The Fiscal Effects of Aid in Malawi

Sonja Fagernäs and Cedrik Schurich
Economic and Statistics Analysis Unit

Overseas Development Institute/Department for International Development, UK

September 2004

ESAU Working Paper 7

Overseas Development Institute
London

The Economics and Statistics Analysis Unit has been established by DFID to undertake research, analysis and synthesis, mainly by seconded DFID economists, statisticians and other professionals, which advances understanding of the processes of poverty reduction and pro-poor growth in the contemporary global context, and of the design and implementation of policies that promote these objectives. ESAU's mission is to make research conclusions available to DFID, and to diffuse them in the wider development community.

ISBN: 0 85003 730 1

Economics and Statistics Analysis Unit
Overseas Development Institute
111 Westminster Bridge Road
London SE1 7JD

© Overseas Development Institute 2004

All rights reserved. Readers may quote from or reproduce this paper, but as copyright holder, ODI requests due acknowledgement.

Contents

Acknowledgements **v**

Acronyms **v**

Executive Summary **vii**

Chapter 1: Introduction **1**

Chapter 2: The fiscal effects of aid: theoretical framework **3**

Chapter 3: Aid and fiscal policy in Malawi **5**

3.1 The macroeconomic background 5
3.2 Trends in fiscal variables 8
3.3 Institutions and challenges to fiscal policy 17
3.4 Summary 19

Chapter 4: The econometric analysis and results **20**

4.1 Hypotheses 20
4.2 Methodology 22
4.3 Model estimation 22
4.4 Summarising the fiscal impacts of aid 35

Chapter 5: Conclusions **37**

Bibliography **39**

Annex 1: External financing and debt rescheduling **41**

Annex 2: Details about ODA **43**

Annex 3: Classification of expenditure **45**

Annex 4: Additional information for Chapter 4 **46**

Tests for order of integration 46
Cointegration test results 47

Figures

Fig. 3.1 Real GDP growth 5

Fig. 3.2 Budget deficit excluding grants as a share of GDP 6

Fig. 3.3 Grants and foreign loans as shares of GDP 9

Fig. 3.4 ODA as a share of GDP 9

Fig. 3.5 Shares of external financing, domestic revenue and domestic borrowing in total financing 10

Fig. 3.6 Total expenditure as a share of GDP 11

Fig. 3.7 Recurrent and development expenditure as shares of total expenditure 12

Fig. 3.8 Expenditure and sources of finance as shares of GDP 12

Fig. 3.9 Development expenditure by economic classification 13

Fig. 3.10a Recurrent expenditure by functional classification 14

Fig. 3.10b Recurrent expenditure by economic classification 15

Fig. 3.11 Development expenditure by functional classification 16
Fig. 4.1 Expenditure and external financing 20
Fig. 4.2 Revenue and finance 21
Fig. 4.3 ODA and external financing 22
Fig. 4.4 Impulse responses to a permanent increase in grants, model 1 29
Fig. 4.5 Impulse responses to a permanent increase in foreign loans, model 2 33
Fig. 4.6 Impulse responses to a permanent increase in ODA, model 3 35
Fig. A1 Share of official loans in total (gross) long-term disbursements 41
Fig. A2 Share of concessional loans in total official (bilateral and multilateral) long-term disbursements (gross) 41
Fig. A3 Average bilateral ODA (net) by country 43
Fig. A4 Share of bilateral ODA in total net ODA 43
Fig. A5 Average bilateral ODA commitments by category 44

Tables

Table 3.1 Recurrent expenditure by economic classification in 1994 and 1999 15
Table 4.1 Error correction, model 1 27
Table 4.2 Correlations between residuals in model 1 27
Table 4.3 Error correction, model 2 31
Table 4.4 Correlations for residuals in model 2 31
Table 4.5 Error correction, model 3 34
Table A1 Classification of expenditure 45
Table A2 Results for Dickey Fuller tests 46
Table A3 Results for Phillips-Perron test 47
Table A4 Results for Dickey Fuller tests for period 1970-92 47
Table A5 Results for Johansen test, model 1 47
Table A6 Results for Johansen test, model 2 48
Table A7 Results for Johansen test, model 3 48

Acknowledgements

The authors would like to thank John Roberts and Oliver Morrissey for the numerous valuable comments and ideas. We are also grateful to Ian Gillson for assistance with data and Garth Armstrong for providing useful information.

Acronyms

ADMARC	= Agricultural Development and Marketing Corporation
DAC	= Development Assistance Committee
EIU	= Economist Intelligence Unit
IDA	= International Development Association
IMF	= International Monetary Fund
MER	= Malawi Economic Report
MTEF	= Medium Term Expenditure Framework
ODA	= Official Development Assistance
OECD	= Organisation for Economic Cooperation and Development
NEC	= National Economic Council
PCL	= Press Corporation Limited
PRGF	= Poverty and Growth Reduction Facility
PRSP	= Poverty Reduction Strategy Paper
PSIP	= Public Sector Investment Programme
VEC	= Vector error correction model
VAR	= Vector auto regression model

Executive Summary

The aid effectiveness literature has shown that aid to developing countries tends, on balance, to have a positive effect on growth, though results are sensitive to the econometric method adopted. In recent years, the literature has concentrated on the relative importance of policy and other variables for aid effectiveness, and has less to say about how aid itself affects policy and specifically about the effects of aid on fiscal policy. Aid can affect economic growth, for instance, via its impact on government behaviour, investment and savings. Government consumption or current expenditure can also raise growth, by increasing the general level of economic activity. As much of aid is usually given to the government, its effects on growth and poverty are likely to be primarily mediated by government fiscal policy.

This paper studies the impacts of aid on fiscal aggregates in Malawi over the period 1970-2000. The existing research on the fiscal impact of aid can be divided into two categories. The fungibility literature concentrates on whether aid is spent on those sectors where it was intended, such as health and education. The fiscal response literature goes beyond issues of fungibility by analysing the impact of aid on fiscal aggregates such as tax revenue, total spending, public investment (development expenditure), public consumption (recurrent expenditure) and domestic borrowing. It also examines the impacts in a dynamic framework, in contrast to the fungibility literature, which tends to concentrate on static effects. The evidence from the two types of literature suggests that aid can have significant impacts on fiscal aggregates and budgetary planning, but it is difficult to generalise and the actual effects remain rather country-specific. In this paper we assess the effects of aid on the two types of domestic borrowing and tax revenue as well as on total expenditure and the two expenditure categories: recurrent and development spending.

To date, much of the fiscal response literature has used structural econometric models, which can be difficult to estimate. In order to circumvent this problem, this paper uses a vector error correction (VEC) framework to analyse the effects of aid on fiscal aggregates in Malawi. In so doing, it follows in the footsteps of Osei and Morrissey (2003), who have modelled the fiscal effects of aid for Ghana using a vector autoregression (VAR) model. This approach takes into account the interactions between fiscal variables over time and treats the variables as endogenous. It is an atheoretical approach in the sense that it does not test specific theoretical formulations of budgetary planning, which could constrain the scope of the analysis. The fiscal response and fungibility studies, on the other hand, start from the viewpoint of utility maximisation. In the former, the government maximises utility based on a quadratic loss function and subject to targets for each revenue and expenditure category. However, concerns can be raised about the type of budget decision-making process modelled, which in reality is unlikely to be as stable or consistent. In real life, expenditure tends to be firstly allocated to mandatory categories and, subject to further financial availability, used thereafter for more discretionary programmes. This type of setting could be catered for, for instance by a Stone-Geary utility function that results in a linear expenditure system, where expenditure on an item consists of a predetermined amount plus an addition, where the latter depends on the availability of funds. This theoretical option, however, focuses on expenditure and cannot be used to assess the effects of aid on other forms of financing or to account for the fact that different forms of finance may be used for different type of expenditure.

In this paper, we do not opt for an alternative theoretical formulation, but rather wish to take into account the interactions between fiscal variables that can be rather complex to model theoretically. We therefore choose to use a VEC framework instead of a standard VAR, as the fiscal variables were found to be non-stationary and cointegrated.

Before embarking on the econometric analysis, the paper discusses movements in aid and fiscal aggregates in Malawi and the political economy background to fiscal policy. The 1970s was a relatively good economic period in Malawi, with fairly high GDP and investment growth. However,

there was excessive recourse to foreign loans to finance prestige projects and enterprises, leading to debt-service default. Thus in the 1980s fiscal management and economic conditions worsened, partly triggered by a series of external shocks (terms of trade and war in neighbouring Mozambique), debt and poor domestic policy. The country has since repeatedly resorted to supplementary budgets, and domestic borrowing increased to cover excess expenditures. In 1981, Malawi started its first structural adjustment programme supported by the World Bank and the IMF. Despite the wide range of reforms implemented, sustained growth proved elusive. The 1990s was a volatile period, partly driven by the transition to democracy as well as the many IMF-supported reforms. Droughts, interest payments on debt, the weak performance of parastatals and commodity price fluctuations all complicated fiscal management. Since the mid-1980s and the advent of structural adjustment loans and conditionality, donors have on several occasions withdrawn assistance because of non-compliance. Before the late 1990s, decisions about the development and recurrent budgets were formulated by separate institutions. The development budget has been largely donor-financed, but its composition has changed throughout the years as recurrent spending items are increasingly allocated to the development budget. Similarly, the recurrent budget entails items that one would expect to find in the development budget. The classification of the budget has therefore been more institutional than strictly economic.

Although some hypotheses could be formulated on the possible indirect impacts on growth and poverty, the focus of this study is on the impact of aid on fiscal variables. The VEC approach can also be used to determine whether aid reacts to budgetary imbalances.

The following hypotheses are tested:

- Does aid discourage tax effort? The implications of this scenario can be country-specific, depending on the degree of tax effort. Tax effort in Malawi has not been weak. Earlier empirical studies have shown that aid can undermine domestic revenue mobilisation, but there is also evidence pointing in the other direction. If aid discourages tax effort, it can, however, perpetuate or even increase aid dependency.
- What is the impact of aid on domestic borrowing? Does aid increase or substitute for domestic borrowing? This can have implications for macroeconomic stability. Net domestic borrowing was positive in Malawi throughout the 1970s and a large part of the 1980s. However, partly due to donor requirements, net domestic borrowing has been negative on several occasions since the late 1980s, but also somewhat more volatile.
- How does aid affect government expenditure? In particular, does aid lead to more than proportional increases in total expenditure? This could happen, for instance, because of aid illusion, a situation where the government misperceives the actual value of the aid inflow, or the spending conditions attached to the inflow (McGillivray and Morrissey (2000)). This might arise in an environment of imperfect information and weak public expenditure management. One possibility is that the aid, on which the government bases its spending plans, fails to be disbursed. This has been the case in Malawi on a few occasions, at least in the 1990s.
- What happens to the composition of expenditure as a result of aid? In this study the focus is restricted to the recurrent/development expenditure divide, so the effect of aid on expenditure is not investigated at a more disaggregated level, as is done in fungibility studies. Some consideration is given to whether aid funds the types of expenditures that reduce poverty, either directly through pro-poor spending, or indirectly by stimulating investment spending and growth. However, care is required in making assumptions about the growth effects of development and recurrent expenditure, as the distinction is not straightforward. We expect the institutional divide between the recurrent and development budgets to be reflected in the results.
- Finally, can the empirical approach reveal anything about the budgetary process? Is aid given to alleviate imbalances in the budget?

Three VEC models are estimated. The first is used to estimate the impact of an increase in grants and the second the impact of an increase in net foreign loans on the other fiscal variables. The effects of the two types of external financing are estimated separately both for technical and

economically justifiable reasons. An additional model that identifies the effects of official development assistance (ODA) is also estimated in order to approximate the joint impact of both foreign loans and grants, but also as an attempt to capture the effects of off-budgetary aid on the budget. Due to a growing part of aid being off-budget from the mid-1980s onwards, ODA flows are substantially higher than the sum of net foreign loans and grants recorded in budgetary operations. In the analysis, no distinction could be made between concessional and non-concessional foreign loans, as data were not available for the entire period.

The models succeed in capturing many of the features of the budgetary process and planning in Malawi. The results coincide largely with the hypotheses made on the impacts of external financing. The final conclusions about the effects of external financing are based on generalised impulse response functions that depict the total effect on fiscal aggregates over a number of years, as a result of a permanent increase in external financing.

The general conclusions are that, whatever the type of external financing, an increase in external financing:

- has a positive long-run impact on the development budget,
- has a negative long-run effect on domestic borrowing, and
- does not discourage tax effort.

The impact on the recurrent budget, on the other hand, depends on the type of external finance.

The results of an increase in grants are quite similar to those of an increase in ODA. In the long run, an increase in both boosts the development budget and leads to a fall in the recurrent budget. The latter may appear somewhat unexpected, but is partly due to the fact that the grant inflow leads to a fall in domestic borrowing. The recurrent budget is shown to be largely domestically funded. The result suggests that part of the increase in grants is used to reduce net domestic borrowing, which can be partly explained by compliance with donor requirements. The fall in recurrent budget expenditure could also be caused by the increasing tendency to allocate items of a recurrent nature to the development budget.

These expenditure effects of an increase in ODA or grants confirm the dual nature of budgetary planning in Malawi. They also suggest that the theoretical approach of the fiscal response literature, where governments maximise utility subject to targets, might not be the appropriate framework for modelling the budget process in Malawi. This issue is discussed in more detail in the accompanying synthesis paper (Fagernäs and Roberts, 2004a). The model results for ODA and grants also reveal something about the nature of budgetary planning in Malawi. Domestic borrowing or aid has been a financing item of last resort, and spending plans are not reduced in response to previous year imbalances in the budget.

