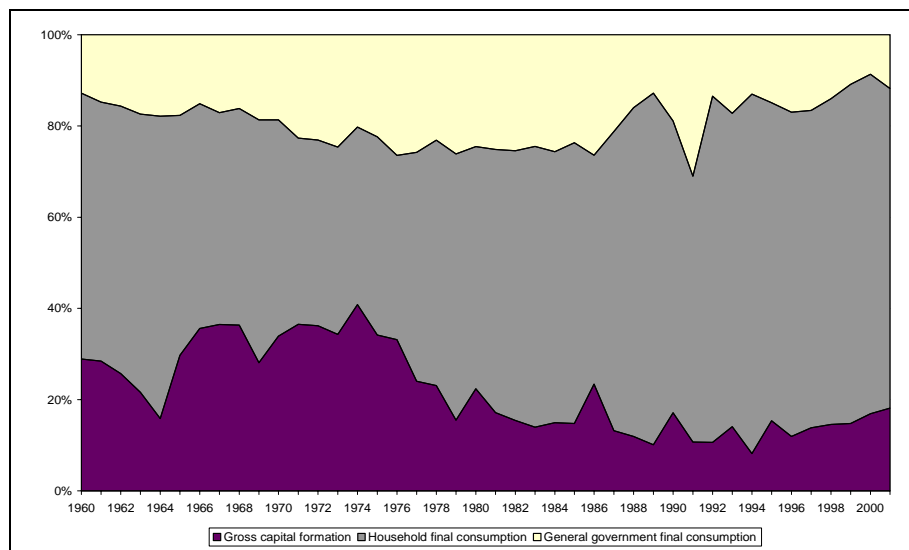
<sup>6</sup> Note that the wide excess of GNE over GDP in the late 1960s and early 1970s shown in Fig. 3.2 does not necessarily imply that there was a large resource gap in these years because GDP in Fig. 3.2 is expressed in prices of 1994 when copper prices were low. Fig. 2.2 shows that GNY in these years – the purchasing power of GDP – may have been more than twice as large as GDP in 1994 prices.

Fig. 3.2 Zambia: GDP, GNE, consumption and investment 1960-2001



Source: WDI

Fig. 3.3 Zambia: Expenditure shares of GDP 1960-2000



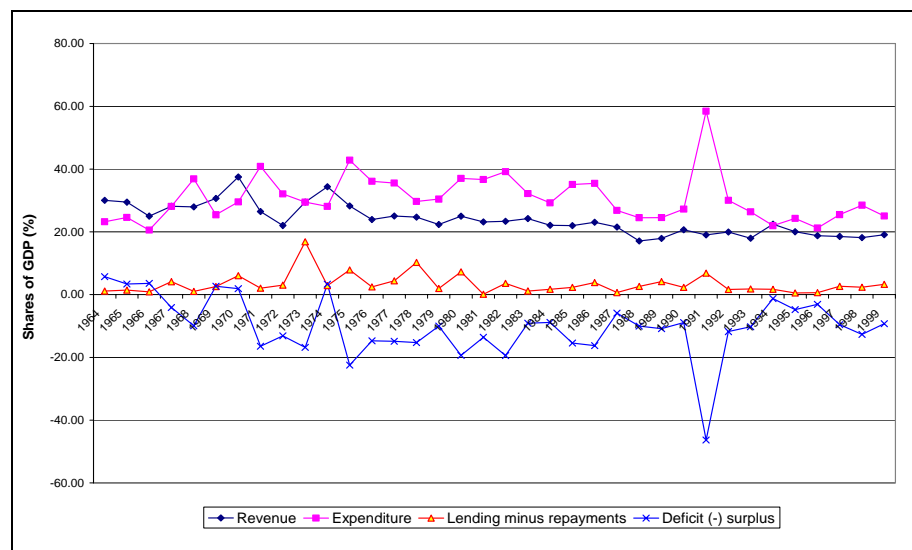
Source: WDI

### 3.2 Fiscal balance

Zambia has run a consistent fiscal deficit since the beginning of the 1970s (Fig. 3.4). Public expenditure and net lending (mainly to parastatals) were sustained at high levels – in excess of 30% of GDP until the later 1980s, and reaching a peak of 60% of GDP in election year 1991, before declining to 20-25% of GDP from the mid-1990s onwards.

Revenues declined with the fall in earnings from copper from around 30% of GDP on average in the period 1965-75 to below 20% from the mid-1980s onwards. Expressed as a share of public expenditure (including net lending), total domestic revenues declined from 75% in the early 1970s to only 52% in the later 1980s, before recovering to over 70% after exchange-rate adjustment in the 1990s (Table 3.1).

**Fig. 3.4 Zambia: Revenue, expenditure and fiscal deficits 1964-1999 (as shares of GDP)**



Source: IMF, *International Financial Statistics* (IFS)

**Table 3.1 Shares of revenue sources and domestic and foreign financing in central government expenditure + net lending (%)**

	1972-74	1975-79	1980-84	1985-89	1990-94	1995-99
<b>Direct taxes<sup>a</sup></b>	25.50	22.84	21.58	15.37	20.93	22.93
<b>Indirect taxes, domestic</b>	14.27	25.31	29.49	19.07	19.18	30.16
<b>Indirect taxes, trade</b>	6.66	4.42	6.68	13.31	16.70	13.82
<b>Other revenue</b>	28.50	7.08	4.25	4.24	5.64	4.66
<b>Foreign grants</b>	0.21	2.49	2.20	2.52	1.86	9.32
<b>Foreign loans</b>	9.81	6.43	12.70	18.39	13.96	31.13
<b>Domestic financing</b>	10.93	13.58	20.13	19.47	22.97	28.83
<b>Memo: total revenue</b>	74.93	59.65	61.99	51.98	62.45	71.57

Notes: <sup>a</sup> Direct taxes mainly corporate in the 1970s; later mainly individual. Other revenue mainly royalties in the 1970s; later mainly fees and charges

Source: Government Finance Statistics (GFS)

Prior to the 1990s the deficit was financed more by domestic borrowing than from external loans and grants. Domestic financing has been partly funded through the sale of bills and bonds to commercial banks and non-banks, but some two-thirds of it on average has been monetised, i.e. provided by the Bank of Zambia. However, in 1972-3, throughout most of the 1980s, and even more so in the 1990s, there was extensive recourse to foreign borrowing, sometimes approaching 15% of GDP and exceeding 30% of total expenditure (Fig. 3.5 and Table 3.1).

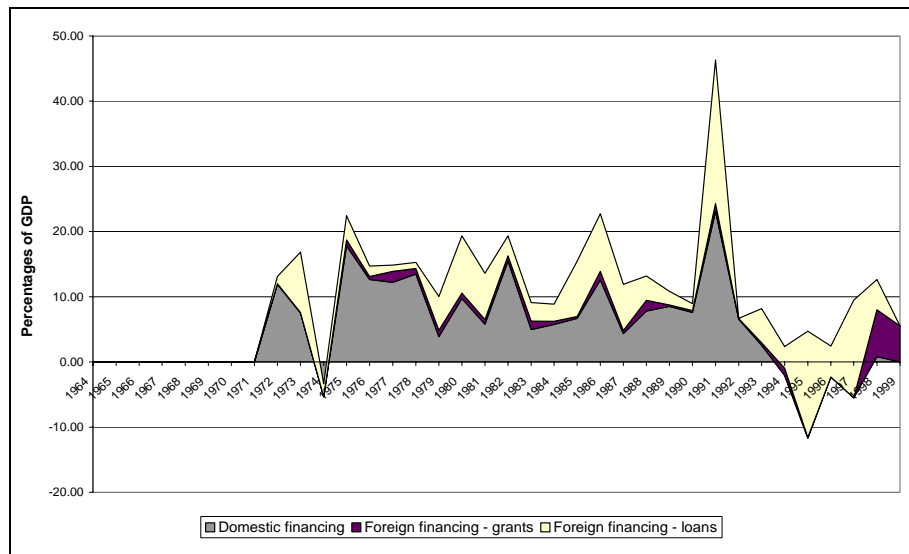
External grant and loan finance covered less than 10% of total expenditure and net lending in the 1970s. By the later 1980s this ratio had risen to over 20%, and by the later 1990s to as much as 40% (Table 3.1).

After the election campaign of 1991, which occasioned an exceptional spike in public expenditure and domestic financing, provoking a spell of triple digit inflation, the government



curbed its expenditure drastically, and began to redeem its domestic debt with the help of an increased level of concessional external financing (Figs. 3.5 and 3.6). There was heavy use of foreign credit financing in the election year and during its aftermath. New foreign borrowing in the 1990s was overwhelmingly from multilateral sources and provided on concessional terms. External grants played only a minor role in financing the budget until the late 1990s when they assumed significant proportions.<sup>7</sup>

**Fig. 3.5 Zambia: Financing the fiscal deficit 1972-1999**



Source: IFS

From a visual inspection of Fig. 3.5 it appears that domestic financing has been highly correlated with the size of the deficit until the early 1990s, and that there is a fairly high degree of correlation between domestic and foreign financing. The use of grants, on the other hand, seems to have been unrelated to the magnitude of the deficit. Revenues, since the late 1970s, have stood fairly consistently at 18-22% of GDP (Fig. 3.4). The deficit, accordingly, has been negatively correlated with fluctuations in public expenditure and net lending.

A question to be elucidated later in the paper (Chapter 5), therefore, concerns the direction of causality. Did the absorption of external financing into the budget drive higher levels of expenditure which in turn caused the deficit to rise? Or was external financing of an 'exceptional' nature, drawn in by the need to finance deficits caused by indigenous expenditure initiatives?

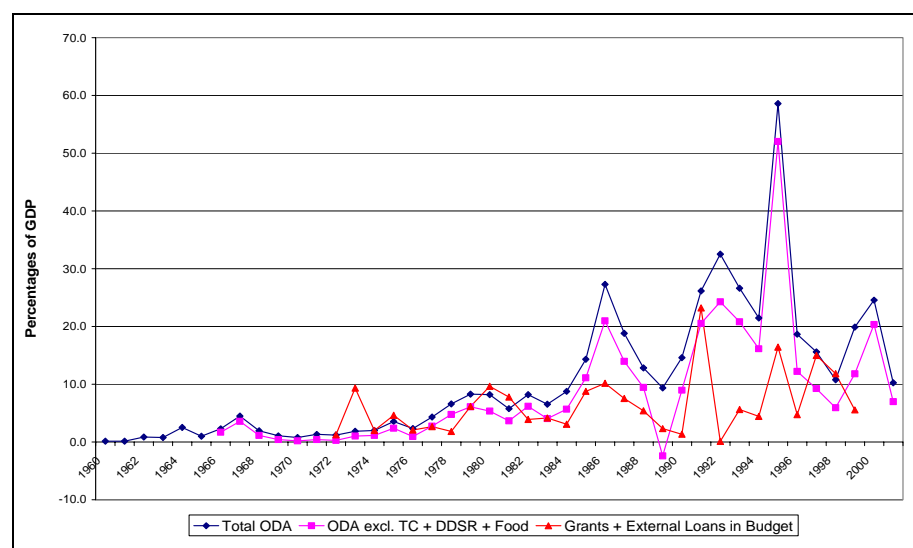
The external financing of public budgetary expenditure is not to be confused with Zambia's receipts of official development assistance (ODA). In the 1970s Zambia received on-budget external financing from bonds sold on foreign capital markets, from suppliers' credits for the purchase of capital goods for the power, mining and railway sectors, and from official sources such as IBRD and the German KfW to finance infrastructure projects. In more recent years it has absorbed large amounts of aid through extra-budgetary channels or in forms – such as debt and debt-service reduction, project food aid and technical assistance – for which donors make direct payment not reflected in budget documents. Total ODA disbursements exceed external financing of the budget by a wide margin, in some years, such as 1986, 1992 and 1995, by between 20% and 40% of GDP. However, reported net ODA, excluding disbursements on technical cooperation, debt and debt-service reduction and food aid projects, has been, except

<sup>7</sup> See below for further discussion on the roles of external assistance.

in the years 1992-5, of a magnitude more similar to the external financing of the budget, though different in time profile (Fig. 3.6).

There is a particularly large discrepancy between Zambia's recording of foreign grant receipts and donors' disbursements, even after adjustment of the latter for technical cooperation, food aid and debt and debt-service reduction operations. This arises because the fiscal accounts record at best only receipts in cash,<sup>8</sup> omitting disbursements in kind, such as aid tied to offshore procurement for balance-of-payments support, the value of which was often not reported to the budget authorities. Inasmuch as aid received in kind generated counterpart receipts of revenue for the budget, they have been recorded as other domestic revenues, not as foreign grants.

**Fig. 3.6 Zambia: External financing of public expenditure and ODA disbursements (Total, and excluding TC, DDSR and food aid)**



Sources: IFS, WDI, OECD Development Assistance Committee (2000)

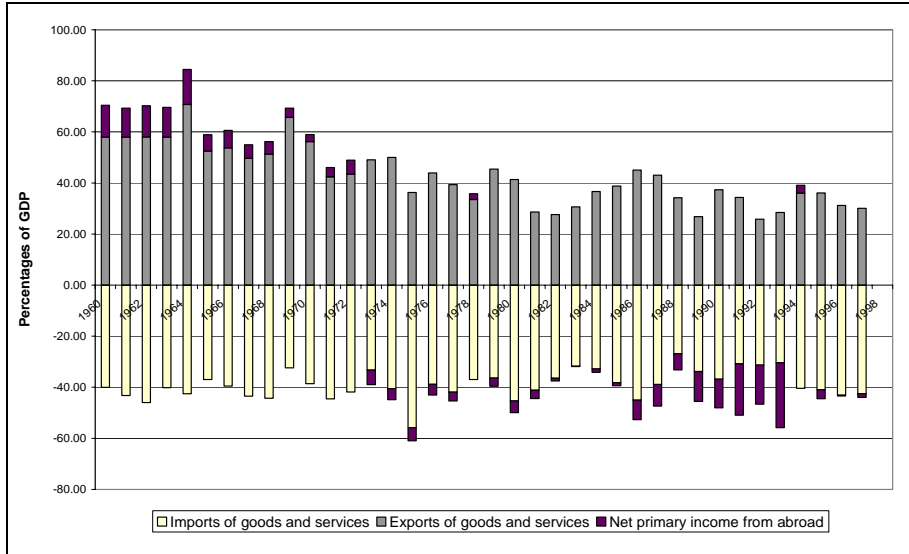
### 3.3 External imbalance and debt accumulation

Zambia experienced no apparent resource imbalance prior to the mid-1970s (Fig. 3.1). Indeed, exports of goods and services comfortably exceeded imports in these years. There was also a positive balance in factor service payments and current transfers, causing the balance-of-payments current account surplus to exceed the resource surplus (Figs. 3.7 and 3.8). Zambia accumulated foreign-exchange reserves prior to 1971.

The first decade of independence was a time when aid receipts were low and when most external financing of the balance of payments was on commercial terms (see below). Prior to 1975, its generally favourable current account notwithstanding, Zambia had accumulated \$1.2 billion of external debt, including \$0.2 billion of short-term debt and some limited use of IMF credit.