An increase in grants and ODA does initially raise total expenditure, but not over-proportionally to the increase in grants. The increase also lowers domestic borrowing, but does not discourage tax effort. Overall, an increase in grants and ODA appears to have a largely positive fiscal impact, although the fall in recurrent expenditure needs to be assessed in the light of the type of expenditure affected. Since the beginning of the 1990s, the composition of expenditure has changed in a largely pro-poor way, as the share of social expenditure in recurrent expenditure has risen. The fall in domestic borrowing is likely to have a positive economic effect, if it induces more macroeconomic stability.

The long-run effects of an increase in net foreign loans are otherwise similar to those of grants and ODA, except for an increase in recurrent expenditure. This may reflect the differences in the nature of foreign loans and grants, especially in the 1970s and early 1980s, when a considerable amount of foreign loans were granted on non-concessional terms.

Unlike grants, foreign loans are affected by lagged movements in other fiscal variables. As already mentioned, there is also evidence that ODA has been provided for the purpose of facilitating fiscal adjustment. Therefore, the analysis suggests that decisions on external financing can be affected by past fiscal policy and past movements in fiscal aggregates.

External financing clearly drives the development budget, but it is somewhat difficult to establish conclusions about the desirability of this result in terms of growth or poverty reduction. In the 1970s, the development budget consisted almost entirely of capital expenditure. Although capital formation is still the largest item, the composition of this budget has changed throughout the years, as items of a 'recurrent' nature, such as wages and goods and services, have captured a notable share. Much of development expenditure is foreign-funded, but an assessment of multilateral aid in Malawi in the 1990s concludes that investment lending has often not succeeded in meeting its objectives and has on many occasions been irrelevant and the impact has not been sustained. This suggests that capital expenditure may not have been very effective. However, the share of education and health in development expenditure has on average doubled between the periods 1977-88 and 1989-2000. Figures on bilateral aid flows also suggest that aid has been allocated increasingly towards the social sectors in contrast with the heavy orientation towards the economic and agricultural sectors in the 1970s and early 1980s. If increases in aid inflows lead to higher social expenditure, this should feed into long-run growth, if used effectively. However, a rather large share of development budget expenditure is still being devoted to administration.

The methodology used has enabled us to obtain a number of interesting insights into both the effects of aid on fiscal variables and the budgetary process in Malawi. There are, however, some caveats. Relying on generalised impulse responses to assess the full effect of an increase in aid implies that there will also be a contemporaneous shock to other fiscal variables. Therefore, it can be difficult to extract the effects arising purely from the aid shock. Some of the models tend to be somewhat over-parameterised, and applying restrictions on certain parameters could have improved the accuracy of the results. A more in-depth analysis of the time series properties of the variables and possible structural breaks, would have added to this. It must also be acknowledged that the model results, particularly those of model 3, are somewhat sensitive to model specification and thus not entirely robust. Parallel case studies on the fiscal impact of aid in Uganda and Zambia (Fagernäs and Roberts, 2004b, 2004c), using the same methodology, however, result in broadly similar conclusions on the effects on expenditure and domestic borrowing, but the impact on domestic revenue varies.

Chapter 1: Introduction

The literature on aid effectiveness has shown that aid to developing countries tends, on balance, to have a positive effect on growth, though results are sensitive to the econometric method adopted. In recent years, the literature has concentrated on the relative importance of policy and other variables on aid effectiveness.[1] Overall, it suggests that, while good policy is not a necessary condition for aid effectiveness and other factors are likely to be important, good policy nevertheless matters.

The literature on aid growth has less to say on how aid itself affects policy. Specifically, the literature has devoted little attention to the effect of aid on fiscal policy. Aid can affect economic growth via its impact on government consumption, investment and savings. As much of aid is given to the government, the effects of aid on growth and poverty are likely to be primarily mediated by government fiscal policy. This paper studies the impacts of aid on fiscal aggregates in Malawi over the period 1970-2000. It is one of three country studies by ESAU on the fiscal effects of aid. The other studies cover Uganda and Zambia (Fagernäs and Roberts, 2004b, 2004c).[2] Their rationale, methodology and results are presented in an accompanying synthesis working paper (Fagernäs and Roberts, 2004a).

Aid can have a number of effects on fiscal aggregates that will affect, directly or indirectly, growth and poverty reduction. The first is the effect on domestic revenue. An important question is whether aid could discourage tax effort and thus undermine domestic revenue mobilisation and perpetuate or even increase aid dependency. Second, does aid fund the types of expenditures that reduce poverty, either directly through pro-poor spending, or indirectly by stimulating investment spending and growth? Finally, does aid help the government to reduce domestic borrowing, thus contributing to fiscal and macroeconomic stability, which is essential for sustained economic growth? Or does it exacerbate the budget deficit and lead to unsustainable levels of domestic borrowing?

The literature on the fiscal impacts of aid can be divided into two categories. The fungibility literature concentrates on whether aid is spent on those sectors where it was intended, such as health and education. The fiscal response literature goes beyond issues of fungibility by including in its analysis the impact of aid on fiscal aggregates such as tax revenue, total spending, public investment (development expenditure), public consumption (recurrent expenditure), and the budget deficit and domestic borrowing. It examines the impact on government fiscal behaviour in a dynamic framework, in contrast to the fungibility literature, which tends to concentrate on static effects.

Much of the fiscal response literature, however, uses structural econometric models, which have turned out to be difficult to estimate. In order to circumvent the problems associated with fiscal response models, this paper will use a vector autoregression (VAR), or more precisely a vector error correction (VEC), framework to analyse the effects of aid on fiscal aggregates in Malawi. In doing so, we follow in the footsteps of Osei and Morrissey (2003), who have modelled the fiscal effects of aid for Ghana using a VAR model. This approach takes into account the interactions between fiscal variables over time, and can lead to different conclusions about the effects of aid on

---

[1] Burnside and Dollar (2000) found that aid can be effective, but only when policies (including on inflation, the budget balance and openness) are good. These results have been questioned by Hansen and Tarp (2000), who found that aid has a significantly positive effect on growth, regardless of policy. This result has been supported by Dayton-Johnson and Hoddinott (2001) and Easterly *et al.* (2003), who both find that aid tends to be effective irrespective of policy. Subsequently, Collier and Dollar (2002) essentially confirmed the initial finding by Burnside and Dollar, though they found that the sensitivity of aid effectiveness was more muted.

[2] In both Uganda and Zambia aid inflows have induced a significant increase in development expenditure, but have generally had less impact on the recurrent budget. In Uganda aid has had a positive impact on domestic revenue, whereas in Zambia the impact has been negative. The impact on domestic borrowing in the two countries is less clear, but is likely to be negative.

fiscal aggregates from the static, partial approach of fungibility studies. Given that the standard VEC method treats all variables in the model as endogenous, we do not have to make *a priori* assumptions about which variables are exogenous, as is the case with structural and conventional fiscal response models. The approach also enables some assessment of the nature of budgetary planning and can be used to assess whether and how aid reacts to budgetary imbalances. Although some hypotheses will be formulated on the possible indirect impacts on growth and poverty, the primary focus is on the impact of aid on fiscal variables.

As already mentioned, the period examined is 1970-2000. The 1970s was a relatively good economic period in Malawi, with fairly high GDP and investment growth. However, in the 1980s fiscal management and economic conditions worsened, partly triggered by a series of external shocks and poor domestic policy. In 1981, Malawi started its first structural adjustment programme supported by the World Bank and the IMF. Despite the wide range of reforms implemented, sustained growth proved elusive, arising to a large extent from external shocks, inconsistent implementation of the reforms, recurrent fiscal policy slippages and the narrow production base. The period after the transition to democracy in 1994 after almost 30 years of rule by Hasting Banda has been extremely volatile, both in terms of growth and fiscal aggregates.

Three models are estimated. The first (model 1) is used to estimate the impact of an increase in grants, and the second (model 2) the impact of an increase in net foreign loans on the other fiscal variables. An additional model (model 3) that identifies the effects of official development assistance (ODA) is also estimated to approximate the joint impact of both foreign loans and grants, but also to capture the effects of off-budgetary aid. For most of the years, ODA flows have considerably exceeded the sum of foreign loans and grants.

The results reveal that an increase in any form of external financing leads to a rise in development expenditure. Other general conclusions are that external financing tends to reduce domestic borrowing and does not discourage tax effort. Whereas increases in grants or ODA tend to lower recurrent expenditure, the long-run effect of an increase in foreign loans is to boost the recurrent budget. The results for models 1 and 3 are therefore consistent with the dichotomous nature of budgetary planning in Malawi. Decisions about the recurrent and development budgets have been kept separate. The former has been largely reliant on domestic funding, whereas the latter has depended heavily on external finance.

Chapter 2 presents briefly the basic fiscal accounting framework and Chapter 3 describes the economic background in Malawi, the trends in aid and fiscal aggregates and the institutional aspects of the budgetary process. Chapter 4 reports the results of the econometric analysis and Chapter 5 gives the conclusions. A survey of the existing fiscal impact literature, a summary of its main empirical results and an introduction to the empirical methodology are presented in the accompanying synthesis paper (Fagernäs and Roberts, 2004a).

Chapter 2: The fiscal effects of aid: theoretical framework

In conventional government accounting, the basic budget identity is represented by

(2.1) $E - (T + G) = B + F,$

where (E) is total expenditure, (T) is domestic revenue, (G) is foreign grants, (B) is domestic financing (domestic borrowing) and (F) is foreign financing (foreign loans). The left side of the identity is the government budget balance after grants, while the right side of the identity is the total financing requirement, which is a combination of domestic and foreign financing.

For our purposes, we shall rearrange this identity as

(2.2) $E - T = B + A,$

where for simplification aid (A) is the sum of foreign grants (G) and foreign loans (F). (E – T) then becomes the deficit before grants.

While equation 2.2 does not reveal anything about the potential dynamic effects of aid on fiscal aggregates, it allows us to conceptualise the potential static effects. Assuming constant tax revenue, equation 2.2 implies that an increase in aid can be used either for spending purposes by increasing (E), or for financing purposes by reducing domestic borrowing (B), or a combination of both. The effect of aid on borrowing will depend on the net joint effect of aid on spending and domestic revenue. For example, if spending increases by more than the increase in aid, a rise is required in domestic borrowing to finance the deficit (assuming constant tax revenue).

There is room for tax revenue to rise with increases in aid, if spending increases by more than aid or domestic borrowing falls. Tax revenue could also fall, however, if spending and domestic borrowing remain unchanged as a result of aid. Increases in aid would in this case be viewed as an alternative to domestic revenue. It should be noted that the effect on taxes is likely to be lagged or indirect, if the rise in taxes arises as a result of aid being spent in a productive, growth-enhancing manner. Secondly, it may often prove difficult to raise tax revenue instantaneously.

When providing aid, donors usually prefer certain fiscal outcomes to others. If the tax effort is feeble, they would not expect aid to be associated with lower domestic revenue (T), i.e. that aid would discourage tax effort. However, this effect may not be entirely undesirable, when the tax effort is already fairly high, as this may reduce distortions and could crowd-in private investment. Aid should, however, not perpetuate already high levels of aid dependency by discouraging domestic revenue mobilisation efforts.[3]

Secondly, donors would not expect aid to be associated with increased borrowing. This could occur, however, if aid leads to higher than proportional increases in spending. This may happen due to 'aid illusion', a situation where the government misperceives the actual value of the aid inflow, or the spending conditions attached to the inflow (McGillivray and Morrissey, 2000)). This could easily arise in an environment of imperfect information and weak management of public expenditure. One possibility is that the aid on which the government bases its spending plans fails to be disbursed. It is not uncommon for donors to withhold funds at short notice in response to non-compliance with conditionality. If expected aid volumes are higher than the actual disbursements, the government will have to resort to higher domestic borrowing to finance the existing spending plans. Secondly, aid illusion may result if officials implementing expenditure

[3] Tax to GDP ratio can, however, be a poor proxy for tax-induced distortions (Gemmell, 2000; Heady, 2001). In addition, if aid conditionality requires that trade taxes are reduced (as has often been the case), aid inflows can be associated with a contemporaneous fall in tax revenue, in which case aid may be partly used to replace this revenue loss (McGillivray and Morrissey, 2001).

plans disregard the limits set in the plans. Aid illusion may also cut the other way, with aid inflows turning out to exceed expectations, resulting in the net effect of lower deficits (or, less commonly, higher surpluses). Aid might also be associated with higher borrowing, if aid inflows require matching recurrent spending, leading to larger deficits. A finding that aid leads to a reduction in domestic borrowing could imply effective conditionality, as donor conditionality often requires the aid recipient to reduce the budget deficit (McGillivray and Morrissey, 2001).

It should be noted that domestic borrowing is not necessarily detrimental, if it finances productive investment and initial borrowing levels are not high. The crucial issue is for the government to be in the position to fund both its recurrent and development expenditure needs in a predictable manner and without incurring unsustainable budget deficits that lead to high domestic borrowing, inflation and macroeconomic instability. Government expenditure can enhance growth, for instance via improvements in public services and the provision and maintenance of adequate infrastructure to attract private investment as well as via investments in education and human capital formation. Even though investment spending is usually considered growth-enhancing, consumption spending can be vital as well. Therefore, care is also required in the distinction between the impact of government consumption and investment spending on growth. However, beyond a certain threshold, government consumption can become ineffective and wasteful.

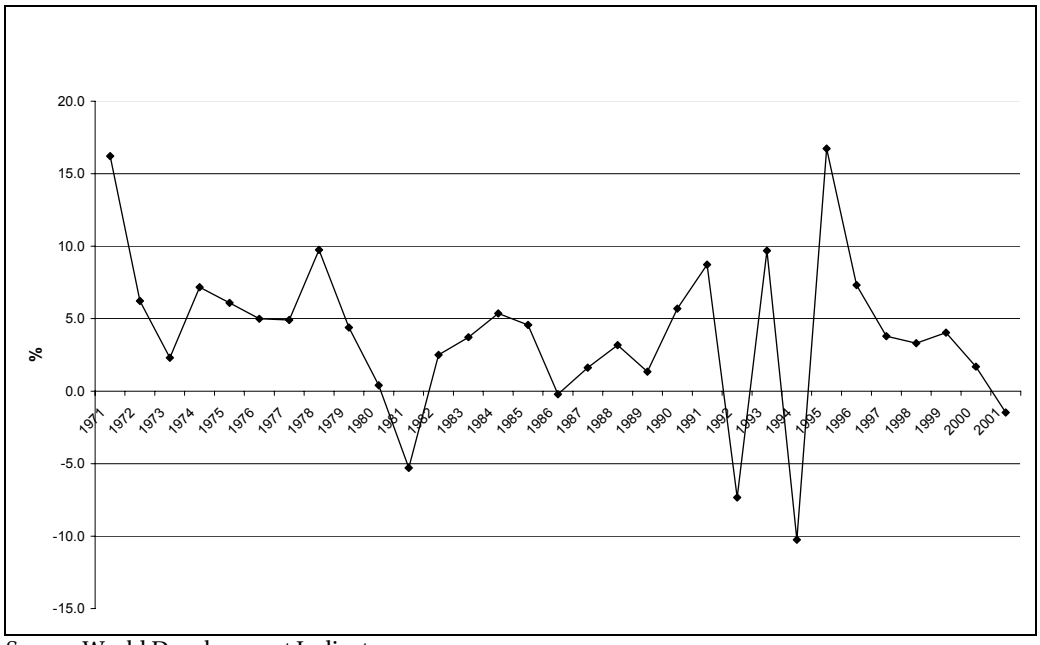
Chapter 3: Aid and fiscal policy in Malawi

This chapter provides an overview of the economic situation (section 3.1) and movements in fiscal variables (section 3.2) in Malawi over the period 1970-2000. It also describes briefly the institutional arrangements behind budgetary planning (section 3.3). Broadly, it illustrates that, despite a period of fairly good growth and economic management in the 1970s, by the early 1980s Malawi found itself in the midst of an increasing debt burden, faltering growth and worsening macroeconomic management. Expenditure plans have constantly exceeded available resources, but external factors and droughts have also impeded growth. Aid inflows were fairly low in the 1970s, but began to rise in early 1980s with the introduction of structural adjustment programmes. They became increasingly volatile in the 1990s.

3.1 The macroeconomic background

Since independence in 1964, macroeconomic stabilisation in Malawi has remained elusive. The country's macroeconomic history has been characterised by volatile GDP growth (Fig. 3.1), large and persistent budget (Fig. 3.2) and current account deficits, and high inflation and interest rates.

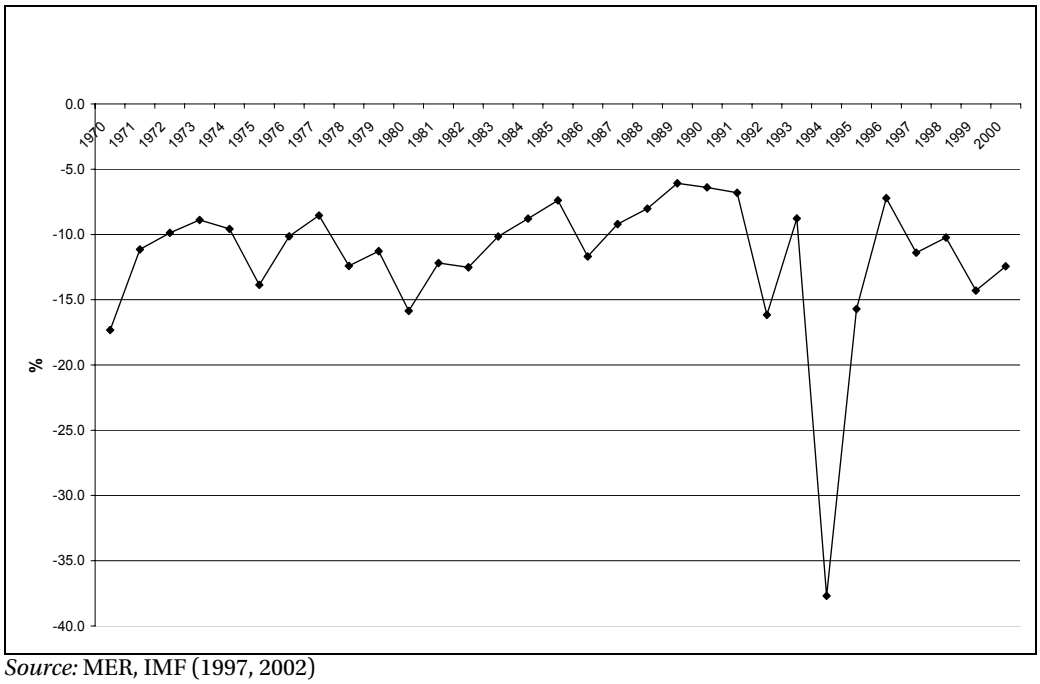
Fig. 3.1 Real GDP growth



Source: World Development Indicators

Between 1970 and 1979, GDP and investment growth were high by historical standards, financed in part by easy access to international capital markets (see Annex 1 for a brief description of the nature of external loans in the period and debt-rescheduling arrangements). Economic growth in that period averaged 7% per year. A large part of external resources was in the form of non-concessional loans, with donor grant inflows still relatively low (section 3.2 discusses the trends in aid flows and other fiscal variables in more detail). Resources were allocated to the development of a large-scale, export-oriented estate sector, at the expense of the traditional smallholder sector. The prices paid to smallholders, especially for export crops, were kept low and the large surpluses generated were used to develop estates. Before the early 1980s, smallholder agricultural production was strictly controlled. Export crops were heavily taxed, but some input prices were subsidised. Although the development of estates was initially successful, structural imbalances emerged in the 1970s. Output from tobacco estates grew by an average of 16% per year, but smallholder sales of the major cash crops fell sharply. This resulted in severe structural poverty among smallholders and rural farmers (EIU, 2001).

Fig. 3.2 Budget deficit excluding grants as a share of GDP



Source: MER, IMF (1997, 2002)

The early 1980s represented a substantial reversal of economic fortunes. Starting from 1979, a series of external shocks, such as the falling world price of tobacco (the main export) and rising oil prices, combined with poor domestic policy, disrupted the pattern of growth. Average growth dropped and became more volatile. In addition to the global recession, terms-of-trade shocks and a sharp fall in foreign loans between 1979 and 1981, Malawi lost its principal trade route (used for 80-90% of exports and imports), due to the closure of the rail link in neighbouring Mozambique (EIU, 2001).[4] This led to a rise in transport costs. In addition, Press Holdings, a publicly funded trust (see section 3.3), ran into financial crisis. Between 1978 and 1982, external debt servicing, inclusive of amortisation, doubled to 28% of current expenditure, forcing the country into two consecutive debt reschedulings (see Annex 1), the first in 1982. Due to the unrest in Mozambique, defence spending also increased substantially. This resulted in further deterioration in the budget and current account deficits. The deterioration in the budget deficit occurred despite a concerted effort on the part of the government to increase tax effort (Shalizi and Thirsk, 1990).

In 1981, Malawi embarked on its first structural adjustment programme supported by the World Bank and the IMF, followed by a number of others. Many of the reforms focused on the agricultural sector (IMF, 2001b). Agricultural marketing and pricing policies were progressively liberalised. The output markets, except those for cotton and tobacco, were liberalised in 1987 (Govindan and Kherallah, 1997). Despite the wide range of reforms implemented, sustained growth proved elusive, due to further decline in the terms of trade, inconsistent implementation of the reforms, an influx of refugees from neighbouring Mozambique, recurrent fiscal policy slippages and the narrow production base. Economic growth remained low for much of the 1980s, leading to declining real per capita GDP. Following another structural adjustment programme in 1986, growth recovered between 1987 and 1991.

During the transition to democracy between 1991 and 1994, there was a significant rise in the number of donors and aid inflows (to be discussed below). In the 1990s, IMF and World Bank policy attempted to focus on poverty reduction. The adjustment programmes have included, for instance, the liberalisation of domestic markets, trade reforms, the privatisation of parastatals to increase efficiency and an improvement of conditions for smallholder farmers, including the

[4] With World Bank assistance the rail-line was fully reopened only in 1998 (EIU).

liberalisation of agricultural marketing arrangements. Growth was extremely volatile between 1992 and 1994 (the extent of volatility sheds doubt on the reliability of the data in that period). This was caused by two major droughts, further declining tobacco prices and uncontrolled fiscal spending in the last months of the Banda regime. The drought forced the new government in 1994 to maintain high expenditure on drought relief. In addition, the government delivered campaign promises to make primary education free for all. As school enrolment rose by over 60%, it had to hire almost 20,000 new teachers (EIU, 2001).

After a sharp rise, aid inflows plummeted in 1995, as donors suspended aid commitments in response to the government's loss of fiscal control in 1994. The budget deficit had reached 37% of GDP, the largest deficit on record, and inflation peaked at 80% in 1995. The new government was quick, however, to respond to donors withholding aid in 1995 and brought back the deficit to 7.5% of GDP by 1996 and inflation to 8% by 1997. Instrumental in that achievement was the introduction of the Medium Term Expenditure Framework (MTEF) in 1995, giving each ministry a rolling three-year resource envelope to be spent according to medium-term strategies (Fozzard and Simwaka, 2002). The cash budget system introduced in 1996, under which ministers were forced to spend no more than the amount allocated by the Ministry of Finance, also helped (World Bank, 2003a). The political feasibility to rein in public spending in a post-election period also contributed to the new government's good policy. The institutional aspects of budgetary planning will be discussed in further detail in section 3.3.

After the volatility sparked by the elections and as a result of good policies by the new government, good rains and stable commodity prices, economic growth recovered between 1995 and 1999. Smallholder agriculture was the main engine of growth in this period, following the liberalisation of the agricultural sector that had started in the late 1980s but that really only gained momentum under the new government in 1994. Although the state marketing board for agriculture, ADMARC, still exists, it no longer has monopoly power. Agricultural commodity prices were liberalised and subsidies on fertilisers removed. Large-estate agriculture continued to perform poorly. Since 1995 there have been three World Bank-supported Fiscal Restructuring and Deregulation Programmes (Government of Malawi, 2002).

However, the fiscal deficit started to deteriorate again already in 1997, partly due to lower than projected revenue growth and administrative failures in tax collection. In 1999, the government also bailed out the debt of the Electricity Supply Corporation of Malawi (World Bank, 2003a, see section 3.2). Spending on public services prior to the 1999 elections also contributed to an increasing fiscal deficit. This time, however, donors did not suspend aid inflows.

Growth has been weak or negative since 1999. The country was hit by two consecutive droughts in 2001 and 2002, largely due to mismanagement of the Strategic Grain Reserve, partly blamed on agricultural liberalisation (Devereux, 2002). The IMF withheld financial assistance in 2001 and 2002, followed by bilateral donors. More generally, the economic reform programme supported by the IMF's Poverty Reduction and Growth Facility (PRGF) arrangement has been off-track since 2000. The emergency maize operation exacerbated the fiscal deficit. The withholding of donor balance-of-payments support did not, however, lead to a reduction in total expenditure, but to further fiscal deterioration. The government bailed out the National Food Reserve Agency's debt in 2001 (World Bank, 2003a).

After over two decades of attempted reforms, growth has remained slow, due to factors such as declining terms of trade, droughts, poor governance and poor macroeconomic management. Substantial budget revenue has been diverted to low-priority spending and to the bailing out of parastatals (see section 3.3), although the share of the latter in recorded expenditure has dropped. Despite the economic reforms, there has been little diversification of the production base, the industrial sector remains resource-based, and overall growth has been either sluggish or very volatile. In the late 1990s tobacco still represented around 60% of export revenues (IMF, 2001b), even though the tobacco terms of trade have continued to decline. In 1999, tobacco prices in US dollar terms were 30% lower than in 1989 (*ibid.*). Other export products include sugar, tea and

coffee. To date, the government has also failed to address the issue of land reform, despite the inefficiency of large estates relative to smallholders and evidence on the positive link between land access and poverty (*ibid.*).

3.2 Trends in fiscal variables

This section describes movements in aid and fiscal variables over the period 1970-2000. The analysis is based on annual data. These are largely obtained from the *Malawi Economic Report* (MER), an annual publication of the Reserve Bank of Malawi.[5] Between 1970 and 1976 they have been supplemented by data from the World Bank's *World Development Indicators* (WDI) database, and between 1992 and 2000 from the Statistical Appendices contained in IMF Malawi Country Reports (IMF, 1997 and 2002).

3.2.1 Trends in external financing

Figs. 3.3 and 3.4 show budget grants, net foreign loans and official development assistance (ODA) as a share of GDP between 1970 and 2000. Budget grants and foreign loans refer to the aid flows recorded in official budget operations statistics. The DAC definition for ODA includes grants or loans which are undertaken by the official sector, with promotion of economic development and welfare as the main objective, and on concessional financial terms (in the case of a loan, it should have a grant element of at least 25%). Data on ODA are provided in current US dollars, and are converted to kwachas. Due to data limitations, it has proved impossible to distinguish between the commercial and concessional shares of net foreign loans in the budget. Foreign loans were given largely on commercial terms in the 1970s, but since the early 1980s they have become mostly concessional (see Annex 1). Since the mid-1980s a growing gap has emerged between ODA and aid that is recorded in the budget. The gap reached a peak in 1994. This suggests that a significant proportion of donor assistance has been allocated off-budget. Up to the late 1990s, aid management was separated from the Ministry of Finance and Planning (see section 3.3 for more details). The aid management department lacked a comprehensive aid database and communications with the Ministry of Finance and Planning remained poor. For this reason it has been difficult to integrate aid into the budget. As a result 40% of aid remains off-budget (Fozzard and Simwaka, 2002).[6]

Figs. 3.3 and 3.4 show that ODA, budget grants and net foreign loans are broadly positively correlated. From the 1980s onwards, grants and foreign loans have had roughly equal shares of GDP. Grants have followed an upward trend, while also becoming very volatile in the 1990s. The decline in foreign loans in the 1970s was mainly due to the fall in commercial loans. With the advent of structural adjustment programmes in the 1980s, aid has also been given in non-project form.