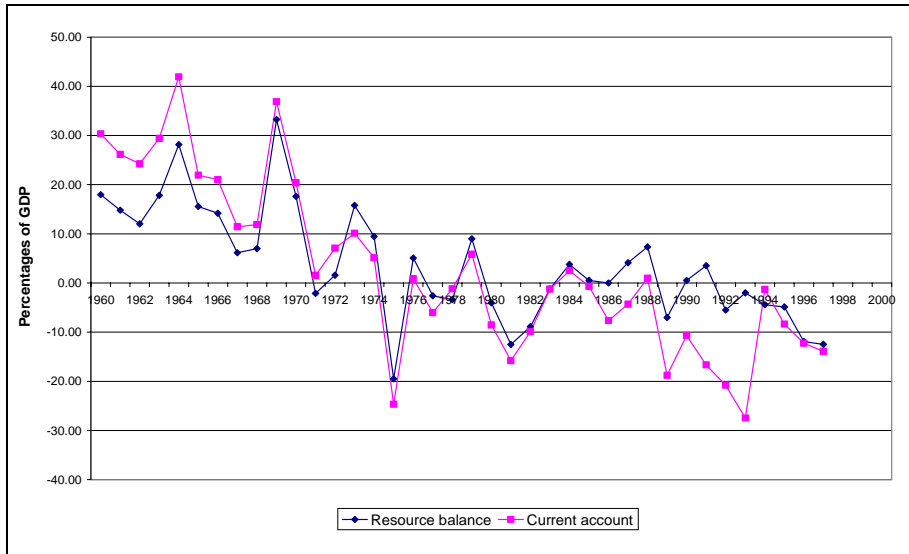
<sup>8</sup> These have included the salary supplements paid to Zambia by the UK for the numerous Overseas Service Aid Scheme officers who continued to serve the Zambian government until the later 1970s.

**Fig. 3.7 Zambia: Resource balance and current account (as shares of GDP)**



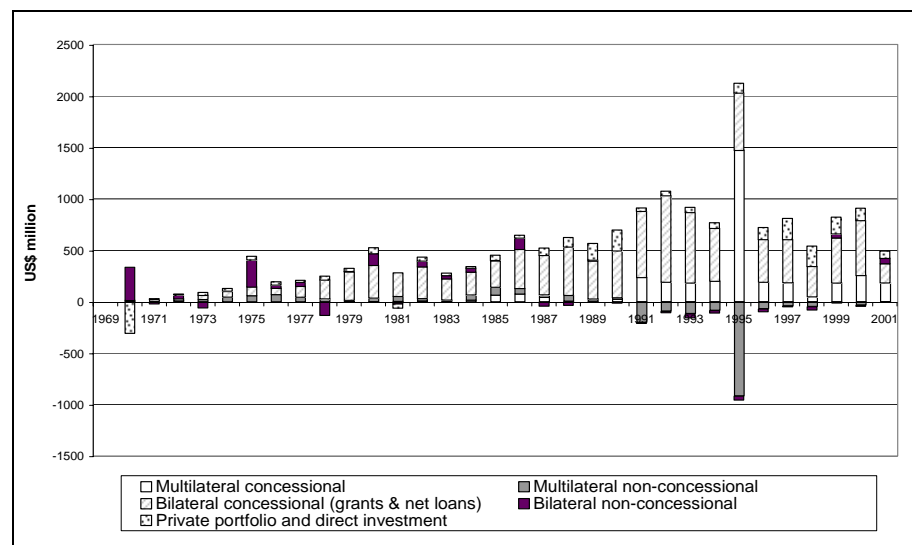
Source: IFS

**Fig. 3.8 Zambia: Resource balance and current account (as shares of GDP)**



Source: IFS

**Fig. 3.9 Zambia: Net external financing by source and terms 1970-2001 (at current prices)**



Source: GDF

Between 1975 and 1990, however, Zambia's current account deficit averaged some 8% of GDP. During these years external debts of \$5.8 billion were accumulated. These consisted of (in \$ billion):

Public and publicly guaranteed	3.7
excl.: - export credits	(1.1)
- official concessional	(1.5)
- official other	(1.1)
Use of IMF credit	0.9
Short-term debt	1.2
excl.: interest arrears	(0.7)

Source: GDF

Zambia's external indebtedness peaked in the early 1990s, and has subsequently been reduced through measures of arrears consolidation, debt forgiveness (including measures under the HIPC Initiative) and donor-assisted reduction of arrears owed to the IMF and other preferred creditors. By 2001 short-term debt had fallen by \$1.2 billion below its 1990 level. Long-term debt outstanding in 2001 was almost unchanged (in terms of US\$) from its 1990 level, but its composition had altered substantially, replacing a major share of non-concessional official and export credit debt by concessional credits from official lenders.

With nearly \$6 billion of external debt, Zambia remains heavily indebted. However, thanks to these measures of debt relief and reduction, its balance of payments is considerably more sustainable and less crisis-prone than it was in the 1980s and early 1990s.

### 3.4 Balance-of-payments management and IMF relations<sup>9</sup>

Zambia's struggles to manage its balance of payments with official external support began in the 1970s. It negotiated stand-by agreements with the IMF in 1973, 1976 and 1978, all of which

<sup>9</sup> Cf. the Annex for a chronology of IMF programmes.

quickly broke down, often because temporary terms-of-trade respites caused the government to abandon its agreement to adjustment measures.

After 1980, having experienced for a number of years the adverse shocks of falling terms of trade and a rising burden of debt service, the government assented to a more orchestrated and coordinated approach on the part of the IMF, the donors and the Paris Club. An Extended Fund Facility negotiated in 1981 broke down within a year, but was replaced by a relatively successful stand-by arrangement in 1983 which triggered a first debt-rescheduling agreement by the Paris Club. This was followed by other, two-year, stand-by arrangements in 1984 and 1986, supported by further Paris Club agreements, an agreement with London Club commercial banks, and commitments by multilateral and bilateral donors coordinated in a Consultative Group. On both occasions the programmes agreed with the IMF were halted before their expiry because of non-compliance with conditions.

Successive agreements with the IMF committed Zambia to restrain public expenditure, to limit its borrowing, and to undertake the structural adjustment measures outlined in Chapter 2. The foreign-exchange auction introduced in 1986 to improve enterprises' access to foreign exchange was inexpertly carried out. The sharp depreciation of the exchange rate and the economic uncertainties caused by an unfamiliar and ill-designed system led the government to abandon the auction and revalue the currency in 1987. It was left to the MMD government which took power after the 1991 election to restore collaboration with the international financial institutions and to implement the radical measures of structural adjustment described in Chapter 2.

In the 1990s the donor community placed high hopes in the MMD government, whose initial structural reform measures were radical and determined. The IMF, prohibited from further financing because of Zambia's arrears in servicing its debts to the Fund, set up a 'rights accumulation programme' (RAP) which promised Zambia a large new facility after three years of adherence to the programme, and on condition that the arrears were cleared. Within this programme framework support from the donor community rose rapidly – from 10% of GDP in 1989 to 30% in 1992 (Fig. 3.6) – and Zambia duly re-qualified for resumed Fund lending in the form of the Enhanced Structural Adjustment Facility (ESAF) approved in 1995.<sup>10</sup> In 1992 the Paris Club agreed 'Toronto terms' for Zambia's official bilateral debt which reduced its outstanding debt by \$1.5 billion. The programme was not, however, rigorous enough to avoid the episode of hyperinflation, born of the high level of deficit financing in 1991, which occurred during the RAP period.

By 1995 relations with the international financial institutions and the bilateral donors had deteriorated, with growing external concern about the corruption, the limits placed on the political rights of former President Kaunda, and the delays in bringing to trial those arrested after an alleged *coup*. Bilateral donors reduced their aid drastically in 1995, though the World Bank continued 'high case' lending.

The period 1995-99 was characterised by broad adherence to the ESAF programme and the conditions of World Bank structural adjustment support, but with repeated slippages and delays in key structural reforms – such as privatising ZCCM and other parastatals, and civil service and institutional restructuring. In 1998 donors withheld further programme support, but were sufficiently persuaded by subsequent progress to agree in 2000 that Zambia qualified for interim HIPC debt relief on highly concessional 'Naples' terms by satisfying the 'decision point' criteria. However, Zambia has been unable to reach its HIPC 'completion point' as scheduled for 2003

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<sup>10</sup> The spikes in net concessional inflows and net non-concessional outflows in 1995 visible in Fig. 3.9 are explained by the simultaneous liquidation of Zambia's non-concessional arrears to the Fund and the drawing of new Fund credits on ESAF terms.

because of a government decision to increase public service salaries and because of delay in commercial bank privatisation. Aid disbursements have recently declined because of policy differences between the government and the international financial institutions. When 'completion point' is eventually reached, Zambia's external debt will be reduced by some two-thirds (World Bank, 2002).

### 3.5 Uses of aid

Concessional aid inflows began playing a significant role in the economy in the late 1970s, when they reached 10% of GDP. They were very large briefly in the mid-1980s, and fairly consistently large, albeit very volatile, in the 1990s (Figs. 3.6, 3.9 and 3.10).

As noted in Section 3.2, a significant proportion of net ODA disbursements was in the form of technical cooperation, food aid projects and debt and debt-service reduction operations. Technical cooperation was the preponderant element in ODA circa 1970, when Zambia still relied on the services of numerous expatriates. In the 1990s debt and debt-service reduction actions constituted some 20% of total reported net ODA disbursements. The reduction of the stock of (non-aid) bilateral debt and the easing of the terms of its servicing count as ODA, and are officially reported as such (OECD, 2004: Technical Notes; Fagernäs and Roberts, 2004b). In fiscal terms, these operations have the effect of reducing debt interest charges, and thus, *ceteris paribus*, of reducing the fiscal deficit.

In the 1970s and early 1980s external financial assistance was largely in the form of bilateral loans to help implement projects in Zambia's national development plan. The spike in net ODA disbursements that occurred after 1985, however, was to assist Zambia in managing its balance of payments at a time when the government was attempting to implement a (short-lived) programme of adjustment and reform. The policy reversal of 1987 (see Section 2.2) triggered a sharp drop in external support.

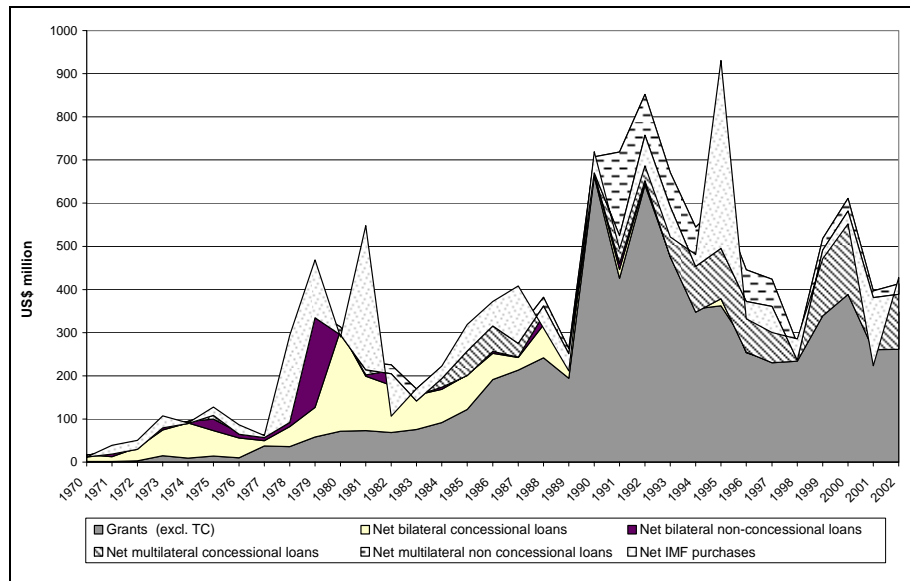
Aid disbursements rose again sharply with the advent in 1991 of the new MMD government, committed to reform but facing daunting debt-service, balance-of-payments and domestic-stabilisation difficulties. Debt service due in the early 1990s approached 50% of export earnings. Arrears owed to the IMF and World Bank prohibited these institutions from new lending. Bilateral donors, whose financing was now largely in grant form, accordingly raised their programme support. This enabled Zambia to liquidate its arrears to the World Bank (in 1992) and to complete its Rights Accumulation Programme with the Fund (1995) without excessive compression of domestic expenditure. Net ODA flows in the years 1991-5 amounted to over \$1 billion p.a., i.e. twice the average volume of net ODA in the 1980s.

In the 1991-95 period the International Development Association (IDA) committed four structural adjustment credits to Zambia, which were enhanced in amount with the explicit purpose of refinancing its outstanding IBRD debt on concessional terms, thus bringing some cash-flow relief to the country's budget and balance of payments. These credits represented 63% of IDA commitments in these years. IDA flows count as ODA, whereas IBRD financing does not. In these years, too, the Paris Club began to reschedule commercial debt maturities and arrears on concessional ('Toronto') terms. But there is no counterpart in the fiscal accounts of the recorded ODA disbursements regarding these operations. The World Bank's assessment of the effectiveness of its support in these years is that it helped Zambia to service its debt but that it contributed little to development expenditure (World Bank, 2004). Evidence reviewed in Chapter 4 presents this period in a rather more favourable light.

External support waned considerably in the 1996-99 period, largely because of a decline in bilateral support occasioned by concern about aspects of Zambia's governance and human rights record and, in 1998, by Zambia's delay in privatising ZCCM. IDA, meanwhile, maintained its 'high case' rate of new commitments and net disbursements - except in 1998-99. It committed three more structural adjustment credits in these years, representing 75% in volume of its overall new commitments. A consistent element of the conditions of these credits was the requirement that the government should protect the level of budget expenditure (and raise the share of discretionary expenditure) devoted to the social sectors (World Bank, 2002).

Other aid was committed to projects - for rehabilitation or of a sector investment or a sector-wide financing character - in agriculture, transport, energy, education and health. On evaluation, these operations have been deemed largely unsatisfactory because of poor preparation and implementation difficulties associated with Zambia's straitened economic circumstances and persistent macroeconomic instability.

**Fig. 3.10 Zambia: Net official loan and grant disbursements 1970-2002**



Source: GDF

When it reached its HIPC 'decision point' in 2000 Zambia received cash-flow debt-service relief estimated at \$150 million p.a. Donors' disbursements of programme assistance increased at this time (Fig. 3.10).

Data from OECD-DAC on the sectoral composition of the aid disbursed is not wholly reliable because of fungibility. The data are more a reflection of donors' intentions and of changes in reporting practice than of recipients' net utilisations. For what they are worth, however, they indicate that, between the 1980s and early 1990s and the later 1990s, there was a marked shift away from project aid for the productive sectors and general programme assistance towards project and programme assistance for the social sectors. The motivation for this was mounting evidence of declining education standards and sector performance - as evidenced by falling enrolment rates, and by an even more dramatic decline in the health status of Zambians - with falling life expectancy and sharply rising under-5 mortality (Carlsson et al., 2000).

## Chapter 4: Zambian Budgets: Allocations and Expenditure Management

This chapter comments on the quality of public expenditure management and summarises the evidence on the uses of public expenditure by main economic category and by sector share. It shows a loss of strategic focus in public expenditure planning and management from the early days when there were authoritative development plans under the impact of short-term macroeconomic and political pressures and cash budgeting. Nevertheless, discretionary recurrent and capital expenditure, and net lending, though declining in volume, have maintained their shares of total expenditure.

The chapter identifies similarities in the time profiles of the recorded external financing of the budget and capital and net lending outlays, suggesting potential causation.