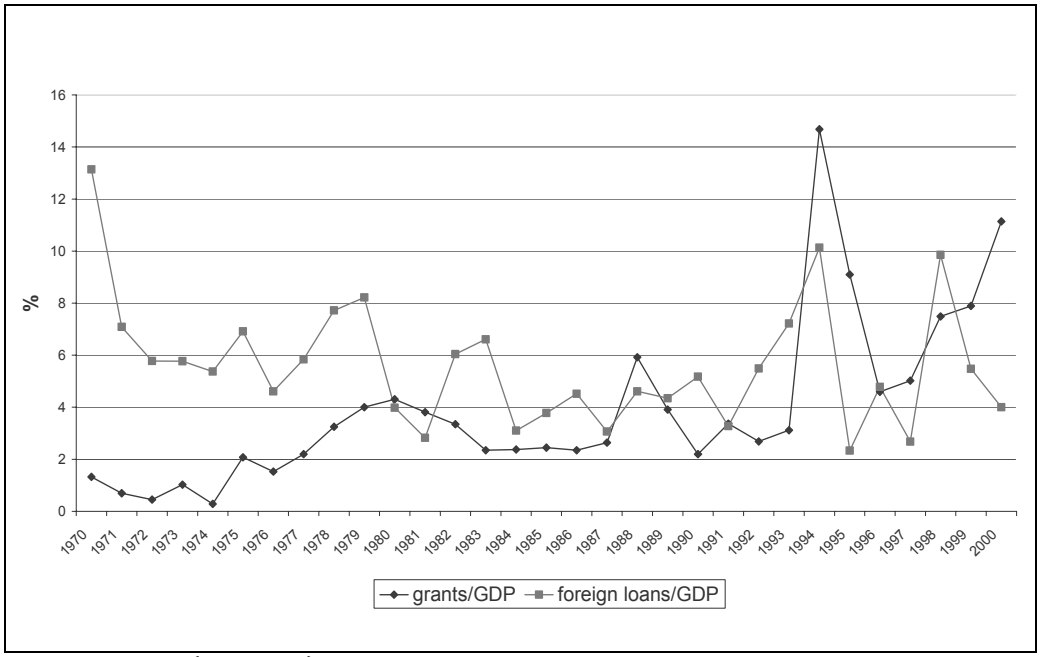
We do not have detailed data on the distribution of budgetary grants and loans, but Annex 2 shows the composition of bilateral ODA throughout the period. Fig. A4 in Annex 2 shows the share of bilateral aid in total aid. The share of bilateral ODA in total ODA (the rest is multilateral aid) fell from above 70% in 1970 to around 50% in the early 1980s when the structural adjustment programmes began. Over the thirty years, on average the largest multilateral donors have been the International Development Association and the European Community. In the 1970s, the UK was

[5] The authors wish to thank Ian Gillson (ODI) for sharing his extensive dataset on Malawi.

[6] Despite efforts to capture a larger share of donor financing since the mid-1990s, comprehensiveness has in practice increased little. This has had adverse effects on aid effectiveness, leading to a situation of projects with overlapping objectives and conflicting agendas. Solutions, mainly driven by donors, have been sought through the development of integrated sectoral programmes and through a shift from project aid to budgetary support. To date, progress on these initiatives has been slow (Fozzard and Simwaka, 2002).

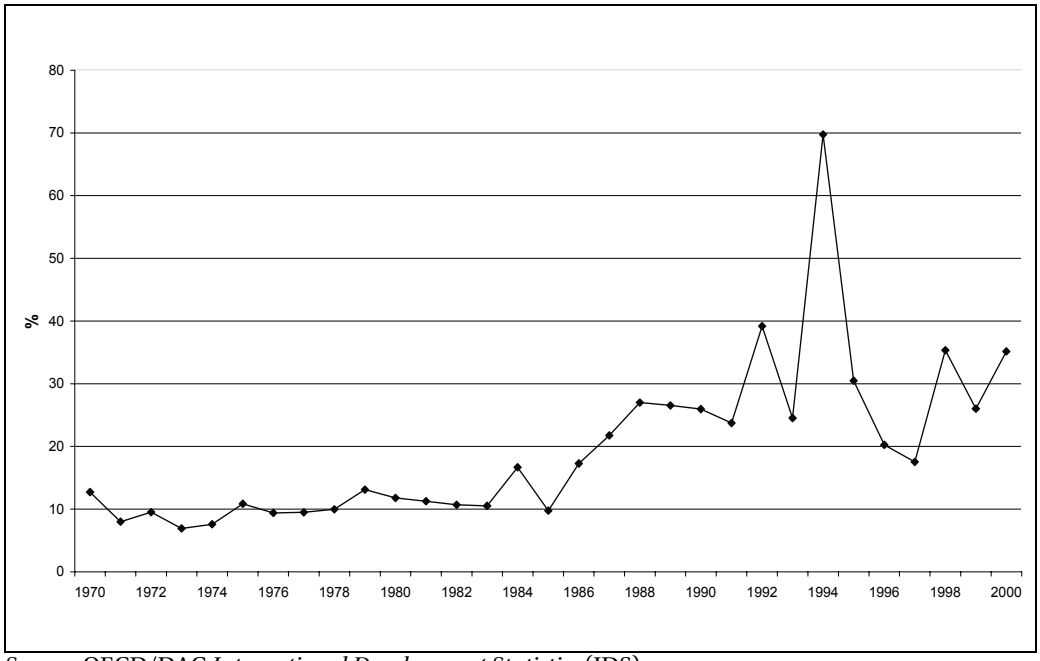
by far the largest bilateral donor, but since then Japan, Norway and Germany have acquired a substantial share as well, although the UK remains the largest donor (see Fig. A3, Annex 2).

Fig. 3.3 Grants and foreign loans as shares of GDP



Source: MER, IMF (1997, 2002)

Fig. 3.4 ODA as a share of GDP



Source: OECD/DAC *International Development Statistics* (IDS)

In the 1970s a large part of bilateral aid was directed towards economic infrastructure (Fig. A5, Annex 2). In the 1980s, this was still the case, but programme aid (such as commodity support) also constituted a fairly large share. In the 1990s the largest share went into social infrastructure and services (i.e. education and health). As already mentioned, much of multilateral aid in the 1970s and early 1980s was directed towards agricultural projects. A report by the World Bank Operations Evaluation Department (World Bank, 1998) concludes that the performance of World

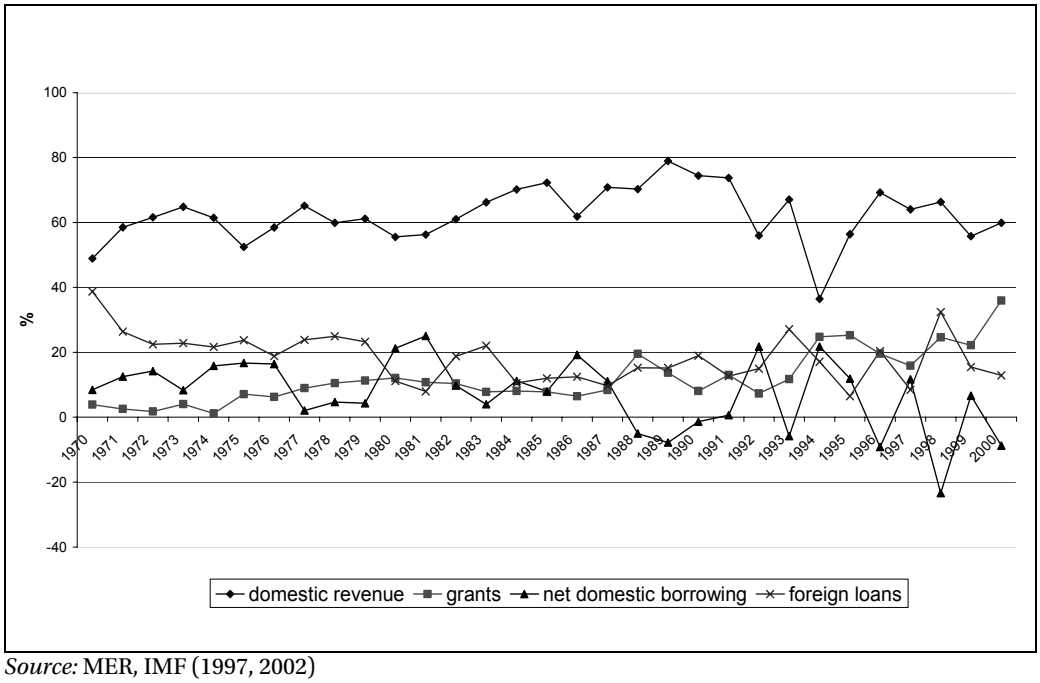
Bank projects in the agricultural sector has been extremely mixed. Many goals were not achieved and at best outcomes can be considered only 'marginally satisfactory'.

Another OED assessment of World Bank assistance in the 1990s (World Bank, 2000) concludes that assistance by the World Bank resulted in good progress in removing regulatory obstacles to investment and production. The effectiveness of infrastructure assistance has been limited, but good progress was made in increasing social expenditures. The projects contributed, for instance, towards expanding the primary school network as well as health facilities in some rural areas. But in general it has proved difficult to translate the increases in public social expenditure into sustained improvement in the quality of social services. The report concludes that, while policy advice and policy lending have been relatively effective, investment lending had less impact in fostering planned objectives. In economic and sector work, there was inadequate knowledge, both of the constraints to reform and its possible impact. Lending was spread rather thinly and some of the activities were irrelevant. Adverse short-run effects of the reforms also sparked public criticism and reduced government commitment to the reform process.

3.2.2 Trends in expenditure, domestic borrowing and revenue

Fig. 3.5 below shows the shares of each form of finance in total financing. Malawi has remained heavily aid-dependent. Since the 1980s, grants and foreign loans on average represented equal shares in total financing, at about 15% each. Fig. 3.5 also shows that the share of domestic revenue in total financing has risen steadily from around 50% in 1970 to almost 80% in 1990. Domestic revenue as a share of GDP increased over the period (see Fig. 3.8 below), from around 15% in the 1970s to over 20% in the 1980s, indicating that tax effort overall has increased.[7] The transition to higher tax effort was achieved partly between 1976 and 1979, when the government increased the revenue-to-GDP ratio from 14% to 22% in 1979. Between 1989 and 1996, however, domestic revenue was on a downward trend from 23% to 16% of GDP. In the 1990s, the domestic revenue-to-GDP ratio was also very volatile (though on average it did not fall back to the levels observed in the 1970s). In an effort to increase and stabilise domestic revenue, the autonomous Malawi Revenue Authority was created in 2000 (Fozzard and Simwaka, 2002).

Fig. 3.5 Shares of external financing, domestic revenue and domestic borrowing in total financing

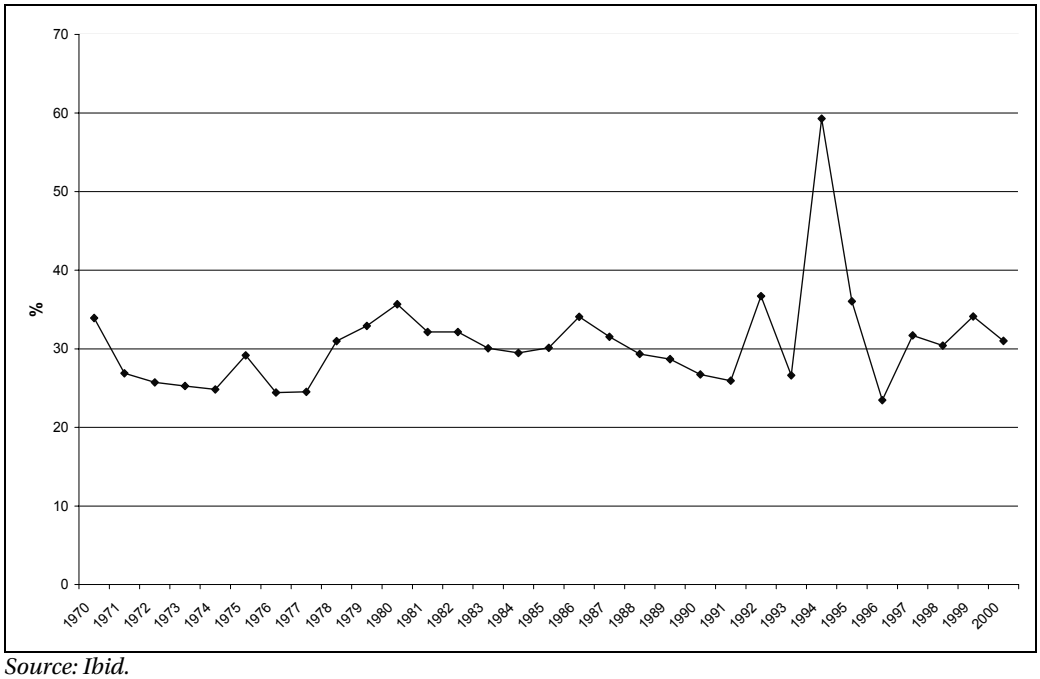


Source: MER, IMF (1997, 2002)

[7] Tax revenue is by far the largest component of domestic revenue. Non-tax revenue is small.

While total expenditure fluctuated widely, it remained at around 30% of GDP throughout the period (Fig. 3.6). The year 1994 can be considered as an outlier, where excessively high spending was due to a combination of drought and uncontrolled fiscal spending in the last months of the Banda regime, before the first democratic elections. The composition of total expenditure, however, has changed over time. Total spending is classified according to functional and economic criteria, and divided between recurrent and development expenditures.

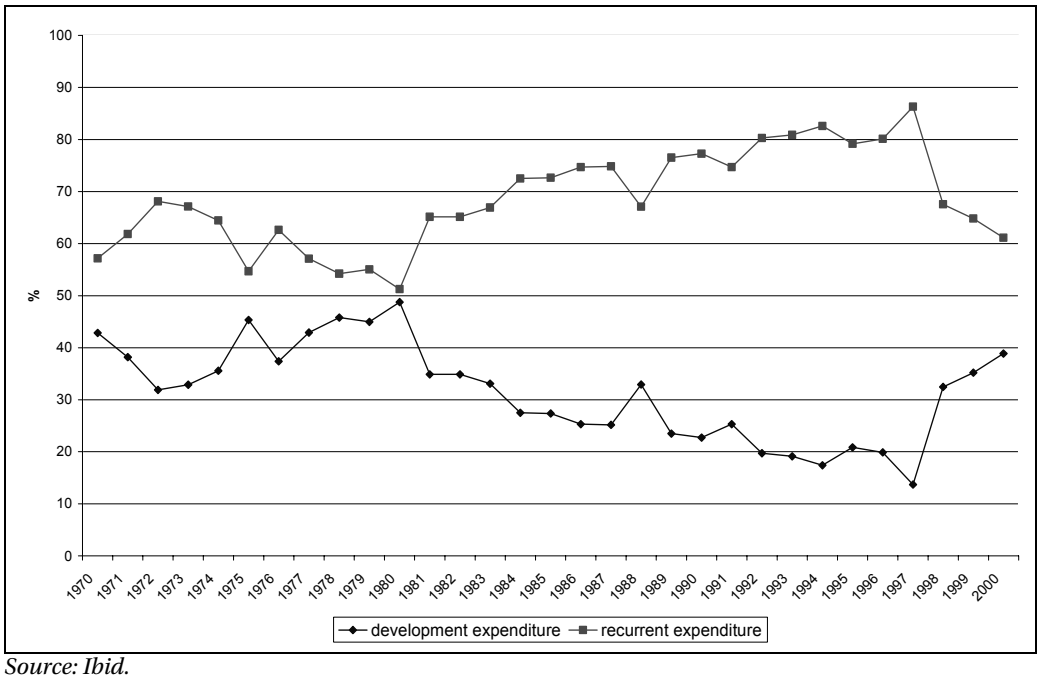
Fig. 3.6 Total expenditure as a share of GDP



Source: Ibid.

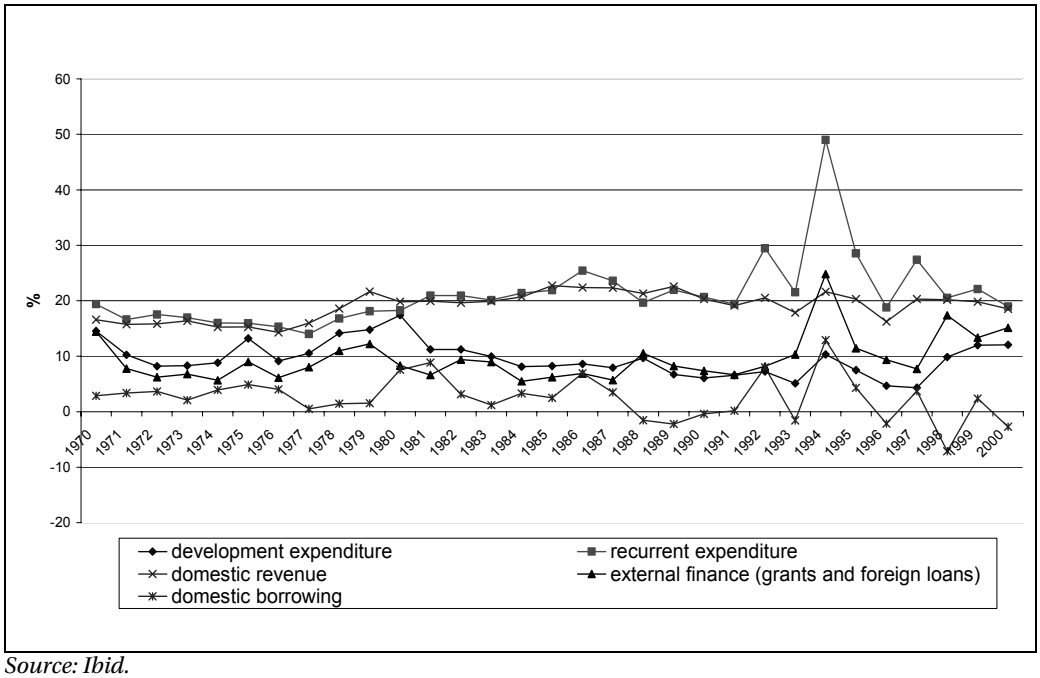
While the share of recurrent expenditure in total expenditure fell in much of the 1970s (Fig. 3.7), from about 70% in 1972 to about 50% in 1980, thereafter it followed an upward trend until the early 1990s, rising to almost 80% in 1992. The fall in recurrent expenditure since 1997 is partly due to a reclassification of expenditure in 1998/9 (Clay *et al.*, 2003).

Fig. 3.7 Recurrent and development expenditure as shares of total expenditure



Source: Ibid.

Fig. 3.8 Expenditure and sources of finance as shares of GDP



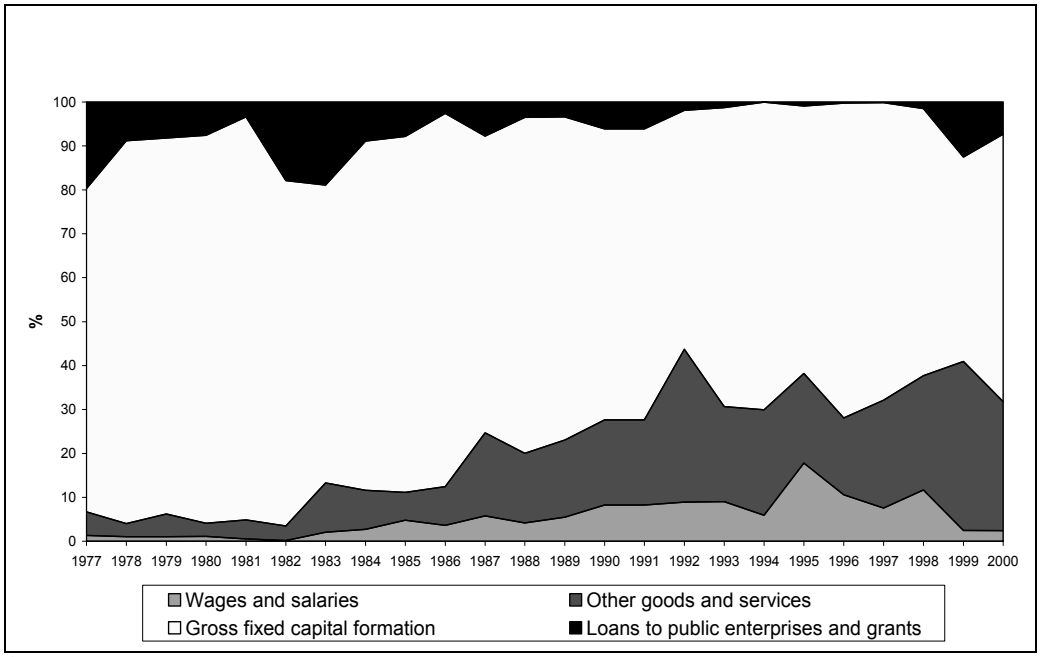
Source: Ibid.

Fig. 3.8 shows positive correlations between domestic revenue and recurrent expenditure (0.53 for the entire period and 0.84 for the first 20 years), but also between external financing and development spending (0.31 for the entire period, but 0.7 for the first 20 years). This supports the argument in favour of the alternative theoretical formulation for the budgetary process, where different sources of finance are used for entitlement and discretionary expenditure (Fagernäs and Roberts, 2004a). The relations observed imply that on average much of recurrent spending has been financed by domestic resources, whereas development expenditure was largely externally financed (section 3.3 will describe the institutional arrangements in more detail). These relations between spending and sources of finance hold to a lesser extent in the 1990s, and in particular between 1993 and 1996, when larger inflows of external finance, together with domestic borrowing, financed exceptionally high levels of recurrent expenditure. In that period a large

proportion of grants was drought-related and donors supported the transition to democracy, suggesting that aid was used to finance recurrent expenditure. However, data from the IMF confirm that much of development expenditure has remained foreign-financed, in 1996-2000 on average 76%.

Between 1992 and 2000, on average 62% of grants and 45% of foreign loans were in non-project form (IMF, 1997; 2002). As explained above, the composition of aid changed throughout the study period and this share was likely to be much lower in the 1970s and 1980s. Fig. 3.9 shows that the share of capital expenditure in the development budget fell constantly from about 90% in 1981 (when aid was largely devoted to capital projects) to about 60% in 2000. Capital expenditure is mostly composed of buildings and road works, and equipment. The decline occurred in favour of spending increases on social categories, which is captured by the rises in wages and salaries and goods and services. Loans to public enterprises and grants have also been included in the development budget.[8] The fall in the share of capital expenditure suggests that the share of operational expenditure in development expenditure has increased over time. Fozzard and Simwaka (2002) describe how, due to constraints on the recurrent budget, agencies and donors have in fact shifted an increasing share of operational costs to the development budget.

Fig. 3.9 Development expenditure by economic classification



Source: MER

Government expenditure has persistently exceeded domestic revenue, resulting in substantial fiscal deficits before aid (see Fig. 3.2).[9] Even including the large aid inflows, it has not proved possible to close the revenue-expenditure gap in most periods. As a result, the government has had to resort to high levels of domestic borrowing to finance the remaining deficit (see Fig. 3.8). Domestic borrowing was volatile throughout the study period and more so in the 1990s. Since the late 1980s, donor conditionality has forced the government into a position of net repayment on several occasions, whereas in the previous period net repayment never occurred. High and volatile levels of borrowing have destabilised the macroeconomy, as they have resulted in high and volatile

[8] While these were generally higher in the 1970s and 1980s, there was again a peak in 1999, when loans and grants constituted 13% of development expenditure. As mentioned above, this was caused by government interventions such as bailing out the debt of the Electricity Supply Corporation of Malawi in 1999.

[9] As the central government deficit constitutes a narrow definition of Malawi's overall fiscal position, it reflects actual revenue and expenditure flows imperfectly. In particular, it excludes the full fiscal impact of parastatals (discussed below) (IMF, 2001b). However, because the central government deficit continues to have operational relevance, this is the measure that is used in this paper to assess the country's fiscal position.

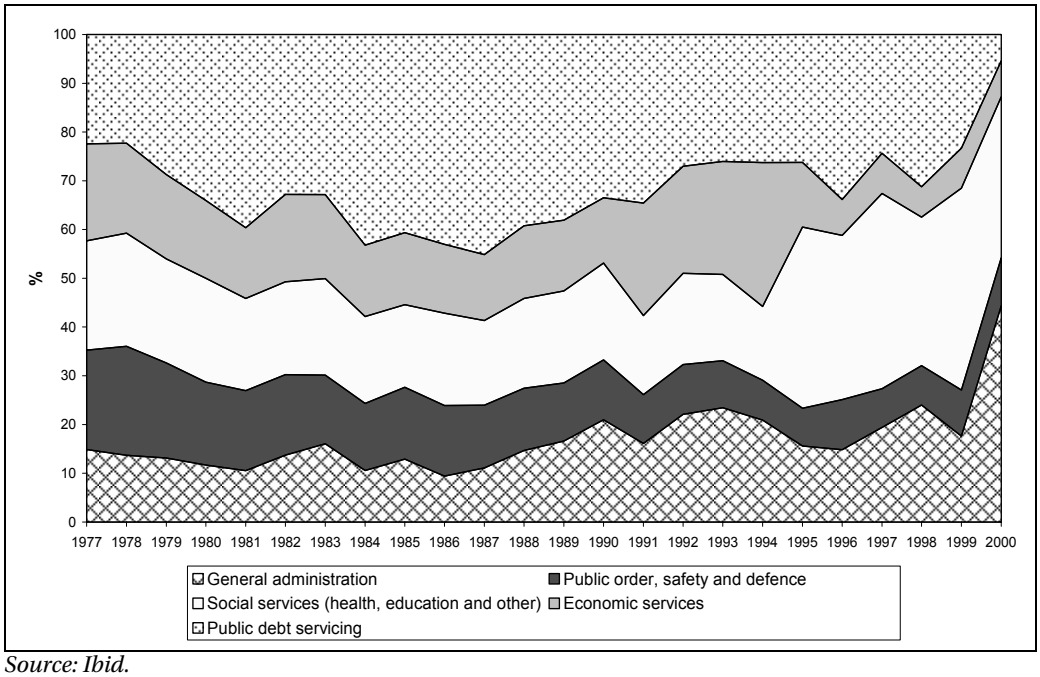
inflation and interest rates, which in turn have crowded out private sector credit, curtailed investment and discouraged savings. Inevitably, this has seriously undermined economic growth, and caused a build-up of external debt.

3.2.3 Composition of expenditure

Annex 3 presents the conventional classifications of total expenditure, as presented in Malawi budget operations statistics. Because a number of items in Table A3 are negligible (n), some categories have been combined and the analysis only covers larger expenditure categories.

The functional (categorical) composition of recurrent expenditure has largely changed in a pro-poor way (Fig. 3.10a), consistent with IMF and World Bank policies and the implementation of the Poverty Reduction Strategy Paper. The share of defence and public order in total recurrent spending has been kept fairly low and declined throughout the years. The share of public debt servicing fell significantly, from 45% in 1987 to 23% in 1999. The share of social services, which includes health, education, and other services (mainly welfare and community development spending), has increased significantly since 1994.[10] Recurrent spending on social services as a share of the total increased from 15% in 1994 to 41% in 1999, showing that the re-orientation of spending towards pro-poor spending was very significant in the 1990s. This occurred, however, largely at the expense of spending on economic services (mostly comprising the crucial sectors of agriculture (the largest category), industry and transport), which have declined significantly since 1994. Under the Hastings Banda regime, the emphasis was on investment in economic infrastructure, at the expense of social spending. Finally, general administrative spending has remained a high burden on the budget, and has at time compressed social spending.