### 4.1 Public expenditure management<sup>11</sup>

The institutions and practices of public expenditure management in Zambia have not hitherto guaranteed the efficient and effective implementation of public expenditure strategy. The decline in real public service remuneration mentioned earlier has engendered low staff morale, and practices associated with the implementation of cash budgeting have eroded the integrity of the national and sectoral budgets as instruments for allocating resources in the furtherance of economic and social policy objectives.

*Budget institutions.* Until 1991 the Ministry of Finance was responsible for the recurrent budget and the National Commission for Development Planning (NCDP) had responsibility for the development plan and budget. The recurrent budget was financed from domestic revenues, and the capital budget was largely financed by external borrowing and aid. The result was inimical to fiscal discipline and resource planning. The Ministry of Finance was aware of the overall fiscal position and of the difficulty of financing the operating costs of new projects, but was unable to restrain the NCDP's enthusiasm for implementing new projects and thus fulfilling development plan targets. In 1991 the two institutions were merged into the Ministry of Finance and National Planning (MFNP).

*Expenditure classification.* Since independence Zambia has classified its public expenditures by economic category and by function. As regards the former, the *economic classification* places expenditures in the categories of constitutional and statutory (e.g. debt service), personal emoluments, recurrent departmental charges, grants (including to lower tiers of government) and capital. However, the use of these definitions has not been rigorous. Some personnel expenditure (e.g. allowances) has been classified under recurrent departmental charges, and capital expenditures often include wage and salary expenses associated with donor-financed projects. The true government wage and allowances bill has thus been larger than is apparent from allocations for personal emoluments.

Expenditures are also classified administratively by spending ministry, giving an approximate *functional* categorisation (though one which is not programme-based). The government is now seeking to implement activity-based budgeting (or programme budgeting), but has not yet overcome problems in integrating this into its existing system for expenditure accounting.

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<sup>11</sup> Based on World Bank, 2003.



*Comprehensiveness.* Zambia's budgets are not comprehensive. Though they cover subsidies on fertiliser sales, NAMBOARD procurement and transport costs and maize milling, they exclude losses incurred by (and subsidies paid to) other parastatals, the losses of the Bank of Zambia, pension fund contributions, the cost of guarantees and other contingent liabilities and expenditure on donor-funded activities which is not reported to the MFNP. Estimates have been made of the quasi-fiscal deficit comprising these elements, which in some years has exceeded the reported fiscal deficit by a factor of four. Its relative magnitude has fallen with the privatisation in the 1990s of many parastatals, including ZCCM.

*Budget preparation.* Zambia has no effective medium-term budget framework. Medium-term expenditure frameworks (MTEFs) have been drawn up since the mid-1990s, but these have remained internal to the MFNP, are not the product of interaction with spending ministries, and have exerted little influence on the preparation of annual budgets. Since 2002 there has been renewed interest in making the MTEF into an effective tool for giving strategic focus to public expenditure planning, though this has yet to be translated into practice.

Annual budget preparation has been chronically characterised by wilful over-estimation of likely resources, and under-provision for essential payments (including wages and salaries).

*Budget execution.* There has been frequent recourse to large in-year supplementary budgets, which has thereby weakened the authority of the annual budget and fiscal discipline. Though there are sound procedures for authorising expenditure commitments, these have been allowed to lapse with the introduction of cash budgeting. Expenditure vouchers may be drawn up without proper authorisation, and they are released for payment in *ad hoc* fashion, irrespective of budgetary strategy, as and when cash becomes available. Pending vouchers are a major element of the government's (chronic) arrears of payment to domestic suppliers.

In 1993 cash budgeting was introduced as an element in a programme of fiscal adjustment. Allocations were initially made daily, but are now made monthly on the basis of quarterly expenditure forecasts. While cash budgets effectively capped aggregate expenditure, they further undermined systems of inter- and intra-ministerial resource allocation. Variances between budget allocations and actual expenditures widened. However, under pressure from the donors, social sector expenditures were given priority in cash budget allocations.

These features of budget management in Zambia have probably had at most only minor effects on the impact of aid on the allocation of fiscal resources between the major aggregates of capital and recurrent expenditure and fiscal saving. Their consequences have been greatest at the micro level – on the economy and efficiency of expenditures. This has led to their having a deleterious effect on growth – preventing Zambia from obtaining best value for money from its straitened fiscal resources, and from pursuing its priority poverty reduction objectives with a reasonable expectation of success. The low success rate of donor programmes mentioned above arises in part because of the entrenched informality of public expenditure management practices.

The literature on the fiscal effects of aid identifies certain countries where aid inflows have caused public expenditures to rise by amounts exceeding the resources provided, either because recipient governments have made consistently over-optimistic assumptions about prospective disbursements or because rising aid inflows have somehow been associated with weakening fiscal discipline. The phenomenon has been termed 'aid illusion' (McGillivray and Morrissey, 2001). Chapter 6 presents some evidence that Zambia may have been a prey to a measure of aid illusion.

## 4.2 Public expenditure allocations

Zambia's aggregate recorded public expenditure has constituted a declining share of a GDP which has been rising more slowly than the growth of the population. In the period 1975-85 it averaged some 35% of GDP; in the 1990s, apart from the election and drought years 1991 and 1992, it averaged 25% of GDP.

*Outlays by economic category.* In the 1975-90 period recurrent expenditure averaged 28% of GDP. In the 1990s, after the election year of 1991, and as a consequence of successive adjustment programmes, the recurrent expenditure share of GDP fell to 17%. It was particularly low in the years 1993-95. Its decline, consistent with the practice of dual budgeting, has been a reflection of the fall in domestic revenues, both in real terms and as a share of GDP (cf. Fig. 3.4).<sup>12</sup> The coefficient of correlation between revenues and recurrent expenditure as shares of GDP appears *prima facie* to be relatively low at 0.43. However, the low correlation is explicable by the differential effects on revenues and recurrent expenditures of numerous abrupt exchange-rate adjustments – including rapid depreciation in the 1993-95 period in which the Kwacha was floated – and episodic administrative decisions on food and fertiliser subsidies and public sector wages with large impacts on recurrent expenditure. Falling revenues placed a constraint on the real recurrent budget which tightened continuously until the 1990s when there was some relief from the diversification of revenue sources (Table 3.1) and from aid inflows (Chapter 6).

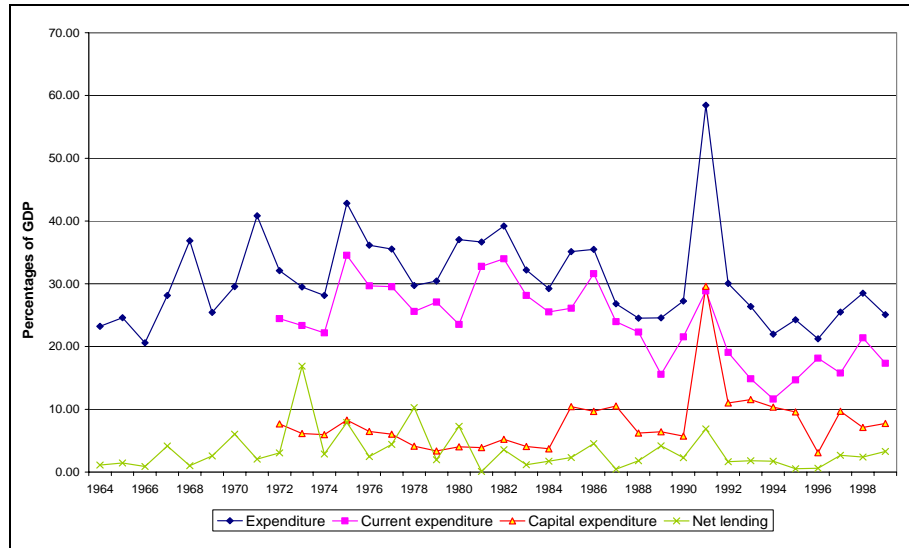
On-budget capital expenditure has been quite low. In the 1975-90 period it averaged 6.2% of GDP. The bulk of this expenditure (85%) has been devoted to fixed asset formation by the central government, with the remainder taking the form of capital transfers to lower tiers of government. In the 1990s, however, with much higher on-budget aid inflows, the capital budget rose to over 8% of GDP (excluding the exceptionally high figure for 1991). A high proportion (over 80%) of the capital budget expenditure has been covered by net external financial inflows into the budget.<sup>13</sup> The government has also been a regular net lender of resources, mainly to the parastatals (and more recently to the troubled financial institutions) but also on a limited scale to lower tiers of government. Net lending has averaged 3% of GDP (Fig. 4.1). External financing averaged 6.5% of GDP in the 27 years to 1999, but has risen to 8% of GDP post-1991. It has been highly volatile, with a coefficient of variation of 81% (cf. Figs. 3.5 and 3.6).

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<sup>12</sup> Between 1972 and 1999 the trend rate of decline of recurrent expenditure in constant prices was over 2% p.a. and that of revenues 1% p.a.

<sup>13</sup> The external financing (grants + net loans) of the capital budget amounted to 76% in the period 1972-80, 83% between 1981 and 1990, and 87% between 1991 and 1999.

**Fig. 4.1 Zambia: Public expenditure 1964-1999 (as share of GDP)**



Source: Government Finance Statistics; IFS

As the central issue of this paper is the effect of external inflows on fiscal aggregates and fiscal behaviour, it is relevant at this stage to ask whether there are *prima facie* parallels between patterns in the disbursement of external financing and trends in expenditure aggregates. Net foreign loans and grants are much better correlated through time with the sum of capital expenditure and net lending than they are with recurrent expenditures.<sup>14</sup> However, the correlation with capital outlays and net lending is far from perfect, with external financing accounting for a very variable share of these outlays.

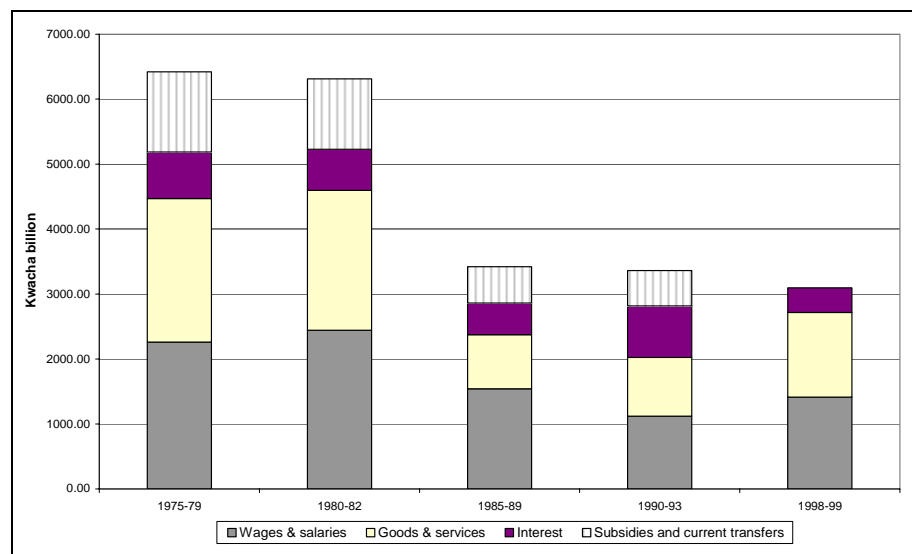
An important concern in a country experiencing economic crisis is whether the composition of expenditures has altered in such a way as to render them less effective in delivering essential public services. The effectiveness of public expenditure tends to fall if mandatory debt service, other constitutional and statutory expenses, subsidies and wage and salary costs absorb a significant share of recurrent expenditure, thus squeezing the share of discretionary outlays on goods and services. Donors have pressed the government to ensure that 'recurrent departmental charges' are adequately financed.

In the 1975-90 period real wage rates in the public service declined by 85-90%, much more than per capita GDP - though the decline has been significantly offset by rising allowances (World Bank, 2003). Goods and services expenditure has also fallen fairly consistently in real terms since 1975. As regards shares of expenditure, there has not been a significant tilt away from discretionary ('other recurrent charges', capital, net lending) to entitlement (e.g. wages and salaries, subsidies) and mandatory (e.g. interest charges, general public services) outlays over the period, except in the later 1980s and early 1990s.<sup>15</sup> Discretionary expenditure's share rose in the later 1990s. For a country burdened with external and domestic debt and, in the 1990s, high levels of domestic interest charges, it is remarkable that interest payments have pre-empted such a relatively modest share of recurrent expenditure.

<sup>14</sup> The coefficients of correlation over the 1972-99 period between external financing/GDP and, respectively, capital expenditure/GDP, (capital expenditure + net lending)/GDP, and recurrent expenditure/GDP are: 0.64, 0.57 and -0.4.

<sup>15</sup> In some of these years the share of expenditure on goods and services was compressed to make way for higher relative expenditure on interest charges and subsidies.

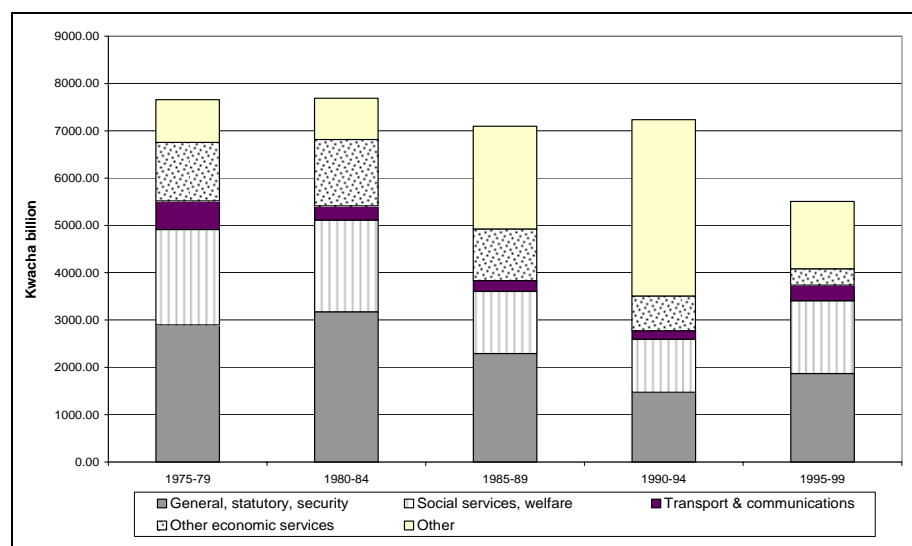
**Fig. 4.2 Zambia: Economic classification of recurrent expenditure 1975-1999 (1995 prices)**



Source: Ibid.

*Expenditures by function.* A functional classification of Zambia's aggregate expenditure is available for the years 1975 to 1999 (Fig. 4.3). This shows a compression in real outlays on all services in the decade 1985-94, with the exception of 'other' expenditure which reached exceptional levels in the election year 1991. Economic services – transport, power, agriculture, mining and other industries – suffered a larger percentage reduction than outlays on social and cultural services – education, health, community services, recreation, etc. In the later 1990s there was some renewed expansion in expenditure on general, security and social services, but not on economic services. Expenditure on agriculture and industry has barely featured since structural adjustment policies were adopted in the 1990s.

**Fig. 4.3 Zambia: Functional classification of recurrent and capital expenditure 1975-1999 (1995 prices)**



Note: Period averages of annual data for years for which data are available

Source: Ibid.