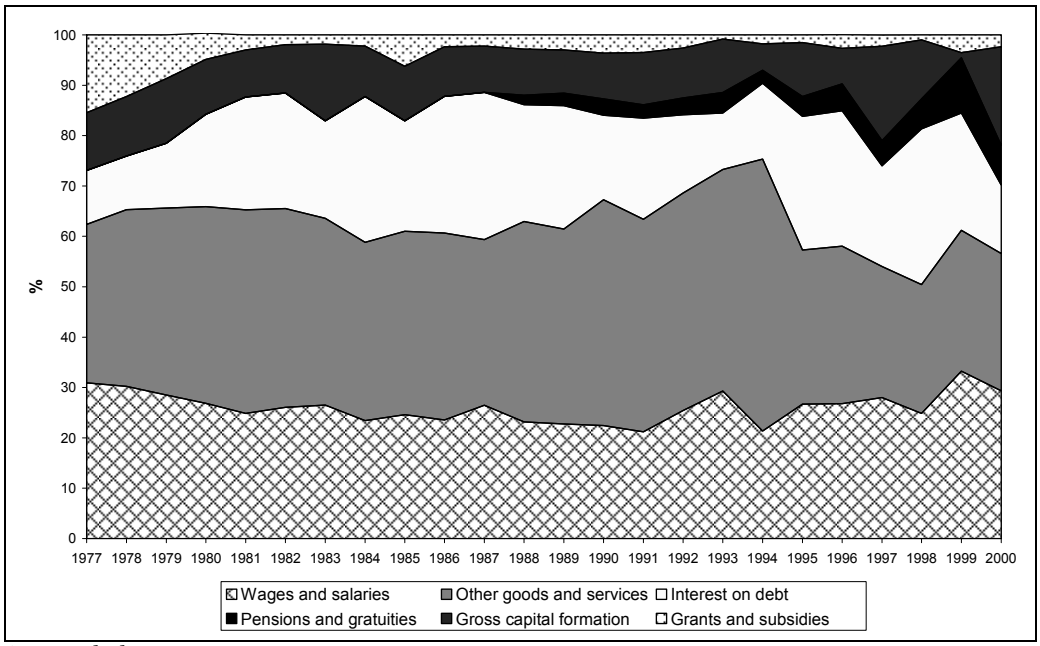
Fig. 3.10a Recurrent expenditure by functional classification



Source: Ibid.

[10] Increased spending on social services has been partly driven by the HIV/AIDS epidemic; according to UNAIDS, the UN organisation co-ordinating the fight against AIDS, 15% of the population aged between 15 and 49 were living with HIV/AIDS in 2001 (EIU, 2001).

Fig. 3.10b Recurrent expenditure by economic classification



Source: Ibid.

Table 3.1 shows the shares for the main recurrent expenditure categories in 1994 and 1999. Expenditure reforms began around 1994 and the largest changes are therefore observed between these two years. The year 1999 was chosen instead of 2000, as there was a large increase in general administration in 2000 (after the elections), which would disrupt the picture.

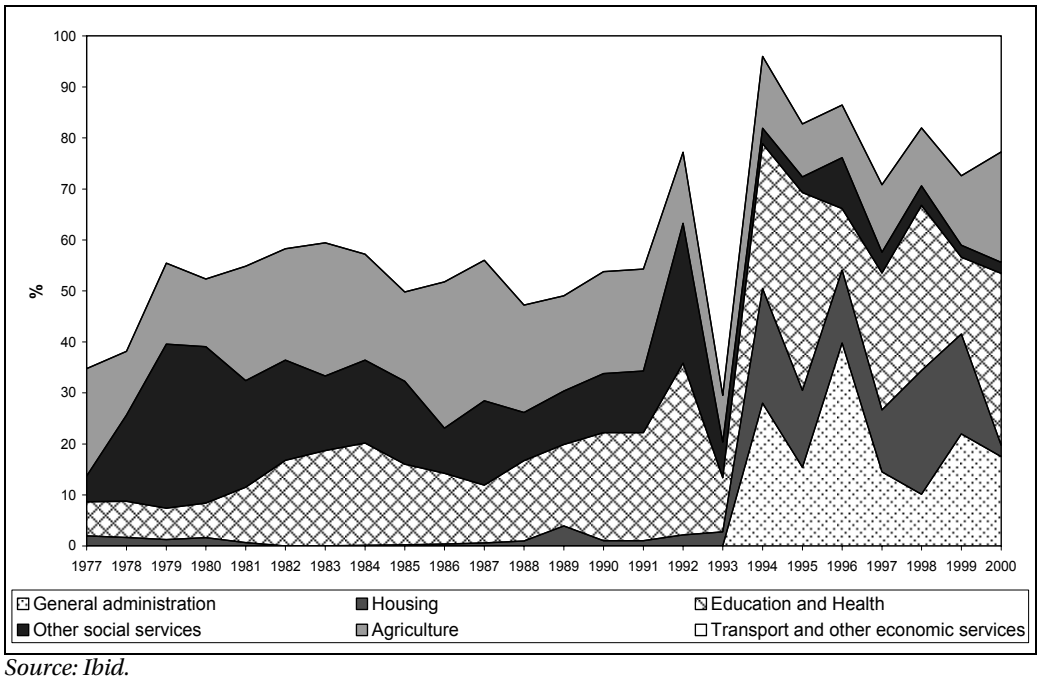
Table 3.1 Recurrent expenditure by economic classification in 1994 and 1999 (%)

	1994	**1999**
General administration	20.9	17.6
Defence	3.8	4.5
Public order	4.3	5.0
Social services	15.1	41.4
- of which education	8.5	18.3
- of which health	5.9	10.2
- of which other social services	0.8	12.9
Economic services	29.5	8.19
Public debt servicing	26.2	23.3

The economic classification of recurrent expenditure (Fig. 3.10b) shows that the bulk of recurrent expenditure has been on gross consumption (57% in 2000), composed of salaries and wages (29%) and goods and services (27%). The salaries and wages share slowly declined until 1991, but since then has risen, from 21% in 1991 to almost 30% in 2000, reflecting efforts in the 1990s to improve teacher and health staff pay, in a drive to improve basic social services. The share of interest payments has remained fairly high, but the share of grants and subsidies (mainly to parastatals) has declined slowly. The combined burden of these two plus pensions and gratuities amounted to 41% of total recurrent spending in 2000. This forced the government to curtail spending on other goods and services, which declined strongly from a peak of 54% in 1994 to 27% in 2000. Due to institutional separation between the recurrent and development budget (see section 3.3), gross capital formation also appears as an item in the recurrent budget.[11]

[11] For a good part of the period analysed, the composition of expenditure in the recurrent and development budgets was guided by institutional rather than economic factors. The recurrent budget therefore includes some items that generally would be considered a part of the development budget (such as capital expenditure), and the development budget items of a recurrent nature.

Fig. 3.11 Development expenditure by functional classification



Source: Ibid.

The economic classification of development expenditure, described in section 3.2.2 above, shows that, while capital expenditure still constitutes a large proportion, development expenditure has been increasingly geared towards other areas as well. Changes in the functional (sectoral) composition of development expenditure (Fig. 3.11) are more ambiguous to interpret because all variables became excessively volatile in the 1990s. There is also discontinuity in some series (data for general administration are available only since 1993). The significant variations in the percentage shares from year to year can partly be explained by changes in the levels and recording of donor funding. The sharp increase in the category 'other economic services' in 1993, before the 1994 elections, was the result of a large one-off outlay on labour relations and employment services, which is otherwise a minor item. The share of expenditure on health and education doubled from an average of 12% between 1977 and 1988 to 24% between 1989 and 2000. Despite increases in the share for health and education, the share for general administration and housing has been substantial. This implies that a large share of the expenditure may still be allocated to fairly unproductive use.[12] Expenditure on agriculture fell from 28% in 1987 to 9% in 1993, but picked up again in the late 1990s, to 22% in 2000. Average annual expenditure on transport was 14% between 1992 and 2000, substantially lower than the levels observed in the 1980s and 1970s. This reflects the significant changes in orientation in donor funding, already discussed in section 3.2.1.

Overall, the analysis of the composition of total government expenditure reveals a re-orientation towards pro-poor social spending, in both the recurrent and development budgets. While some non-priority spending categories have been kept low (defence and public order), it has proved more difficult to curtail other burdensome categories, such as debt-servicing, pensions and gratuities, grants and subsidies and general administration. The re-orientation towards social spending and the increase in salaries for essential teaching and health workers have largely occurred at the expense of economic services, investment in transport (and agriculture to a lesser extent), goods and services and capital formation.

[12] Even though data for general administration are available only from 1993 onwards and we do not have details on the type of housing to be able to assess the quality of this spending.

3.3 Institutions and challenges to fiscal policy

Under the structural adjustment programmes since 1981, Malawi attempted several reductions in its fiscal deficits, but these efforts proved difficult to sustain. The quality of budgetary planning started to deteriorate in the 1980s. While external shocks, such as terms-of-trade shocks in tobacco commodity prices, droughts and floods, have played an important part in derailing fiscal adjustment efforts, domestic policy failures and institutional weaknesses have probably played a more important role.

Since 1995, there has been an attempt to improve public expenditure management by progressively introducing a Medium Term Expenditure Framework (MTEF). This was designed to implement a system of forward resource budgeting. However, the impact of the MTEF on public expenditure outcomes has been modest, largely due to weak budgetary compliance and oversight, but also to design weaknesses and reluctance to move towards medium-term planning. To date, the public expenditure framework is in practice still characterised by an annual cycle (Fozzard and Simwaka, 2002).

The cash budget system introduced in 1996, whereby cash is disbursed for spending according to revenue yields, was effective, but undermined service delivery and led to the administrative capture of scarce resources. As a result, the emphasis shifted from budgetary resource planning to expenditure control via capacity-building in accounting, treasury management and auditing as well as implementing a computerised financial management database. Cash budgeting did, however, manage to reduce the in-year deviation between actual and planned levels of voted expenditure in 1995, following the excess expenditure of election year 1994, and 2000. However, variance has continued to remain large in statutory expenditure (largely debt), due to exchange-rate and interest-rate fluctuations (Fozzard and Simwaka, 2002). In some sense cash budgeting also loosened budgetary discipline as it allowed in-year changes to be made to the budget, namely, by the presidency and the more powerful ministries at the expense of the less powerful ones. The allocation of resources became more informal and formal institutions started to play a smaller role, despite the somewhat opposite intention of the MTEF (Rakner *et al.*, 2004). The effect may, however, be relatively small at the aggregate level of fiscal management.

Overall, progress in expenditure reform has remained slow, as political commitment to overcome vested interest has been lacking and reforms have been largely imposed by donors. There has been a pervasive lack of high-level political commitment to fiscal discipline. The Ministry of Finance (MoF) has lacked the necessary independence from the Cabinet to effectively control agency spending (and spending by the Cabinet itself). In general, the budgetary process has been characterised by almost routine recourse to supplementary budgets that are only accounted for to the parliament ex-post in the estimates for the following financial year (Fozzard and Simwaka, 2002). Deficiencies in budgetary discipline have led to large expenditure overruns and arrears. Poor forecasting has also contributed spending out-turns that persistently exceed budget estimates, or shortfalls in domestic revenue against projected forecasts (World Bank, 2003a). These factors introduce a randomness to the budgetary process, which is clearly reflected in the time series on fiscal aggregates in the 1990s.

Box 1: Budgetary institutions

Prior to 1998, separate institutions were responsible for the development and recurrent budgets. This was the case throughout the 1970s and 1980s and the formulation of the two budgets was separate one from the other. The separation of responsibility, as well as differing classifications and time horizons, hampered co-ordination between the two budgets. Most line ministries also still continue to maintain separate planning and financial management departments.

In the 1970s and early 1980s, the development budget and investment planning were the responsibility of the Office of the President and later, in the late 1980s and early 1990s, of the National Economic Council (NEC). From the NEC, they were transferred to the new Ministry of Finance and Economic Planning (MFEP) in 1998 in an attempt to consolidate the formulation of the development and recurrent budgets. Prior to the consolidation, the National Economic Council was in charge of the Public Sector Investment Programme (PSIP) introduced in 1989. The PSIP was little more than a collection of projects proposed bottom-up by implementing agencies and donors. A 1999 Functional Review suggests that bringing investment planning under the MFEP had not succeeded, and planning was still separate from other routines in the new MFEP. Information flows within the MFEP are considered poor and most departments tend to operate independently. Aid management has also been the responsibility of a separate department, in the 1980s in the NEC and then as a separate department in the MFEP.

Sources: Fozzard and Simwaka (2002); Garth Armstrong (DFID)

A few other factors, that have prevented fiscal and macroeconomic stabilisation, are parastatals and fluctuations in aid inflows. Parastatals and other state enterprises have been a burden on the budget, and the government has had to divert substantial revenues to bailing out parastatals every now and then. Between 1977 and 1987, grants to local authorities and public bodies covered on average 8% of total recorded recurrent expenditure, and 5% between 1988 and 2000. The share of grants and loans to public enterprises in development expenditure has varied widely over the years, but was approximately 10% between 1977 and 1987 and 3% between 1988 and 2000 (Fig. 3.9). The burden appears to have decreased towards the 1990s, but, due to unrecorded expenditure, a comprehensive assessment of the impact of parastatals on the fiscal position cannot be undertaken.