It is noteworthy that, throughout the long decline in real public expenditure, the relative share of 'general' and security-related expenditures has fallen, while that of education and health has

been broadly maintained. Education and health expenditure was 4-5% of GDP in the later 1980s and early 1990s, but rose to 6-7% of GDP in the later 1990s.

There is little doubt of the effects on the ground in Zambia of falling real recurrent expenditures, even in the relatively protected social sectors. In education, staff morale is widely reported to be low, and output and outcome indicators such as school enrolments and test scores have deteriorated. In the health sector, budgets have been wholly inadequate in the face of the daunting challenge of the HIV/AIDS epidemic which has been the principal cause of Zambia's falling life expectancy.

## Chapter 5: Conclusions to Part I: *Prima Facie* Evidence on Aid Impact

The review of salient features of Zambia's economic and fiscal performance in the preceding chapters has highlighted a number of features in the economic background which are relevant to the theme of this paper. These may be summarised as follows:

- Zambia's economy has declined in terms of real gross domestic income over many years. The open economy has been subject to volatile terms of trade and major, often adverse, external shocks. The consequential macroeconomic instability has been compounded by improvident macroeconomic management.
- The period since independence in 1964 can be divided into three phases. In the first, 1964-74, Zambia had a resource surplus, which was unfortunately not invested in securing its income in the longer run. It constructed a state-run economy along lines which distributed and consumed natural resource rent and institutionalised Dutch Disease characteristics. In the second period, 1975-90, the country experienced the full force of adverse terms-of-trade shocks. It reacted mainly by shifting combinations of financing and adjustment, but with an episode of attempted but poorly designed supply-side reforms in the later 1980s. In the third period, 1991 to date, Zambia implemented vigorous and sustained supply-side reforms, but with faltering enthusiasm, and in the context of incomplete macroeconomic adjustment, persistent (albeit declining) instability and inflation. Export-oriented commercial agriculture started to revive.
- Public expenditure, initially high as a share of GDP, has been dominated by the recurrent budget. This has steadily decreased as a share of GDP, dragged down by falling (real and relative) domestic revenues. However, though Zambia has incurred an exceptional burden of external debt, its budget has not been overwhelmed by debt-service payments. Within the recurrent budget, expenditures on social services have increased their share, those on economic services have been highly erratic, those on general public services have fallen as a share of the total, and interest costs have been contained. Capital expenditure has slightly increased its initially small share of total expenditure.
- Zambia's fiscal accounts have been chronically in deficit since the early 1970s, and there was routine recourse until the later 1990s to inflationary domestic financing.
- Public expenditure planning and management in Zambia is rated as poor. In the 1970s expenditure plans were guided by strategy laid down in national development plans. By the 1990s, however, cash budgeting meant that actual allocations, outside a few priority zones, were *ad hoc* and unrelated to recognisable expenditure or results-defined strategy.
- Zambia made limited use of concessional inflows prior to 1978. The bulk of its external financing was official, but non-concessional. As its debt problems worsened and per capita income fell, the share of concessional flows rose until, in the 1990s, they constituted the bulk of external financing. Most ODA, even though ostensibly provided for investment purposes, has been supplied in the context of managing economic crises through programmes of economic and fiscal adjustment.

## *Aid uses and impact*

As regards aid, there are good *prima facie* reasons for thinking that its uses have been multiple and have changed through time. In the 1960s and 1970s external financing emphasised infrastructural projects and technical assistance. In the 1980s there was growing concern that the public investment programme was overextended relative to financial resources and implementation capacity, and that economic activity was constrained by the country's diminished import capacity. An increasing share of aid was provided in non-project form. This trend continued until the mid-1990s when the economy was stabilised and liberalised and when there was heightened donor concern about reviving growth and reducing poverty. The emphasis then reverted to the rehabilitation of the economic and social infrastructure and improvements in the financing of public service provision. Although real outlays in the social sectors have declined, the fact that they have increased their share of recurrent expenditures may indicate some effect of donor support.

In addition, some aid commitments to Zambia have been devoted to reduction of official external debt, or to retrospective terms adjustment. Such stock-of-debt operations do not pass through the fiscal accounts, which explain part of the gap between ODA disbursements and the external financing recorded in budgets. Aid used for external debt and debt-service reduction did not, for the most part, substitute for payments which Zambia would otherwise have made. Instead, it helped to regularise external payments arrears on which, in the absence of aid, Zambia would probably have continued to default. Aid was also associated in the early 1990s with the reduction of Zambia's domestic public debt.

Over a much longer period some aid also appears to have been used, as intended by its donors, to finance fixed asset formation in the capital budget. On the other hand, notwithstanding Zambia's many economic adjustment programmes, there seems to have been no conscious use of aid to achieve fiscal savings, except during the relatively brief episodes of effective adjustment support, particularly in the latter part of the 1990s when domestic financing of the budget was negative. In the 1960s and early 1970s, when Zambia had access to international capital markets, some of its external borrowing was driven by the need to finance ambitious public expenditure programmes and to cope with domestic fiscal deficits exceeding budget estimates. Later on, when the country had lost its international creditworthiness, the direction of causality was reversed, and domestic expenditures - notably the capital budget - were constrained by the availability of external finance.

Part II of this paper will take these observations as hypotheses. It will be devoted to the rigorous econometric analysis of the data with a view to establishing whether quantifiable conclusions can be drawn about the impact on fiscal aggregates and their distribution of aid and other external financing.

## PART II. EMPIRICAL EVIDENCE

### Chapter 6: Econometric Results

#### 6.1 Methodology

This study uses a VAR approach to analyse the impacts of aid. Attention is paid to the impact of external inflows on current and capital expenditure as well as total expenditure, domestic borrowing and domestic revenue. Secondly, the estimated models can be used to shed some light on the question posed in Chapter 3 regarding the direction of causality between aid, expenditure and the budget deficit.

An introduction to vector autoregression (VAR) and vector error correction (VEC) models can be found in the synthesis paper (Fagernäs and Roberts, 2004b) for the three country case studies, but a brief description is provided below. A VAR model is a system of equations, where all variables are treated as endogenous, in the sense that each variable is allowed to affect the dependent variable with a number of lags. Such a representation corresponds to the reduced form, which for two variables can be written as

$$(6.1) \quad y_t = a_{10} + \sum_{i=1}^n \alpha_{1i} y_{t-i} + \sum_{i=1}^n \alpha_{2i} z_{t-i} + e_{y_t},$$

$$z_t = a_{20} + \sum_{i=1}^n \alpha_{3i} y_{t-i} + \sum_{i=1}^n \alpha_{4i} z_{t-i} + e_{z_t},$$

where  $i$  refers to the number of lags ( $i = 1, \dots, n$ ) and  $t$  to the time period. The structural form for a VAR that reveals contemporaneous effects can only be identified by making restrictive assumptions about the contemporaneous effects (i.e. making a so-called 'Cholesky' decomposition).

The idea of fiscal response models and the VAR approach is that fiscal variables are jointly determined by the government, and therefore budget outcomes are the result of fiscal behaviour. The benefit of the VAR approach is that it models this by treating the fiscal variables as determined within the same system, without any prior assumptions about the nature of the inter-relationships. Budgetary decisions are generally made within a budget year, but past levels of fiscal variables can guide future decisions. Such effects will be captured by a VAR model with lagged impacts. It is also possible that the country does not have full knowledge of the donors' disbursement decisions when budgets are formulated, and therefore decision-makers need to rely on past aid levels in making expenditure plans. Aid may induce changes in fiscal behaviour, for instance due to conditionality requirements or adaptive expectations. As the approach concentrates on government behaviour, the estimation should use data that are known to the government. However, aid disbursed outside the budget can also affect fiscal aggregates, for instance by substituting for government spending. This has been a common occurrence in Zambia.

Despite their advantages, VAR models are not without problems. They tend to become easily over-parameterised, as each variable is allowed to affect each other variable at a number of lags. The results also tend to be sensitive to the chosen lag length, although there are significance tests that can be used to determine the appropriate number of lags to be chosen.



The coefficients of the VAR models only reveal the direct, *ceteris paribus* effects. They do not take account of the fact that the lagged explanatory variables in each equation are inter-linked and therefore do not reflect the full impact of one variable on the other. This feature will be explained in more detail in section 6.3.1 (footnote 24). For this reason, the analysis relies a great deal on impulse response functions to estimate the total short- and long-run impacts of an increase in aid. Impulse response functions represent the time profile of the effect of a shock to one variable on the contemporaneous and future values of all endogenous variables. They capture both the direct and indirect or feedback effects caused by endogeneity over time.

This study uses generalised impulse response (GIR) functions, and in each case the shock to aid is a one standard error shock. The estimation of these functions requires the infinite moving average representation of equation 6.1. The response functions estimated in this study are those of Pesaran and Shin (1998), where the initial shock occurs to a residual in one equation (in our models the aid equation). For a VAR model (6.1), the generalised impulse response function  $\psi$ , describing the effect of a one standard error shock to equation  $j$  on equations/variables  $\mathbf{x}$  at time  $t+n$ , takes the form

$$(6.2) \quad \psi_j(n) = \sigma_{jj}^{-\frac{1}{2}} A_n \sum e_j, \quad n=0, 1, 2, \dots,$$

where  $j$  refers to the equation,  $\Sigma$  is the covariance matrix for the residuals,  $\sigma_{jj}$  is the variance of residual  $j$ ,  $A_n$  the coefficient matrix in the moving average representation of equation 6.1, where  $A_0$  is an identity matrix and  $e_j$  an  $m \times 1$  vector, where the  $j$ th element equals 1 and the rest are equal to zero. The equation implies that in period 1 when the shock hits, there will be a contemporaneous effect on all or some other variables than  $j$ , unless the covariance matrix  $\Sigma$  is diagonal. Unless the correlations are high, this is not of great concern, but it does mean that a shock to aid will also result in a contemporaneous shock to other fiscal variables, which in turn affects future responses. Although impulse responses that appear to exceed the initial shock can be well justified, high correlations between residuals can contribute to such responses.

The size of the contemporaneous effect depends on the variance of the residual of the shocked equation  $j$  and the size of the covariance between the residuals of equation  $j$  and those of the other equations. In the periods following 1, in addition to the variances and covariances, the impulse responses are affected by the coefficients in the  $A_n$  matrix, which cater for the interdependence between lagged explanatory variables. Eventually, the impulse responses converge to zero.

The fact that residuals are correlated does introduce the possibility of spurious causality. Contemporaneous causality between variables results in correlated residuals and contemporaneous impulse effects, but we cannot determine the direction of this causality. In this study, the initial shock occurs to aid. There is reason to believe that, within a given time period, aid is predetermined.<sup>16</sup> However, omitted variable bias may also lead to correlation among residuals. Even though aid might not be directly affected by fiscal aggregates, it can represent donors' reactions to changes in economic fundamentals, such as GDP. These in turn can affect other fiscal aggregates. The model does not account for such change, and therefore the apparent contemporaneous effects of aid on other fiscal aggregates could be attributable to an omitted causal factor.

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<sup>16</sup> This may not have been the case for commercial external borrowing in the 1970s, but since then it can be assumed to hold more or less for all forms of external finance.

The empirical approach used in this paper differs slightly from that used in the case studies for Uganda and Malawi. Instead of a vector error correction (VEC) model (see Fagernäs and Roberts, 2004b) which is used in the other two studies, the analysis relies on a traditional VAR model. In contrast to the fiscal aggregates used for Uganda and Malawi, those for Zambia were found to be stationary, and therefore there is no need to estimate a VEC model. The VAR stability condition holds in each estimated model, which implies that the system converges. Each variable will be jointly covariance stationary with a finite and time-invariant mean, and a stationary long-run relationship automatically exists between these variables (Enders, 1995). On the other hand, in a VEC model cointegration between non-stationary variables ensures that there is a stationary long-run relationship to which the variables converge, and therefore the difference between expenditure and finance cannot increase permanently. The methodology used in the Zambia study is therefore not different, but in this case the impulse response analysis can only be used to examine the effects of a one-period increase in aid, whereas in the case of the VEC model used for Uganda and Malawi, only a permanent increase in the level of aid is feasible (as the model is run with differenced variables).

Because the fiscal variables (other than ODA) used in this study represent an identity (expenditure equals financing), one of them is excluded in each estimated model. In general econometric estimation, including all the components of an identity would result in a meaningless regression, where coefficients on the explanatory variables (provided that the dependent variable is omitted) usually equal unity. Due to lagged effects, the technicalities of a VAR are somewhat more complex, but estimating an identity would nevertheless not be recommended. The fact that a form of external financing is omitted, may introduce an ‘omitted variables’ bias (see Fagernäs and Roberts, 2004b), and the expenditure and finance impulse responses to an increase in aid are unlikely to balance.

## 6.2 Data and model description

The variables and data analysed in the empirical tests are:

- those reported in Zambian government records of actual fiscal receipts and expenditures,<sup>17</sup> namely, grants (G), net foreign loans (F), capital expenditure (CAP), current expenditure (CUR), domestic borrowing (D) and domestic revenue (REV), and
- ODA, as reported by the donors to the OECD.<sup>18</sup>

Data for all the seven variables were available for the period 1972-98. Data used are in constant 1994 Kwacha. Figs. 6.1 and 6.2 show the evolution of the six variables over the period.

Three models are estimated. They all include expenditure, domestic borrowing and revenue as reported in government records.

- In addition, Model 1 includes grants as recorded in the budget, but omits net foreign loans.
- Model 2, on the other hand, includes net foreign loans, but omits grants.
- Model 3 uses ODA as the measure for external assistance to capture the impact of aid inflows not recorded in the budget. Comparing Fig. 6.1 with Fig. 3.10 reveals that Zambian budgets record receipt of only a tiny proportion of the grants disbursed by donors.

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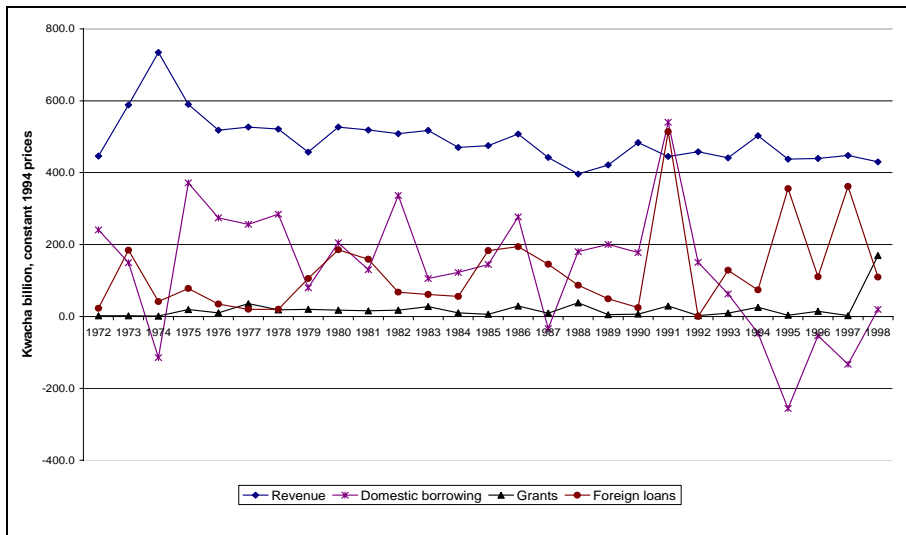
<sup>17</sup> The data are taken from *World Development Indicators* and *International Finance Statistics*.

<sup>18</sup> The data are taken from OECD DAC, *International Development Statistics*.

One reason for treating foreign loans and grants separately, as opposed to using their sum as an aggregate measure of external financing, is that they are not highly correlated and might therefore have different effects. The other reason, already mentioned in the previous section, is to avoid estimating an identity. As one form of external finance is omitted, the other may be reflecting the effects of the omitted form. If the two forms of external finance are positively correlated, this can result in effects that appear over-proportional to the initial aid shock.<sup>19</sup> However, the contemporaneous correlation between grants and foreign loans is near zero for the whole period. Grants, which record only a sub-set of bilateral donors' grant disbursements (cf. Chapter 3), have a low correlation with ODA, whereas ODA and foreign loans are clearly positively correlated (0.52) over the entire period. The amount of grants provided (as recorded in the budget) has been very modest in comparison with foreign loans.

The models will be used to test the hypotheses presented in Chapter 5. Simply looking at the data reveals a high positive contemporaneous correlation between capital expenditure and foreign loans (0.67), but grants and capital expenditure are not highly correlated. Current expenditure is poorly correlated with foreign loans, but has a positive coefficient of correlation of 0.44 with grants up to 1990. Chapter 3 notes that after 1985 more aid was used for balance-of-payments support. The correlation between the two forms of external financing and domestic borrowing is fairly low, as is the correlation between both types of external financing and domestic revenue.

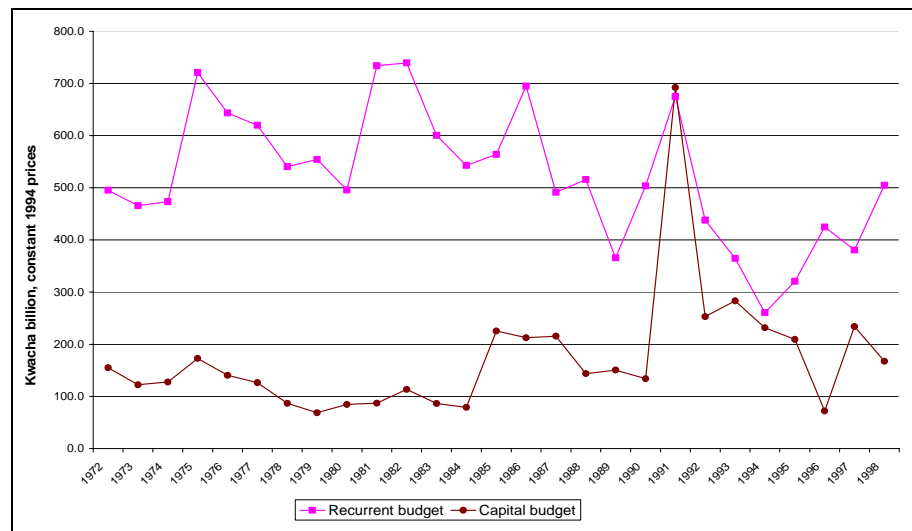
**Fig. 6.1 Zambia: Sources of finance**



Sources: IFS; WDI (2003)

<sup>19</sup> This may also be partly due to large standard errors, which implies that the actual impulse will lie within a range of those estimated.

Fig. 6.2 Zambia: Expenditure



Sources: Ibid.

### 6.3 Model estimation

The first step in the econometric analysis, prior to model estimation, is to analyse the time series properties of the data by testing whether the fiscal variables used are stationary or not. A variable is non-stationary when its mean and/or variance are time-dependent, and there is no long-run mean to which the variable converges. The assumptions of models estimated with Ordinary Least Squares (OLS) require that variables are stationary. If non-stationary, variables should be rendered stationary by differencing before including them in the model. Due to considerable volatility in the series, two different tests for stationarity were performed - the augmented Dickey-Fuller test and the Phillips-Perron test. The Dickey-Fuller test is not appropriate in cases where the variance of the error term is time-dependent, and the Phillips-Perron test, which does not require as strict assumptions about the distribution of the error correction term, should be used instead.<sup>20</sup>

The results of the tests are shown in Tables 6.1 and 6.2. Both tests indicate that all the variables except for current expenditure (CUR) appear to be stationary. However, the result is not clear-cut and, as all the other variables appear to be stationary, we have decided to treat recurrent expenditure as such as well. Therefore, the decision was made to run a VAR model with variables in levels. Each model includes 2 lags. It was not possible to include more as this would have seriously eroded degrees of freedom. There is a notable spike in many of the series in the election year 1991. However, the spike occurs simultaneously in most of the variables and does not appear to reflect a change in trend or a clear break or change in relationships.<sup>21</sup>

<sup>20</sup> For a few variables, where there is a sudden change in the pattern (such as domestic borrowing and ODA) that may disrupt the unit-root test results, a dummy variable to cater for a shift in trend was added to the Dickey-Fuller test regression (see Joyeux, 2001). The results were not altered.

<sup>21</sup> Models were estimated with a dummy variable for 1991, but there were more problems with the diagnostic tests (autocorrelation), and therefore the results were not as reliable.

**Table 6.1 Results for the augmented Dickey-Fuller test**

Variable	Constant (C), Trend (T), No. of lags	Value of test statistic	95% Critical value	Order of integration
F	2, C, T	-5.78	-3.61	I(0)
G	0, C	-5.71	-3.60	I(0)
ODA	0, C, T	-3.91	-3.59	I(0)
CAP	0, C	-3.98	-2.98	I(0)
CUR	0, C	-2.70	-2.98	I(1)
R	1, C, T	-4.60	-3.60	I(0)
D	0, C, T	-4.08	-3.59	I(0)

I(0) = stationary

**Table 6.2 Results for the Phillips-Perron test**

Variable	Test Statistic	95% Critical value	Order of integration
F	-7.64	-3.59	I(0)
G <sup>a</sup>	-5.86	-2.99	I(0)
ODA	-3.90	-3.59	I(0)
CAP	-3.98	-2.98	I(0)
CUR	-2.70	-2.98	I(1)
R	-4.50	-3.59	I(0)
D	-3.64	-2.98	I(0)

I(0) = stationary, I(1) = non-stationary and integrated of order 1

a) Due to a spike in the grants series in 1998, the test is done for 1972-97.

The next three sections show the results of each estimated model. For each model, the reduced form of the VAR model is shown. The structural form would identify contemporaneous effects, but requires placing restrictions on the system, which is against the original purpose of the analysis. For each estimated model, the correlation matrix of the residuals is shown, to give an indication of the size and sign of the possible contemporaneous effects.<sup>22</sup> Some of the correlations turn out to be fairly high, which implies that, in addition to the initial aid shock, there will be fairly large second-round shocks to other variables.

Finally, the full impact of an increase in aid is estimated with the use of impulse response functions. The main conclusions drawn at the end of the chapter are based on these functions which represent the sum of both direct and indirect effects.

### **6.3.1 Model 1**

The first model includes the following five variables: grants as recorded in the budget (G), capital expenditure (CAP), current expenditure (CUR), domestic borrowing (D) and domestic revenue

<sup>22</sup> Residual covariances that cause contemporaneous impulse effects can be derived from correlations and variances of the residuals. As correlations can be interpreted more intuitively, they will be shown instead of the covariances. The signs for the correlations and covariances are always the same, and, except for a few cases, larger correlations relate to larger covariances.

(REV). Foreign loans (F) are omitted. The sharp rise in grants in 1998 represents a clear break from general patterns, and therefore model 1 was only estimated for the period 1972-97.

Table 6.3 shows the associated error correction model. Traditional diagnostic tests for autocorrelation, normality and heteroskedasticity for errors were performed.<sup>23</sup> The VAR stability condition holds, which implies that the impulse responses converge in the long run. However, there is some indication of first order autocorrelation, which unfortunately cannot be corrected due to data limitations. Including more lags could be a way to rectify the problem, but this is impossible due to the relatively short time series. Autocorrelation does affect the reliability of the results as it means that *t*-statistics used to determine the significance of the coefficients can be unreliable.

Table 6.3 Model 1

		Dependent Variables				
		CAP	CUR	G	REV	D
Explanatory Variables	CAP(-1)	-0.15	-0.12	0.00	-0.13	-0.25
	CAP(-2)	0.16	-0.35**	-0.03	-0.18	-0.44
	CUR(-1)	0.17	0.7**	0.00	-0.17	0.62
	CUR(-2)	-0.53	-0.22	0.03	0.03	-0.64
	G(-1)	-4.27	-3.54*	-0.42*	-2.39*	-3.08
	G(-2)	-4.95	3.86	-0.35	-2.87*	-0.34
	REV(-1)	-0.46	0.87**	-0.08*	0.32	-0.41
	REV(-2)	-0.41	-0.34	0.06	-0.03	0.55
	D(-1)	0.25	-0.02	-0.02	0.15	0.09
	D(-2)	0.28	0.03	0.03	0.11	0.63
	constant	857***	86.1	26.8	514***	140.6
	R <sup>2</sup>	0.5	0.78	0.48	0.67	0.45
	<b>Diagnostic tests</b>					
	<b>autocorrelation (lags)</b>		test statistic			
	1		40.9 (0.02)			
2		17.8 (0.85)				
Heteroskedasticity, joint		313 (0.29)				
Normality, joint		63.4 (0.99)				

\*\*\* = significant at 99% level; \*\* = significant at 95% level; \* = significant at 90% level

<sup>23</sup> The autocorrelation test used is a Lagrange multiplier test (LM), that for normality is the Urzua (1997) LM-test and that for heteroskedasticity the White test (no cross terms, test statistic is  $\chi^2$ ). The test statistic shown for the last two corresponds to the joint test. In each case, the model was also tested for stability by checking whether inverse roots lie within the unit circle. In all cases, for the model to be stable, all impulses should gradually converge towards zero.

Table 6.4 Correlations between residuals in model 1

	<b>CAP</b>	<b>CUR</b>	<b>G</b>	<b>REV</b>	<b>D</b>
<b>CAP</b>	1.00				
<b>CUR</b>	0.47	1.00			
<b>G</b>	0.33	0.48	1.00		
<b>REV</b>	-0.88	-0.52	-0.58	1.00	
<b>D</b>	0.58	0.71	0.39	-0.53	1.00

The coefficients in Table 6.3 reveal the lagged direct (*ceteris paribus*) effects on each variable.<sup>24</sup> Several of the estimated equations have fairly low explanatory power ( $R^2$  is 0.5 for CAP and 0.45 for D). This may be partly due to the fact that one significant explanatory variable - foreign loans - is omitted. Capital expenditure and domestic borrowing appear to be unaffected by lagged movements in the other fiscal variables, because the coefficients on all variables are insignificant.

Current expenditure is affected positively and significantly by lagged domestic revenue, as expected, but negatively by grants. It is also significantly negatively related to capital expenditure, with two lags, which indicates that these two forms of expenditure might be substitutes. Grants do not appear to be very sensitive to changes in the budgetary balance, and therefore past fiscal policy does not appear to have affected the provision of grants considerably. However, grants are affected by lagged domestic revenue, negatively at the 10% significance level. This may reflect the fact that aid has been provided in response to a declining economic climate, which in turn would have caused a fall in domestic revenue. On the other hand, grants also appear to have a significantly negative lagged direct impact on domestic revenue (Table 6.3). This implies that the two might be viewed as substitute forms of finance.

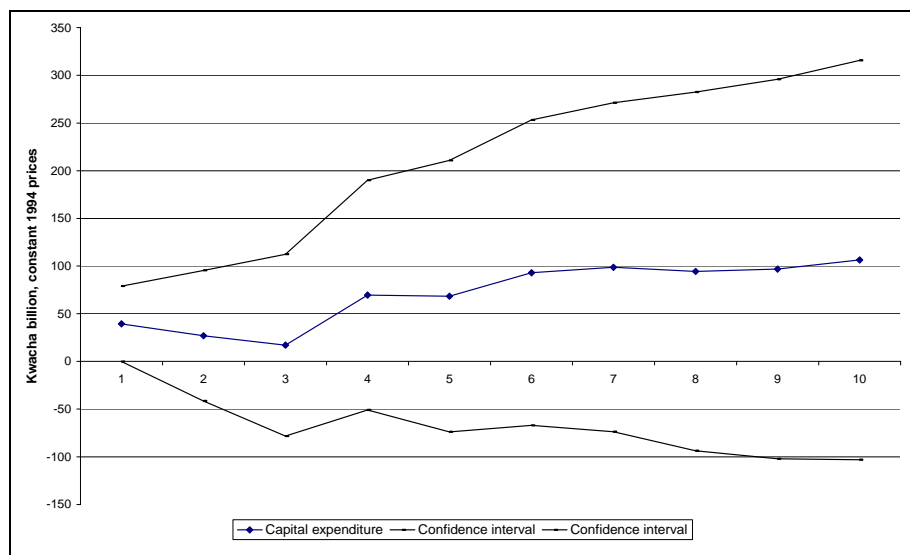
The fact that grants are not highly affected by past fiscal variables gives us reason to believe that the direction of causality runs from grants to the other variables. However, the coefficients reveal nothing about possible contemporaneous effects. Table 6.4 shows the correlations between the residuals of each equation, which gives an indication of the sign and strength of contemporaneous effects. There is a rather high negative correlation between REV and G (-0.58), but we have some doubts about the direction of causality in this case. The residuals for G are positively correlated with those for CUR and CAP, even though these correlations are not very large. Therefore, we can expect an increase in grants to have a negative contemporaneous effect on REV and positive contemporaneous effect on CAP and CUR.

Figs. 6.3-6.6 show cumulative generalised impulse response functions as a result of a one-period, one standard error shock to grants. They reveal the total effect of the increase in grants on the other fiscal variables over 10 years. The increase in grants occurs in period 1 and is of a magnitude of 10.3 billion kwacha. The initial shock slowly decays to zero (not shown as a figure). As we are only analysing the effects of a one-period shock to aid, one would expect the impacts to vanish by periods 5 to 10. In addition to the impulse responses, each figure shows the 90% confidence intervals (black lines). For the impact to be significant, both confidence intervals should take either a negative or a positive value.

<sup>24</sup> As explained in section 6.1, there are also indirect effects. For example, Table 6.4 shows that G has a direct lagged impact on CUR. CUR, on the other hand, is also affected by other current (via correlations) and lagged variables. For instance REV(-1) has a significantly negative effect on CUR and G has a significantly negative lagged effect on REV. Therefore, CUR is also affected by G via lagged REV. In this case, the negative lagged effect on CUR is reinforced.