There were also periods in the 1980s when parastatals were operating at a profit. The performance of the railways and the Agricultural Development and Marketing Corporation (ADMARC), the state-owned marketing monopoly, was more cyclical, however, and the corporation ran into serious problems in the late 1980s.[13] ADMARC also had substantial interests in other sectors of the economy, although, in accordance with donors' wishes, several of these have since been sold off. ADMARC lost its monopoly on grain purchases and exports in 2000, and its subsidiaries are gradually being sold off or liquidated (EIU, 2001). Fiscal losses are also incurred through the National Food Reserve Authority, which stockpiles grains, and the Petroleum Control Commission, which imports petroleum products (IMF, 2001b). In 2001, however, the government restricted costly interventions in maize price stabilisation and also privatised the import of oil products.

The privatisation programme started in 1995, but by 2003 only a third of the planned privatisations had been completed (World Bank, 2003b). In 2003 there were still a total of 52 parastatals, covering a broad field of activities, such as education, utilities, regulatory activities, transport, development investment and agriculture. In 2002, parastatals still employed about 500,000 people and accounted for around 20% of GDP. The privatisation programme was suspended briefly in 2001, but the resumption of IMF disbursements was conditional upon accelerating privatisation and the sale of government shares in a number of parastatals (Malawi Telecommunications, Air Malawi and subsidiaries of ADMARC) (EIU, 2002).

[13] Based on personal communication with Garth Armstrong, DFID.

A further organisation that has continued to represent a substantial fiscal burden is Press Corporation Limited (PCL). PCL has various subsidiaries and its annual turnover is equivalent to about 10% of GDP. PCL is not a parastatal, but is controlled by the Press Trust, a publicly registered trust, which was founded in 1961 by Hastings Banda and became the basis for the creation of his personal wealth. After suffering a financial crisis in 1980, the Press Trust was restructured with donor support in 1984, and the newly formed PCL took over responsibility for the Trust's various operations. The new government nationalised the conglomerate in 1997 (EIU, 2002).

Finally, as already mentioned, fluctuations in aid inflows are likely to have complicated the task of fiscal stabilisation, particularly in the 1990s. Donors have not hesitated to suspend financial assistance in response to government non-compliance with fiscal targets and ceilings. They did so in 1995, 2001 and 2002 and the IMF suspended assistance in 1997. This did not result in a reduction in expenditure, but instead in a further deterioration of the fiscal deficit and higher domestic borrowing. In general, largely because of the imposition of conditionality, the timing of foreign aid inflows has been difficult to predict. Sometimes, even after conditions have been fulfilled, there have been delays in disbursement. The heavy reliance on foreign aid to fund the development budget has created problems of uneven commitments and delays in disbursements (World Bank, 2003a). This may have had important fiscal implications in the form of higher domestic borrowing, interest payments and domestic debt. This hypothesis can be tested in the econometric analysis. It is therefore important to note that, while fluctuations in aid flows have often been the responsibility of the government (non-compliance), sometimes they have not.

3.4 Summary

This chapter has painted a picture of an economy on an erratic path since the late 1970s, characterised by low growth and poor fiscal management and prone to droughts and terms-of-trade shocks. The budgetary process was characterised by little control and climbing debt levels in the 1970s and early 1980s. Aid inflows were relatively low in the 1970s, but began to rise in the early 1980s with the first structural adjustment programmes. Much of the development budget is foreign-financed, whereas the recurrent budget relies on domestic finances. The divide between the two has, however, been more institutional than economic, as recurrent items are also found in the development budget. Up to 1998, the two budgets were formulated by separate institutions. The recurrent budget has captured an increasing share of total expenditure and has become oriented more towards the social sectors, partly due to new under-funded commitments, such as increasing the coverage of primary education. Domestic revenue has constituted a rather large share of total financing throughout the years. There was significant volatility in all fiscal aggregates in the 1990s, especially after the 1994 elections. Aid inflows have also responded increasingly to deterioration in economic management and have been very volatile. Since the mid-1980s, a rather large proportion of aid has been off-budget. The next chapter specifically examines the links between aid and fiscal behaviour. It begins by formulating hypotheses about the links between aid and fiscal aggregates, and then moves on to test these hypotheses empirically.

Chapter 4: The econometric analysis and results

This chapter reports on the econometric results on the impact of aid on fiscal aggregates. Before proceeding to the actual results, some hypotheses of the possible effects are formulated.

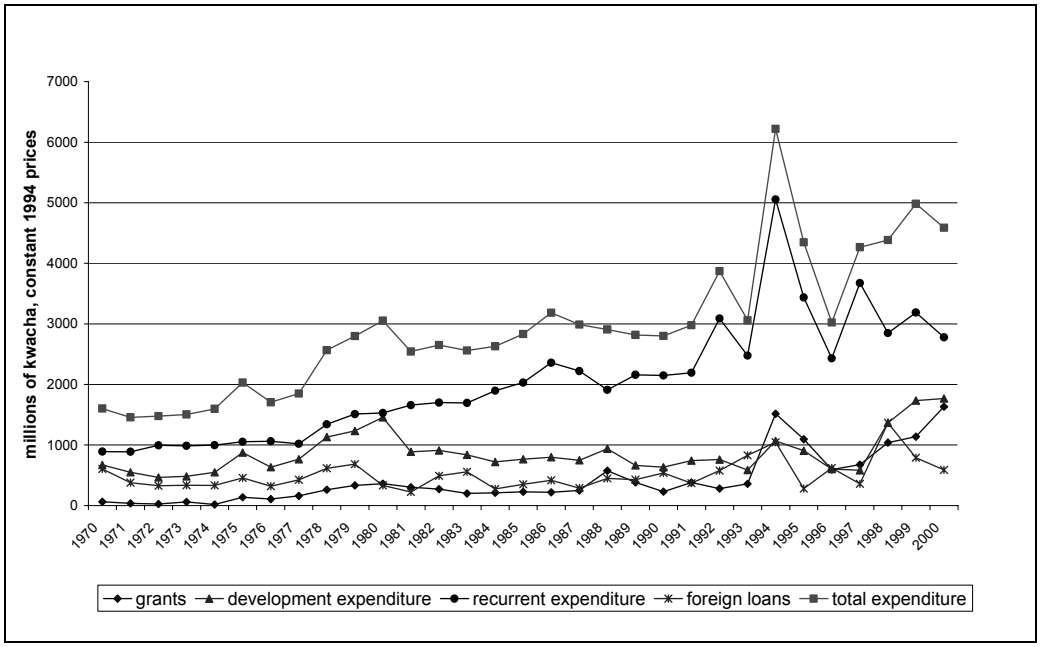
4.1 Hypotheses

The variables used in the econometric analysis are foreign loans (F), grants (G), Official Development Assistance (ODA), domestic borrowing (D), domestic revenue (REV), development expenditure (DEV) and recurrent expenditure (REC). The period covered is 1970-2000. As opposed to GDP shares, all variables are in constant 1994 prices in millions of kwacha, and movements in each of the variables in this form are shown below in Figs. 4.1-4.4. The data sources are the same as in the previous chapter.[14]

Figs. 4.1 and 4.2 below show movements in grants and foreign loans, combined with movements in both types of expenditure (Fig. 4.1) and domestic revenue and borrowing (Fig. 4.2) respectively. The figures are used to formulate testable hypotheses on the effects of aid. The hypotheses will relate to both grants and foreign loans. The econometric analysis will, however, model the effects of each separately.

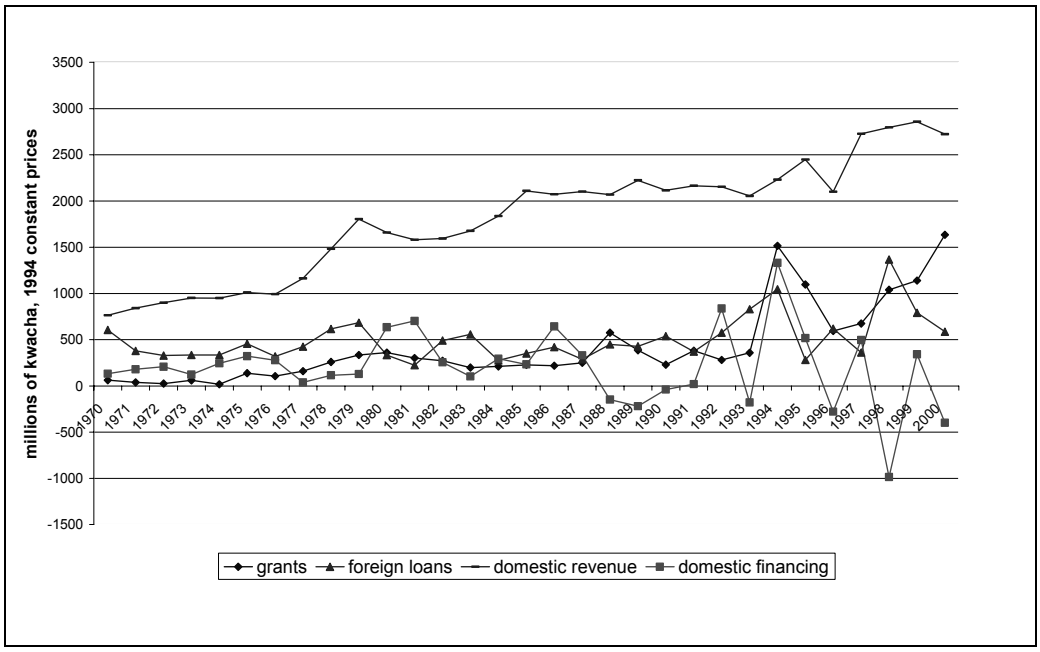
Movements in foreign loans and grants have been fairly similar, excluding some breaks (such as in 1982, 1984, 1990-1 and 1999-2000). The overall contemporaneous correlation between the two is 0.53. Between previous period foreign loans and current grants, it is 0.64, whereas vice versa it is low. This might suggest that movements in grants follow those in foreign loans. However, for the first 20 years, correlation between the two was fairly low, but higher in the latter period since 1985. This is likely to be due to the changing nature of foreign loans, from partly non-concessional and commercial to almost entirely concessional.

Fig. 4.1 Expenditure and external financing



[14] The figures for the GDP deflator, used to derive the series in constant prices, come from *WDI*.

Fig. 4.2 Revenue and finance



As time series analysis only reflects average relationship throughout the entire period, there may be some inconsistency in the estimated model coefficients due to changing relationships, such as that between foreign loans and grants. However, correlations between different forms of expenditure and external finance, for instance, remain quite similar throughout the years. Even though there is a break in the pattern for most of the series in the election year 1994, this does not imply that relationships would change, as the break is characteristic of all the variables. Parameter inconsistency may therefore not be of serious concern. There may be a few breaks in the relationships that will be discussed below, but these are generally exceptional and of short duration.

The main hypotheses tested for the period 1970-2000 are:

- Is aid associated with lower tax effort?

Looking at the entire period, grants or foreign loans do not appear to be associated with a fall in domestic revenue. All are on an upward trend, but movements between either form of external financing and domestic revenue do not appear very similar. As already explained, tax revenue has constituted a quite large, but volatile, share of total financing; on average about 60%.

- Does aid lead to more than proportional increases in total expenditure?

There appears to be a positive relationship between either form of external financing and total expenditure, in particular in the 1990s and 1970s. This does not yet allow us to speculate whether aid has been associated with greater or smaller than proportional increases in spending.

- What is the impact of aid on domestic borrowing?

More than proportional increases in total expenditure would require increases in domestic borrowing or taxes. However, the relationship between external financing and domestic borrowing appears largely negative, excluding the years 1994-96 (elections and excess spending). This would imply that on average aid has not led to over-proportional increases in spending. External financing seems to have been used both to reduce domestic borrowing and to finance expenditure. This could be explained partly by the conditions attached to aid inflows.

- What happens to the composition of expenditure as a result of aid?

As already discussed in section 3.2, decisions about the development and recurrent budgets were formulated separately until the late 1990s. There has been a high positive correlation between external financing and the development budget (0.67 for the entire period) as well as between

domestic revenue and recurrent budget expenditure (0.82 for the entire period). The econometric analysis may therefore provide further support for the hypothesis presented in the accompanying synthesis paper (Fagernäs and Roberts, 2004a), of aid as a form of supplementary income used to finance discretionary programmes. However, as explained, the development budget also covers items of a recurrent nature and has clearly been used to finance recurrent budget expenditure in the 1990s.

Fig. 4.3 ODA and external financing

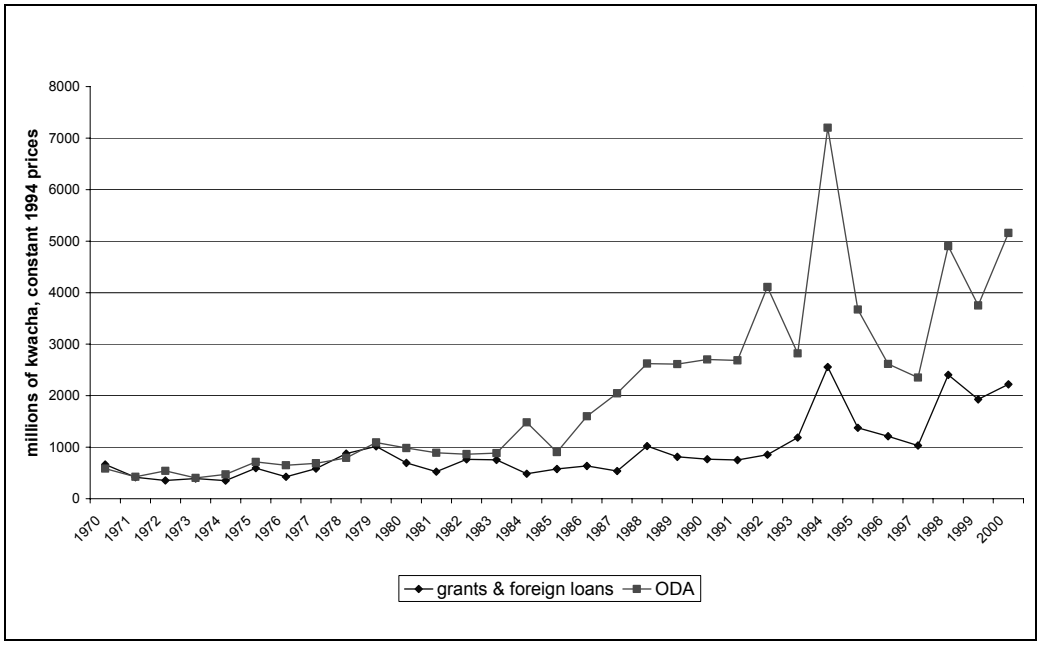


Fig. 4.3 reveals that there is a strong positive relation between the movements in ODA and external financing (sum of grants and foreign loans). The correlation between the two for the entire period is as high as 0.89. An additional model that includes ODA instead of grants or foreign loans will be estimated, and the hypotheses presented above hold largely for ODA as well.