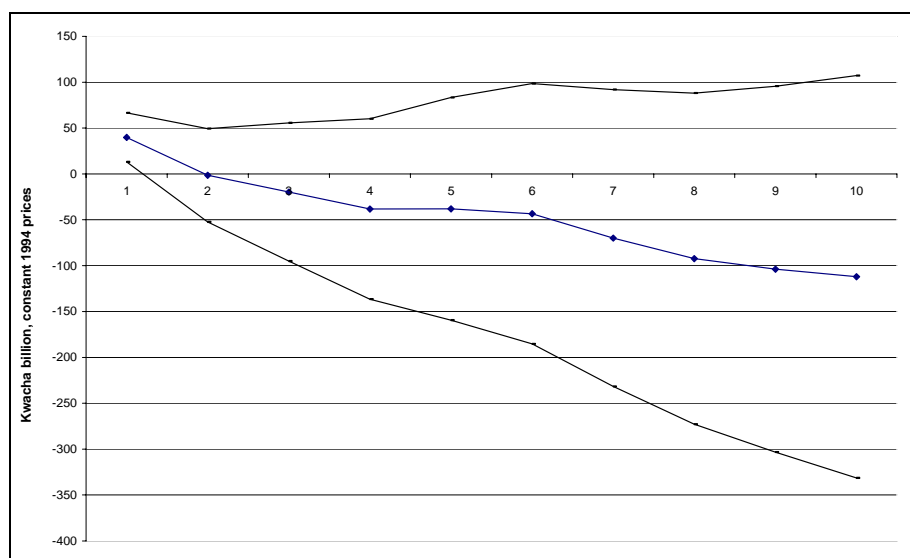
The impulse response functions for model 1 indicate the following:

**Fig. 6.3** Impulse response for capital expenditure, model 1



*Capital expenditure* (Fig. 6.3). As expected, there is a just significant, positive, contemporaneous effect of grants on capital expenditure, of a magnitude much larger than the rise in grants (K40 billion). The cumulative effect over later years is positive, but no longer significant. After five years the cumulative effect of the initial K10 billion grants shock is around K70 billion.

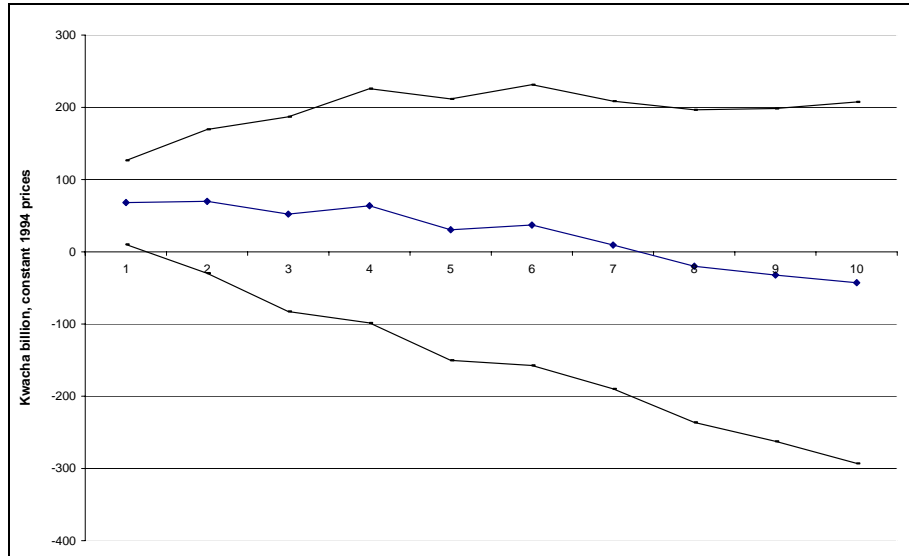
**Fig. 6.4** Impulse response for current expenditure, model 1



*Current expenditure* (Fig. 6.4). There is a significant, positive contemporaneous effect of grants on current expenditure, which is again much larger than that of grants itself (K40 billion). However, the effect then becomes negative, as could be assumed on the basis of the negative coefficient on lagged grants and capital expenditure in the REC equation (Table 6.3). The cumulative impulse effect is negative, but insignificant after period 1. This suggests that the contemporaneous and lagged effects on current expenditure are different. The cumulative impact may be partly indirect, and explained by the fall in domestic revenue (see below).

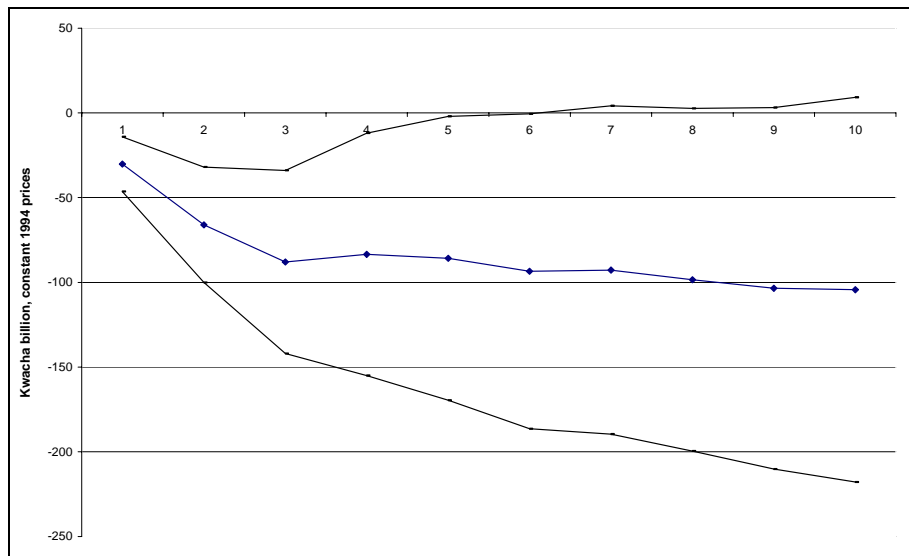


**Fig. 6.5 Impulse response for domestic borrowing, model 1**



*Domestic borrowing* (Fig. 6.5). K10 billion of grants have, in the first two years, a significantly positive effect on domestic borrowing (K70 billion). This finances the large first-period increases in current and capital expenditure. After this, the cumulative effect becomes insignificant, and turns to negative after period 7.

**Fig. 6.6 Impulse response for domestic revenue, model 1**



*Domestic revenue* (Fig. 6.6). The contemporaneous effect of grants on domestic revenue is significantly negative (see Table 6.4) and again larger than the K10 billion grants shock (K30 billion). The cumulative effect is negative over the first five years and amounts to K85 billion.

The short-run impact on total expenditure is significantly positive and larger than the increase in grants, whereas the long-run effect appears insignificant. For all but domestic revenue, the impact of an increase in grants is only significant in the first period. The impact on domestic revenue continues to be significant for several years. Evidence presented in the previous

chapters does not offer much reason to believe that there would have been a conscious effort in Zambia to lower tax effort in response to aid, but Table 6.3 does reveal that grants have a direct negative impact on domestic revenue. This may be part of the explanation of the fall in revenue, but some of the result may also be explained by spurious causality. The evidence in Table 6.3, showing that domestic revenue has affected the provision of grants, supports the explanation that aid has been provided to stimulate a declining economy, with a shrinking revenue base. A look at Figure 6.1 reveals that aid has not succeeded in increasing tax effort, but may have contributed to stabilising it. Thus, the strong negative effect on domestic revenue is somewhat questionable.

Although the shock to grants is fairly small in size, the impacts on the other variables are generally larger. Grants appear to have had a strong effect, but part of the large impact is likely to be explained by high correlations between residuals and omitted variable bias. The model is not entirely robust, as including a dummy variable for 1991 altered the impulse response for capital expenditure. The other effects remained qualitatively similar, and the model also had signs of autocorrelation, which weakens the reliability of the results.

### ***6.3.3 Model 2***

Model 2 replaces grants with net (non-concessional and concessional) foreign loans recorded in the budget. Table 6.5 shows the error correction model. There are more significant coefficients than in model 1 as past movements of fiscal variables have a significant effect on all the variables. Foreign loans are affected negatively by lagged current expenditure, but not the other fiscal variables. Foreign loans have had a direct lagged effect on all other fiscal variables except domestic revenue. This is in contrast with the results of model 1. They have a significantly positive direct effect on current expenditure with two lags, whereas the effect on capital expenditure and domestic borrowing is significantly negative with one lag. Capital expenditure has a significantly negative direct impact on current expenditure, which reinforces the conclusion from model 1 that the two types of expenditure could be substitutes. The VAR stability condition holds, and there are no problems with the diagnostic tests.

The correlation coefficients between the residuals of each equation are shown in Table 6.6. In this case correlations do not appear to be as large as in model 1. There is a strong positive correlation between the residuals for equation F and CAP (0.66), which suggests that F will have a positive contemporaneous effect on capital expenditure. In this case, the residuals in the REV equation are not highly correlated with those of equation F. The correlation between residuals for F and CUR is also fairly low.

Table 6.5 Model 2

	Dependent Variables					
		<b>CAP</b>	<b>CUR</b>	<b>F</b>	<b>REV</b>	<b>D</b>
Explanatory Variables	<b>CAP(-1)</b>	0.78**	-0.25	0.22	-0.36*	0.68
	<b>CAP(-2)</b>	-0.15	-1.14***	-0.30	0.13	-1.54**
	<b>CUR(-1)</b>	0.65	-0.08	0.30	-0.11	0.48
	<b>CUR(-2)</b>	-0.86***	-0.40	-0.74**	-0.03	-1.07**
	<b>F(-1)</b>	-0.97**	0.11	-0.68*	0.31	-1.04**
	<b>F(-2)</b>	0.06	0.79**	0.24	-0.17	0.81
	<b>REV(-1)</b>	-0.07	0.26	-0.22	0.76***	-0.81
	<b>REV(-2)</b>	-0.90	0.59	-0.64	-0.16	0.87
	<b>D(-1)</b>	-0.18	0.22	-0.14	0.17	-0.08
	<b>D(-2)</b>	0.19	0.51**	0.11	0.07	0.92**
	<b>constant</b>	771.4***	383.9	868***	252*	470.86
	<b>R<sup>2</sup></b>	0.57	0.74	0.53	0.63	0.61
	<b>Diagnostic tests</b>					
	<b>autocorrelation (lags)</b>	test statistic				
	1	29.4 (0.25)				
	2	31.9 (0.16)				
	Heteroskedasticity, joint	302.3 (0.45)				
Normality, joint	64.8 (0.99)					

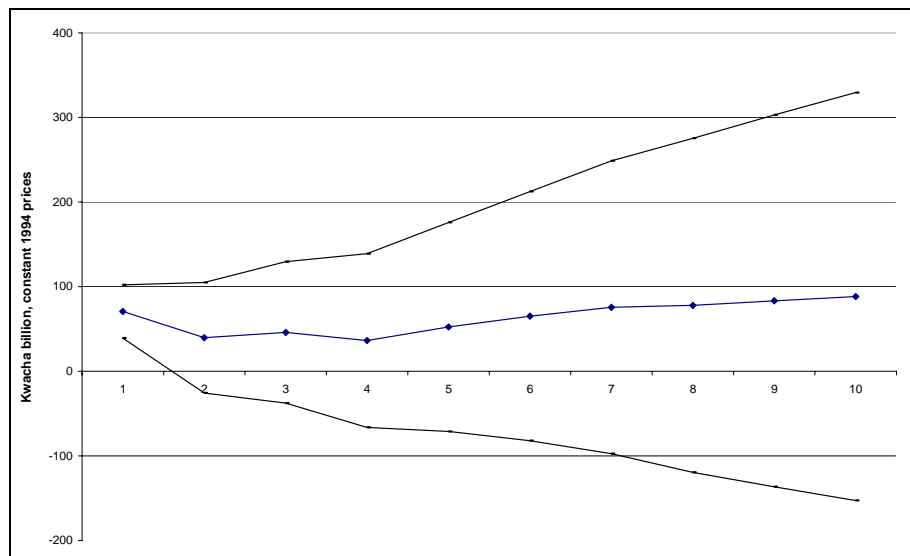
\*\*\* = significant at 99% level; \*\* = significant at 95% level; \* = significant at 90% level

Table 6.6 Correlations between residuals in model 2

	<b>CAP</b>	<b>CUR</b>	<b>F</b>	<b>REV</b>	<b>D</b>
<b>CAP</b>	1.00				
<b>CUR</b>	0.52	1.00			
<b>F</b>	0.66	0.29	1.00		
<b>REV</b>	-0.24	-0.34	-0.38	1.00	
<b>D</b>	0.43	0.71	-0.10	-0.16	1.00

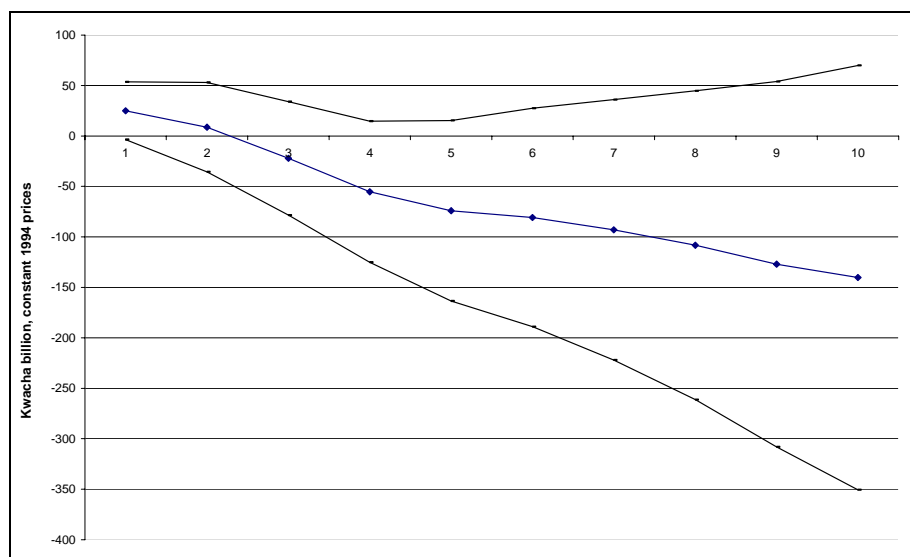
Generalised impulse response functions are again used to capture the total contemporary and cumulative effects. Figs. 6.7-6.10 show the cumulative impulse responses to a one-period shock of the magnitude of K110 billion on foreign loans, and the conclusions are presented below.

**Fig. 6.7 Impulse response for capital expenditure, model 2**



*Capital expenditure (Fig. 6.7).* The impact on capital expenditure is significantly positive in the first period, after which the cumulative impact is no longer significant, though positive. In this case the cumulative impact is smaller than the injection of loans - in the first year K70 billion and after five years, K52 billion.

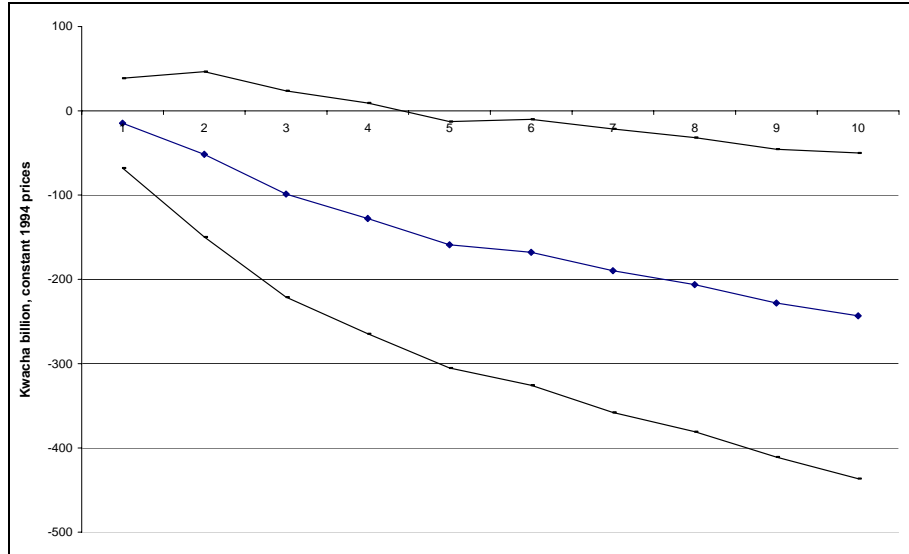
**Fig. 6.8 Impulse response for current expenditure, model 2**



*Current expenditure (Fig. 6.8).* The contemporaneous effect on current expenditure is again positive (K25 billion in year 1), and just significant, whereas the cumulative effect is again negative and insignificant. This negative effect may be surprising, since Table 6.5 reveals that foreign loans have a direct positive lagged impact on current expenditure. Therefore, the cumulative result is again likely to be an indirect effect of the fall in domestic borrowing and revenue (see below), which both have a positive impact on current expenditure in Table 6.5.

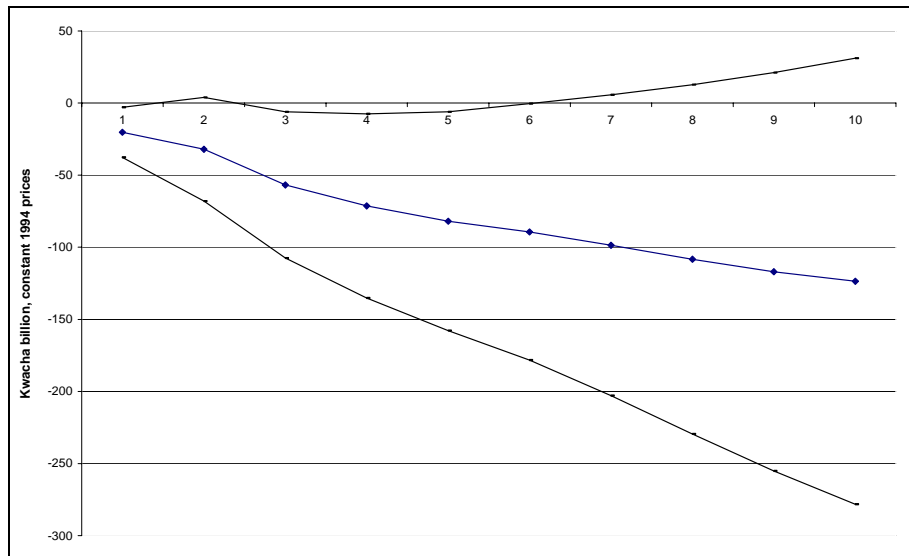
The cumulative impact on total expenditure is positive in the first three periods, but not over-proportional. After this the cumulative impact is negative, but insignificant.

**Fig. 6.9 Impulse response for domestic borrowing, model 2**



*Domestic borrowing (Fig. 6.9).* The impact on domestic borrowing is negative, but insignificant.

**Fig. 6.10 Impulse response for domestic revenue, model 2**



*Domestic revenue (Fig. 6.10).* The impact on domestic revenue is again significantly negative for 5-6 years. However, in this case the direct lagged effect of foreign loans on revenue is insignificant (Table 6.5). Again, although insignificant, revenue has a lagged negative impact on foreign loans (Table 6.5). The result may arise again partly due to spurious causality. The contemporaneous effect is negative, due to the negative correlations between residuals in equations REV and F. However, this effect is small. One explanation for the accentuated cumulative effect is simply the significantly positive impact of lagged revenue on itself (Table 6.5). Past decisions on revenue tend to guide future tax effort. An increase in foreign loans may have been used to substitute for domestic revenues, but as in model 1, foreign loans may also have been provided in response to declining economic performance, which is behind the fall in domestic revenue.

Thus, a foreign loan injection has effects on expenditure and domestic revenue similar in sign to a grant injection (model 1), though smaller in magnitude relative to the size of the injection. The impact of a loan on domestic borrowing, on the other hand, though negative, is insignificant. Model 2 is more reliable than model 1, as it passes all diagnostic tests and the effects are less accentuated.<sup>25</sup>

### ***6.3.4 Model 3***

In the third model, ODA is used instead of the data recorded in the budget.<sup>26</sup> A dummy, which takes the value 1 for 1995 is added to each equation, to allow for the exceptionally large spike in ODA in this year, which does not match movements in the other variables. The spike in ODA was caused by the large ESAF disbursement by the IMF on the maturity of the Rights Accumulation Programme. The model is stable and passes all the standard diagnostic tests. In the actual error correction model (Table 6.7), very few coefficients prove significant. Current values of ODA, recurrent expenditure (CUR) and domestic revenue (REV) appear to be largely unaffected by past fiscal aggregates. Recurrent expenditure has a significantly negative direct impact on capital expenditure, with two lags. Lagged ODA and current expenditure have a significantly negative direct effect on domestic borrowing (D). ODA has no other significant lagged, direct effects.

The correlations between residuals are shown in Table 6.8. They are fairly high for the ODA equation. There is a high positive correlation between CAP and ODA (0.73) and D and ODA (0.6) and, as in previous models, a negative correlation between ODA and REV (-0.48).

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<sup>25</sup> Inclusion of a dummy for 1991, when there was an election-induced spike in recurrent and capital expenditure and government borrowing, slightly changes the short-, but not the long-run effects (for domestic borrowing), but this model does not pass the test for residual autocorrelation, and the results can therefore be questionable.

<sup>26</sup> A further model using an ODA figure excluding debt-related activities was also used, but as the results remained largely the same, they are not reported.

Table 6.7 Model 3

		Dependent Variables				
		<b>CAP</b>	<b>CUR</b>	<b>ODA</b>	<b>REV</b>	<b>D</b>
Explanatory Variables	<b>CAP(-1)</b>	0.11	-0.11	0.51	-0.02	0.27
	<b>CAP(-2)</b>	0.29	-0.23	0.12	-0.03	0.26
	<b>CUR(-1)</b>	0.35	0.42	0.39	-0.12	0.59
	<b>CUR(-2)</b>	-0.85**	-0.11	-0.52	-0.14	-0.84**
	<b>ODA(-1)</b>	-0.16	-0.04	0.19	-0.05	-0.42*
	<b>ODA(-2)</b>	0.05	-0.13	0.12	-0.03	-0.23
	<b>REV(-1)</b>	-0.07	0.46	-0.34	0.57**	-0.99
	<b>REV(-2)</b>	-0.54	-0.19	-0.77	-0.14	0.44
	<b>D(-1)</b>	0.06	-0.17	0.07	0.08	-0.37
	<b>D(-2)</b>	0.29	0.05	0.36	0.07	0.40
	<b>Constant</b>	658.8	368.3	648.2	428**	655.6
	<b>Dummy</b>	-42.0	-74.4	891***	-77.1	-281.0
	<b>R<sup>2</sup></b>	0.41	0.68	0.88	0.59	0.60
	<b>Diagnostic tests</b>					
	<b>autocorrelation (lags)</b>	test statistic				
	1	31.8 (0.16)				
	2	21.8 (0.64)				
Heteroskedasticity, joint	319.3 (0.42)					
Normality, joint	67.9 (0.99)					

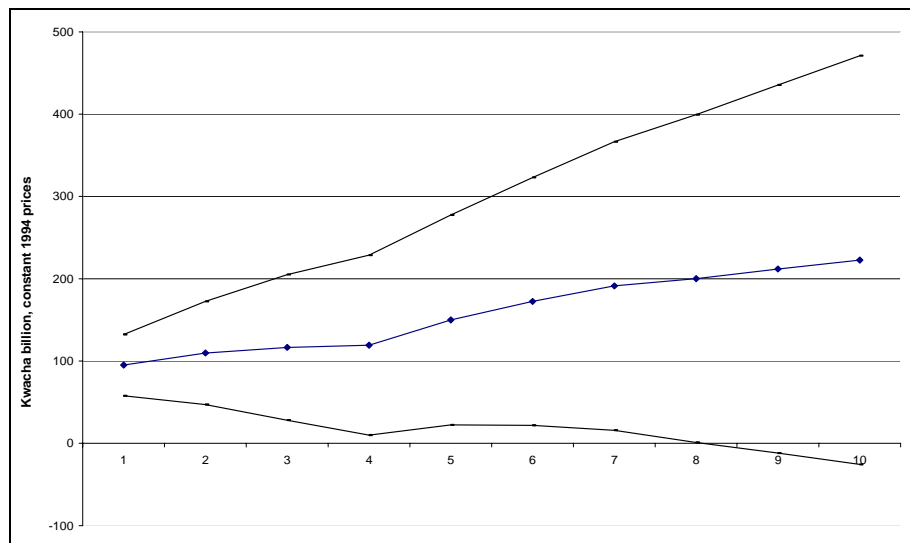
\*\*\* = significant at 99% level; \*\* = significant at 95% level; \* = significant at 90% level

Table 6.8 Correlations between residuals in model 3

	<b>CAP</b>	<b>CUR</b>	<b>ODA</b>	<b>REV</b>	<b>D</b>
<b>CAP</b>	1.00				
<b>CUR</b>	0.39	1.00			
<b>ODA</b>	0.73	0.53	1.00		
<b>REV</b>	-0.48	-0.46	-0.41	1.00	
<b>D</b>	0.60	0.66	0.57	-0.66	1.00

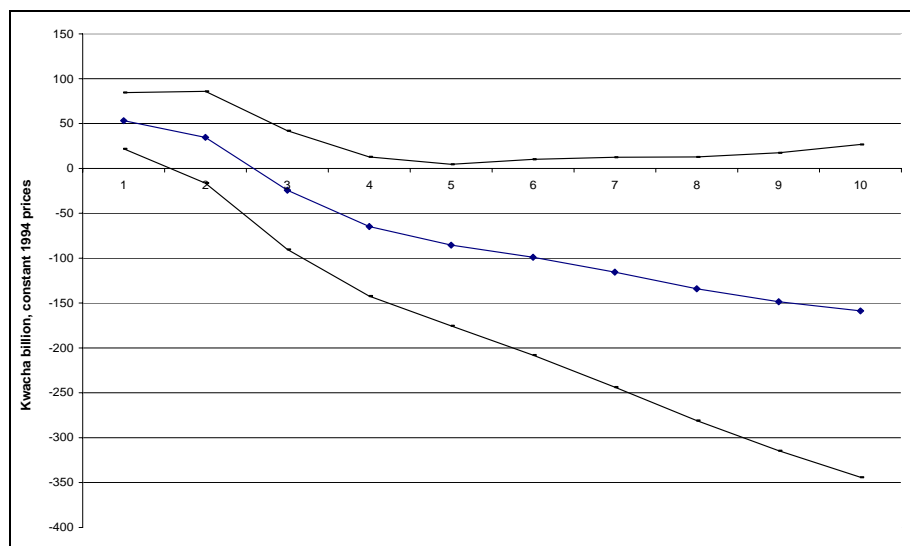
Figs. 6.11-6.14 show the cumulative generalised impulse responses to a one-period shock to ODA of the magnitude of K130 billion. The following conclusions can be drawn:

**Fig. 6.11** Impulse response for capital expenditure, model 3



*Capital expenditure* (Fig. 6.11). The impact on capital expenditure is positive and significant for up to eight years. The initial impact is somewhat smaller than the ODA shock (K95 billion), but rises to K200 billion by year 8.

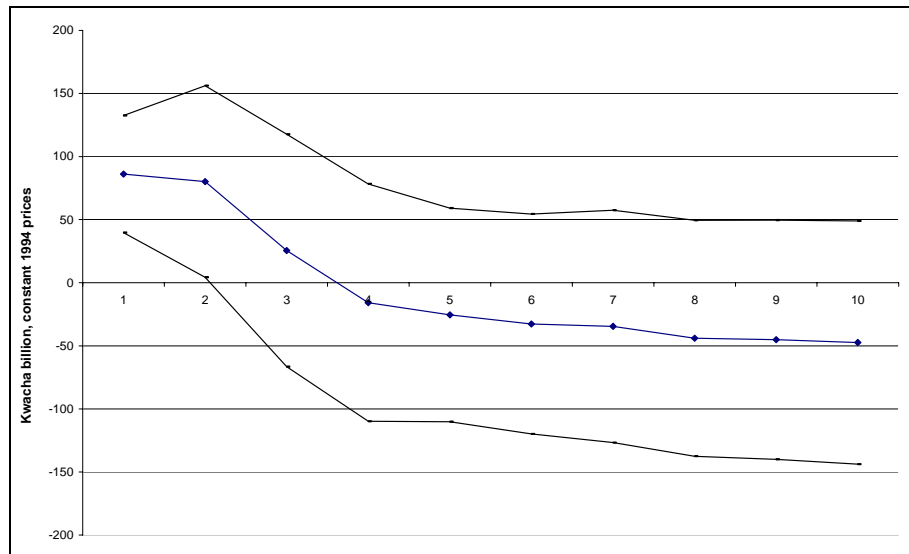
**Fig. 6.12** Impulse response for current expenditure, model 3



*Current expenditure* (Fig. 6.12). The initial effect on current expenditure is significant and positive, but becomes negative beyond year 2, while the impact is insignificant. Although insignificant, the direct lagged effect of ODA on current expenditure is negative (Table 6.7).

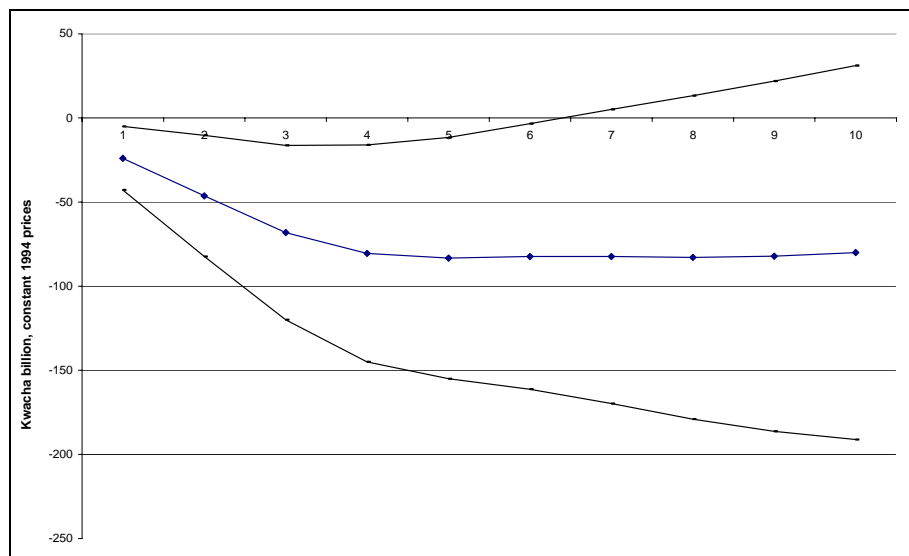


**Fig. 6.13 Impulse response for domestic borrowing, model 3**



*Domestic borrowing* (Fig 6.13). The impact on domestic borrowing is significantly positive in the first year (approximately K80 billion), as can be expected on the basis of the high positive correlation between residuals (Table 6.8). After this, the effect becomes negative, and the cumulative effect is negative after year 3, but insignificant. The significant increase in borrowing indicates that Zambia failed to make use of ODA inflows to stabilise the macroeconomy, and instead took advantage of these to relax fiscal control.

**Fig. 6.14 Impulse response for domestic revenue, model 3**



*Domestic revenue* (Fig. 6.14). The cumulative effect on domestic revenue is negative and significant until year 6, by which time the cumulative effect of the K130 billion shock to ODA on revenue is about K80 billion. The explanation is largely similar to that offered for the result of model 2. ODA may have substituted for revenue, but it is also likely that ODA has been provided to stimulate a declining economy and therefore tax effort.

The results of model 3 are stronger than, but quite similar to, those of model 1. The impact on total expenditure is cumulatively not significantly larger than the ODA injection, although the

combined increases of capital and recurrent expenditure exceed the size of the injection in years 1 and 2 – by some 50% in year 1. The increase in expenditure is financed by higher domestic borrowing in the first two years, partially offset by a fall in revenue.

## 6.4 Econometric results: summary and conclusions

The clearest effects of external financing have been: (i) its positive impact on capital expenditure, (ii) its negative impact on domestic revenue, and (iii) for ODA, an increase in domestic borrowing. The effect on recurrent expenditure has been initially positive, but in later years negative. The latter is likely to be an indirect result of changes in the other variables, such as the fall in domestic borrowing and revenue. The positive effect of an increase in ODA inflows on domestic borrowing suggests that aid receipts were a pretext for relaxing fiscal and macroeconomic control.

There is some doubt about the result showing that aid reduced domestic revenue, which may arise from spurious causality. There is no reason to assume that aid would have increased the tax effort, but the strong negative impact is also unexpected. One objective of donors has been to stabilise or increase fiscal receipts. Therefore, the contemporaneous correlation may reflect the reaction of donors to declining economic performance and the simultaneous shrinkage of the revenue base.

The impact on capital expenditure is in line with the hypotheses made in Chapter 5. The ambiguous impact on current expenditure may be somewhat more surprising. The massive increase in aid to Zambia in the 1990s was, apart from the share earmarked for debt and debt-service reduction, in good part used for balance-of-payments and budget support, including domestic debt reduction, rather than for capital expenditure (cf. Fig. 4.1). From 1995 onwards, real recurrent budget expenditures rose to help meet the country's poverty reduction challenges. However, the model results reflect an average over the entire period, and therefore the strong positive effect on capital expenditure is not surprising. Only the contemporaneous effect on current expenditure appears to be statistically significant, however, and this impact is indeed positive. The cumulative negative (though insignificant) effect can be largely ascribed to indirect effects arising from the fall in domestic revenue and borrowing.

More surprising still is the evidence that ODA injections have had the effect of raising domestic borrowing, in spite of the fact that the bulk of ODA operations have occurred in the context of economic stabilisation programmes agreed with the IMF whose objectives have consistently included reducing domestic imbalances caused by monetised domestic borrowing. The finding casts new light on the reasons for the repeated breakdown of Zambia's many adjustment programmes (cf. Annex).

The econometric results, including the relatively low  $R^2$  statistics in some cases, and the statistical insignificance of some cumulative effects, lend weight to the observation in Chapter 4 that (a) Zambia's budgetary processes were ill-planned, poorly coordinated and *ad hoc*, with these characteristics aggravated by the government's implementation of cash budgeting, (b) the practice of dual budgeting persisted well into the period of large inflows of general budget support, and (c) donor pressure for higher recurrent expenditure on pro-poor service provision has been of only ephemeral and contemporaneous effect. Thus, capital budgets have been able to capture a high proportion of net loan and ODA receipts, in spite of the serious under-funding of the operating costs of public services.

In model 1 the results may appear somewhat questionable as the effects on variables are considerably larger than those of the shock to grants and the model does not pass all diagnostic

tests. For this reason, model 3 that presents rather similar results may be more appropriate. The cumulative impact on capital expenditure is significantly positive in models 2 and 3. Although the cumulative increase in capital expenditure is larger than the increase in ODA, the cumulative effect on total expenditure is not over-proportional. As the results of model 1 may be somewhat questionable, there is not strong support for concluding that Zambia's public expenditure plans have been affected by 'aid illusion', i.e. that they have been based on the assumption that aid receipts would be larger than they turned out to be.

Parallel case studies on the fiscal impact of aid in Uganda and Malawi (Fagernäs and Roberts, 2004a; Fagernäs and Schurich, 2004) using the same methodology result in broadly similar conclusions on the effects on expenditure and domestic borrowing. However, in neither of the two other countries has an increase in aid provoked a reduction in tax effort.

## Chapter 7: Overall Conclusions

This paper has documented the relationship between aid and public finances during three decades when Zambia was experiencing falling per capita income, increased poverty, deteriorating public services, high inflation, debt and balance-of-payments crises, and erratic policy-making dominated by short-term considerations of crisis management. The country, which for the first years of its independence had a resource surplus, has subsequently become heavily aid-dependent. Abstracting from the large non-budgeted disbursements for technical cooperation, debt and debt-service reduction and food aid projects and from the other bilateral grant aid not reflected in the budget, external sources have financed a share of total expenditure rising from less than 10% in the 1970s to 40% in the later 1990s. There can be little doubt that aid on this scale has mitigated the consequences of decline and of external indebtedness, and has permitted higher levels of public expenditure than would otherwise have been possible.

To answer the questions put at the beginning of the paper about the effects of aid on the Zambian economy and on growth, two lines of enquiry have been pursued. First, the fiscal impacts of external resource inflows have been explored econometrically, using a VAR model to confirm or reject hypotheses formulated on the basis of a historical analysis of Zambia's economic fortunes and fiscal management. Second, less formal reasoning has been used to draw conclusions on why abundant aid inflows have been ineffective in stimulating economic growth.

As regards the fiscal impact of aid, the analysis is complicated by the large and incompletely explained variance between donors' disbursements and receipts of external finance recorded in the budget. Bilateral grants, in particular, receive little recognition in budget documents, even when provided in the form of budget aid and the like. The analysis has thus been conducted using as independent variables both inflows recorded in the budget and ODA disbursements as reported by the OECD-DAC. As regards the former, the conclusions about the fiscal effects of net foreign borrowing are more reliable than those pertaining to grants.

One robust and significant conclusion of the econometric analysis is that the principal effect of aid on average, over the past three decades, has been to raise capital budget expenditure. A one-period injection of aid appears to have promoted higher capital budget outlays persisting over successive time periods and, in the case of ODA, eventually exceeding the size of the initial injection. This result is not surprising for the 1970s and 1980s when most aid inflows were for projects; it is less expected for the 1990s when donors contributed massively to debt and debt-service reduction and made large disbursements of quick-disbursing, ostensibly non-project, aid. The interpretation placed on the result in the paper is that it reflects, first, the continuation of the fiscal dichotomy between the recurrent and capital budgets even after the consolidation of administrative responsibility for them within the MFNP, and, second, the use in the 1990s of the significant volume of aid devoted to sector-wide development programmes for the rehabilitation and reconstruction of the physical capital stock which had been allowed to deteriorate.

The econometric evidence also shows that aid has had the effect of raising recurrent budget expenditure, though only in the time period of its receipt, and to a smaller extent than the size of the injection. In the time period of disbursement net ODA seems on average to have been allocated two-thirds to capital budget expenditures - which have mostly been used for fixed capital formation - and one-third for the recurrent budget. This may not have coincided with the intentions of the major donors in the 1990s, one of whose main motives in assisting Zambia was to restore non-salary recurrent financing for basic public services.

A second robust and significant conclusion from the econometric analysis is that aid seems to have had the effect of diminishing domestic revenue receipts. This result is more surprising than the first because the bulk of assistance provided to Zambia since the early 1980s has been committed in parallel with IMF stabilisation programmes, one of whose objectives has been the mobilisation of new revenue sources. The implication of causality may well be spurious, arising from the joint determination of rising aid flows and falling revenues by Zambia's economic decline. In the years after independence Zambia's revenues were largely drawn from copper and related sectors. These revenues dwindled after 1975, relative to GDP and absolutely. From 70% of domestic revenue circa 1970 they fell to 7-8% circa 2000. However, Zambia has striven, especially in the 1990s, to diversify its revenue sources, and has succeeded in stabilising, albeit at a lower level, its revenue/GDP ratio (Chapter 3). In the later 1990s the government's improved mobilisation of new, more diverse, revenue sources and tighter fiscal discipline for a time eliminated all domestic financing of the fiscal deficit.

A third observation based on the modelling of the impact of ODA on fiscal aggregates is that aid receipts seem to have encouraged the government to relax its fiscal and macroeconomic control instead of assisting it to stabilise the economy as the donors intended. Injections of ODA have had the significant effect of increasing Zambia's repeated recourse to (mostly monetised) domestic borrowing, both contemporaneously and in the following time period. The evidence suggests that Zambia's many adjustment programmes may have broken down because of a wilful relaxation of fiscal control – as well as because of design faults and other factors.

The econometric analysis also lends credence to the observation based on institutional analysis that Zambia's budgetary processes have been erratic and undisciplined. The weakness of the estimated relationships (low  $R^2$ ) tends to confirm the *ad hoc* character of fiscal resource allocation. The fact that aid has exerted no apparent downward pressure on Zambia's almost constant excessive domestic borrowing also bears witness to the weakness of the budgetary process.

The bare bones of the econometric results have not yielded major insights into the second line of enquiry in this paper, namely, the relationship between aid and growth. Though Zambia's macroeconomic management has been unstable and erratic over many years, there is little sign of a contribution towards this of persistent 'aid illusion', i.e. a tendency to overspend aid receipts. Chapter 2 of the paper draws attention to the bold, radical and ambitious nature of the economic reforms undertaken by the MMD government after 1991, coinciding with the period when aid inflows burgeoned. There were high hopes at the time that, relieved of a balance-of-payments constraint and of the policy uncertainties characteristic of the dying years of the UNIP government, and with market-friendly policies, the economy would at last diversify and resume growth.

The reasons why these expectations were not in the event fulfilled - except in the relatively minor and particular form of the growth in the late 1990s of agricultural exports - have not received systematic analysis in this paper. However, the early chapters review a number of elements of the likely explanation. Foremost among these is the failure of private investment to grow to the extent necessary to effect the transformation of a structurally severely maladjusted economy. The MMD government's reforms failed to revive private sector confidence, in part because of the tardy implementation of some of their most important elements, notably privatisation, and in part because of the persistent negative influences of the continuing macroeconomic instability, delays in solving the problems of debt-service arrears, and growing corruption in the political class. To these factors were added the donors' very public reactions to their concerns about aspects of governance ranging from the rule of law and corruption to public finance management and programme implementation. Trust in the government's intentions and actions was weakened, and inflows of external assistance became uncertain and volatile.

Aid is most successful in promoting growth when the services which it helps governments to provide not only meet the needs and aspirations of the population but also engender confidence on the part of enterprise and support it in its business expansion. In Zambia in the 1990s, though aid was provided on a massive scale, it was unable to break a vicious circle of distrust and low private investment, nor did it make much headway in entrenching sound practices in the conduct of government finances and the provision of public services.

Zambia's success in raising the profile of social sector expenditure in the later 1990s may now herald an era in which public expenditure is once more planned within a framework of strategy, guided by longer-term goals and objectives. Zambia's first full Poverty Reduction Strategy Paper of March 2002 contains commitments to 'capacity strengthening in planning and budgeting', to 'strengthening the link between plans and budgets', to 'special efforts ... to ensure that budgeting is purposeful' and to eliminating variance between budgeted and actual expenditures. And expenditure strategy includes a guarantee that social and capital spending will not be compressed and that, as regards the latter, infrastructural rehabilitation, as opposed to new construction, will be given priority (Government of Zambia, 2002: Chapter 4).

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## Annex: Chronology of IMF Programmes and Paris Club Agreements 1973-2003<sup>27</sup>

Date	IMF programme
1973	One-year standby agreement with IMF.
1976	One-year standby agreement with IMF.
1978	Two-year standby agreement with IMF.
1981	Three-year Extended Fund Facility with IMF.
1982	IMF plan cancelled as objectives not met.
April 1983	Return to the IMF after failure to find alternative sources of funds; one-year standby agreement.
May 1984	Consultative Group meeting on external aid.
July 1984	Paris Club agreement on debt rescheduling.
July 1984	21-month standby agreement.
Dec 1984	London Club commercial bank rescheduling.
April 1985	IMF agreement suspended for non-compliance.
June 1985	Consultative Group meeting on external aid.
Dec 1985	Consultative Group meeting on external aid.
Feb 1986	'Shadow programme' transformed into 24-month standby agreement with IMF.
Mar 1986	Paris Club agreement on debt rescheduling.
Dec 1986	Consultative Group meeting on external aid.
Jan 1987	Kaunda backs away from reform measures; IMF and World Bank programmes are suspended.
Mar 1987	Discussions with IMF to get programme back on track.
May 1987	Kaunda announces suspension of IMF reform effort and introduces New Economic Recovery Programme. Zambia declared ineligible to access IMF financial resources because of overdue financial obligations to the IMF. Zambia was one of only eleven countries, six from sub-Saharan Africa, who were in arrears to the IMF at the end of the 1980s.
1988	Informal talks with the IMF and World Bank.
Aug 1989	Policy Framework Paper 1989-1993 announced.
Feb 1990	Zambia reaches preliminary agreement with IMF and World Bank.
Sep 1991	The IMF and World Bank suspend agreement in response to Zambia's failure to make payments in July.
1992	The IMF agreed a Rights Accumulation Programme (RAP) with Zambia. This is a programme where an overdue country can gain access to IMF financial resources again through enacting an IMF economic programme.
1995	Zambia was viewed to have successfully completed the RAP in December 1995. Subsequently, the IMF agreed two programmes in Zambia; a three-year ESAF and a one-year SAF. US\$1,043 million was provided under the ESAF, and US\$270 million under the SAF. The ESAF programme was due to run from 1995/96 to 1997/98.
1999	The IMF agreed a new three-year programme with Zambia under the ESAF, providing US\$349 million between 1999 and 2001.

<sup>27</sup> Source: Situmbeko and Zulu (2004).

July 2000	The IMF and World Bank accept Zambia's Interim Poverty Reduction Strategy Paper (IPRSP) as it provides, 'a sound basis for the development of a fully participatory PRSP and for Bank and Fund concessional assistance'. Following agreement on the IPRSP, the IMF completed its first review of the ESAF, which had now become known as the Poverty Reduction and Growth Facility (PRGF). This was seen to be a 'significant step' towards the disbursement of US\$13.2 million. Total disbursements under the programme would be taken to US\$26.4 million. Following the IPRSP, the IMF and World Bank produced their preliminary assessment of Zambia's qualification for the HIPC initiative on 20 July.
Dec 2000	Decision point reached in the HIPC initiative.
March 2001	Second review of the PRGF programme completed and approved by the IMF in March.
Nov 2001	Third annual review of the PRGF completed; by this stage Zambia had drawn US\$70 million under the programme agreed in 1999.
May 2002	The PRSP is finished and approved by the IMF and World Bank. Zambia also assumed Article VIII status within the IMF. This is an undertaking 'to refrain from imposing restrictions on the making of payments and transfers for current international transactions, or from engaging in discriminatory currency arrangements or multiple currency practices without IMF approval'. At this time Zambia's quota in the IMF was US\$622 million, and its outstanding use of IMF financing was US\$995 million. The fourth review under the PRGF was also completed. Zambia had taken US\$134.8 million under this programme.
Nov 2002	Fifth review of the PRGF completed; Zambia had now drawn US\$205 million.
Dec 2002	The HIPC programme goes off-track after the government announces it will not privatise ZNCB.
May 2003	The government announces it will privatise ZNCB, and the ZPA starts to receive bids. HIPC back on-track.
July 2003	There is no new agreement under the PRGF, due to projected overspending on the government budget. HIPC off-track again.