4.2 Methodology

An introduction to vector autoregression (VAR) and vector error correction (VEC) models can be found in the synthesis paper for the three country case studies (Fagernäs and Roberts, 2004a), 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

$$(4.1) \qquad y_t = a_{10} + \sum_{i=1}^{n} \alpha_{1i} y_{t-1} + \sum_{i=1}^{n} \alpha_{2i} z_{t-i} + e_{y_t},$$

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

where i refers to the number of lags (i = 1,..., n) and t to the time period. The structural form for a VAR that reveals the contemporaneous effects can be identified by restricting the number of contemporaneous effects (by making a so-called "Cholesky decomposition") (Enders, 1995).

The idea of fiscal response models and the VAR approach is that fiscal variables are jointly determined by the government, so budget outcomes are the result of fiscal behaviour. The benefit

of the VAR/VEC approach is that it treats the fiscal variables as determined within the same system, without any prior assumptions about the nature of the inter-relationships. As the approach concentrates on government behaviour, the estimation should use data that are known to the government. However, aid distributed outside the budget can also affect government spending decisions, for instance by lowering expenditure on items funded by non-budgeted aid inflows.

Despite the advantages, VAR models can become easily over-parameterised, as each variable is allowed to affect each other variable at a number of lags. The results can also 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.

If the variables to be included in a VAR are non-stationary, integrated of the same order and cointegrated, they can be represented by a VEC model. 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 a classical regression model require that variables are stationary. If non-stationary, variables are rendered stationary by differencing. Since models with differenced variables do not cater for existing long-run relationships, the differenced variables must be modelled in a VEC framework. A VEC model for cointegrated variables takes into account both the short-run relationships between variables and deviations from the long-run equilibrium relationship, and the reduced form for two variables y and z can be written as

$$\text{(4.2)} \qquad \Delta y_t = a_{10} + \alpha_y (z_{t-1} - \beta y_{t-1}) + \sum_{i=1}^{n} \alpha_{1i} \Delta y_{t-i} + \sum_{i=1}^{n} \alpha_{2i} \Delta z_{t-i} + e_{y_t},$$

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

where $z_{t-1} - \beta y_{t-1}$ is the error correction term, i refers to the number of lags (i = 1,...,n), t to the time period and Δ indicates the change in the variable from one period to the next. The error correction term represents the stationary linear combination of the cointegrated variables. The coefficients in the VEC model represent the speed of adjustment. The larger the coefficient is, the greater the adjustment of the dependent variable to the deviation from a long-run equilibrium in the previous period.

As the coefficients of the VEC models only reveal the direct effects, the analysis relies a great deal on impulse response functions that capture both the direct and indirect effects, 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 future values of all endogenous variables. They require the infinite moving average representation of equation 4.2 to be derived. This study uses generalised impulse response functions, and in each case the shock to aid is a one standard error shock. 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). In a VEC model, a shock or impulse to aid will have a persistent impact on the levels of other variables, as the shock itself is permanent in nature. However, the impulse responses are eventually expected to converge to a level that is consistent with the estimated long-run, cointegrating relationship. In our analysis this condition means that the difference between expenditure and finance cannot increase permanently.

One problem with generalised impulse response functions is that the error terms in equation 4.2 are usually correlated. This means that although the original shock is given to only one variable, correlation (or more precisely covariance) between errors results in a shock to other variables as well. 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 all future responses.

Unlike generalised impulses, orthogonalised impulses could be used to examine a pure shock to one variable. These impulses, however, depend on which variables are allowed to affect each other contemporaneously, and in which order. This is not a straightforward decision, as contemporaneous causality cannot be tested and the results can unfortunately vary considerably depending on these assumptions. Generalised impulse response functions, on the other hand, do not require assumptions to be made about contemporaneous causality, and are invariant to the order in which variables are included in the model. They instead take fully into account the historical patterns of correlations observed amongst different shocks (Pesaran and Shin, 1998).

Due to difficulties associated with ordering, the decision was made to estimate generalised impulse response functions. However, if we are willing to accept that aid is the only variable that has a contemporaneous effect on all other fiscal variables, but is itself not affected contemporaneously, the orthogonalised and generalised impulse response functions will coincide. Although the empirical analysis will reveal that future values of aid (especially foreign loans) can depend on past values of other fiscal aggregates, it is not entirely implausible to assume that, within the same period, aid (at least the concessional elements) is predetermined. Despite the shortcomings, the paper will use this assumption as the starting point, which implies that there is no need to decide between the two forms of impulse response functions.

One further problem with impulse response analysis for VECs is the absence of confidence intervals. There does not yet appear to be a consensus method for estimating these for VECs, and the software used (Eviews 5) does not generate them, which means that the estimated effects may not always be statistically significant. Standard errors of the impulse response functions may be large with small samples of data and may increase with the number of periods for which the responses are estimated. Therefore, the impulse responses are only to be taken as indicative and in reality the actual impact lies within a range of the estimated. It may therefore be advisable to pay more attention to large rather than small effects. The facts that standard errors may increase with time, and that impulses are estimates, may lead to expenditure and finance impulses that do not correspond precisely with the estimated long-run relationship. High correlations between residuals can contribute towards impulse responses that appear over-proportional to the initial shock.

4.3 Model estimation

4.3.1 Model description

The variables and abbreviations used in the models are as given in section 4.1. Before model estimation, the first step is to establish whether the variables are stationary or non-stationary. For this purpose both the Dickey-Fuller and Phillips-Perron tests are used. The results for the tests and the accompanying discussion can be found in Annex 4. The analysis is somewhat complicated by the increase in volatility in the 1990s and the spike in many of the variables in election year 1994. All the variables are treated as non-stationary and integrated of order one. The explanations for the results can be found in Annex 4.

Altogether three separate VEC models are estimated to identify the fiscal effects of aid. Apart from ODA, the other variables used in the models form a budgetary identity, as presented in equation 2.2 in Chapter 2.[15] To avoid estimating an identity as well as to save degrees of freedom, two separate models are estimated; one that includes grants, but omits foreign loans (1) and the other vice versa (2). In the case of one cointegrating vector between all the variables of the budget identity, including all the variables in a VEC model would render the error correction term meaningless. There would be no other disequilibrium for the variables to adjust to, except that arising from data discrepancies. For this reason, one of the components of the budget identity is

[15] In practice the identity does not always hold because of minor data discrepancies, due to unrecorded budgetary items or other imbalances.

omitted in each model. In this case, either form of external financing was omitted so that it was possible to estimate the impact of aid on all other fiscal variables. There is also a fairly small number of observations, and including all six variables of the budgetary identity would result in an over-parameterised model. Due to the slightly different nature of foreign loans and grants (at least in the 1970s and early 1980s), the two may have different effects, which is another reason for estimating separate models.

The results of a further model (3), that includes ODA instead of grants or foreign loans, are also presented briefly. Due to the high correlation between ODA and the sum of grants and loans (see section 4.1), ODA may well proxy for the joint impact of the two forms of external financing. However, in model 3, the set of variables no longer forms a budgetary identity, as ODA is much larger than the sum of grants and foreign loans recorded in government budgetary operations. As explained above, ODA contains substantial volumes of aid that are off-budget, and modelling the impact of ODA may reveal something about the effects of off-budgetary aid on the budget.

Standard diagnostic tests (autocorrelation, heteroskedasticity and normality) as well as a stability test are performed for each model.[16] In each of the models optimal lag length was judged to be two. Lag length criteria were examined, but choice was in practice limited, as including more than two lags would have seriously reduced the degrees of freedom.

The results might have differed slightly, had the issue of structural breaks or shifts in the trends of variables been properly addressed. These might change relationships between variables and could possibly be treated with the use of appropriate dummy variables. However, the decision on whether to include a dummy is not straightforward. Most of the series involve a spike in year 1994, but one cannot argue convincingly that the year represents a permanent shift to a higher level or a change in the trend. What tends to happen in most cases is that the volatility of the series increases. As this occurs in most of the variables, as already mentioned, it is possible that the actual relationships between the variables are not altered significantly.

However, because 1994 is a clear outlier, it may play a substantial role in shaping the final results. For this reason, two versions of each model are estimated: one that includes an exogenous dummy variable that takes the value of 1 in the election year 1994 and 0 otherwise, and the other without the dummy. However, again due to software features, the inclusion of the dummy will also alter the error correction term in the VEC model, as opposed to the model that excludes the dummy. It does not alter the sign of the coefficients, but does affect the magnitudes.[17]

Only the results of the models with the dummy are presented, but they are compared briefly with those of the model without the dummy variable. In each case, the model with the dummy has a lower Akaike information criterion, which indicates that it performs better and therefore the results of these models are shown. Including the dummy variable does change some of the impulse responses to shocks to aid, so the model results are not entirely robust.[18] However, including the dummy also significantly stabilises the impulse responses, which facilitates interpretation. Ideally we would have liked to estimate two models, one for the entire period and one for 1970-93. Since our time series was already fairly short for a VEC model, this was not an option.

[16] 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 χ^2). The test statistic shown for the last two corresponds to the joint test.

[17] This may be in conflict with existing theory on how to treat breaks in patterns in multivariate cointegration analysis (see, for example, Joyeux, 2001).

[18] Model results without the dummy can be obtained from the authors on request.

4.3.2 Model 1

The first model (1) to be estimated uses the following set of variables: grants (G), development expenditure (DEV), recurrent expenditure (REC), domestic borrowing (D) and domestic revenue (REV). As all the variables have a unit root, they may be cointegrated. The Johansen trace and maximum Eigenvalue tests are used to test for the number of cointegrating relationships. The results of the tests are shown in Annex 4, Table A5. Both tests indicate that there is one cointegrating relation between the five variables.

The cointegrating relation found is of the form (*t*-statistics in parentheses):

$$D + 0.39REV + 2.68G - 1.57DEV - 0.91REC + 1198 = 0. \quad (4.3)$$

(14.4) (9.8) (-16.8) (-27.9)

The above relation is normalised on domestic borrowing for reasons to be explained. It could also be normalised on another variable without affecting the model results.

As expected, this relationship is consistent with the fiscal identity (equation 2.2) in Chapter 2 that equates spending with total financing. The cointegrating relation shows a long-run relationship between the variables. It implies that in the long run, c*eteris paribus*, development expenditure and recurrent expenditure are positively related to grants, whereas domestic revenue and finance are negatively related to grants. This suggests that, in the long run, grants could be seen as a substitute for domestic borrowing and domestic revenue. However, the relationship does not yet reveal anything about the direction of causality and some of the variables may not behave according to the relation. Even though grants and domestic revenue appear to be negatively related, it is still possible for tax revenue to rise as a result of an increase in grants, as long as changes in other variables balance the long-run relation. This would be the case if domestic borrowing were to fall substantially.

As was mentioned above, the fact that the variables are cointegrated indicates that a VEC model can be formulated to assess the linkages between the variables. The error correction term in the model will allow us to assess which variables move to balance the long-run relation. If the error correction term is insignificant, the estimated cointegrating relation (equation 4.3) is unlikely to be valid or strong. For each dependent variable, the adjustment coefficient on the lagged error correction term in the estimated model measures the response of the dependent variable to a previous period imbalance in the budget.

Error Correction Model

Table 4.1 shows the results of the unrestricted VEC model, including the dummy variable that is equal to 1 in year 1994. There are five dependent (endogenous) variables that are affected by lags of themselves and the other endogenous variables. In the table a D in front of a variable stands for difference. Conclusions about the significance of each coefficient are based on the 90% significance level. The model passes all diagnostic tests and the VAR stability condition holds (inverse roots are inside the unit circle), which implies that the model is stable, and that impulse responses will stabilise to correspond with the long-run cointegrating relation.

The coefficients in the error correction model show the short-run, direct effects between variables, but not the total effect resulting from both direct and indirect impacts. As mentioned earlier, conclusions about the effects of grants are based on impulse response functions that capture the total effect, and simulate how a shock to grants in period 1 affects all the other variables in the short and long run. If the coefficient on the lagged error correction term (EC(-1)) in Table 4.1 is significant, the particular variable reacts to deviations from the long-run equilibrium relation occurring in period t-1 according to the relationship identified in equation 4.3.

In the VEC context, the absence of Granger causality requires both the coefficient on the error correction term and the coefficients on the individual explanatory variables to be insignificant (Enders, 1995: 367). Granger causality is a weaker condition than that for exogeneity. In general, variable *y* does not Granger-cause variable *z*, if lagged values of *y* do not explain *z*. Exogeneity would imply that values of *y* that are additionally present would also not affect *z*. Although domestic revenue (REV) appears to be exogenous in Table 4.1, as none of the coefficients on the explanatory variables are statistically significant, we cannot conclude that it is strictly exogenous. Grants (DG) also appear largely exogenous, as the only significant lagged effect is induced by development expenditure at the 90% level. Although this does not tell us about contemporaneous effects, it offers some justification for the Cholesky ordering that results in impulse response functions that are identical to generalised impulse responses.

Table 4.1 Error correction, model 1

	Dependent Variables					
		D(D)	**D(REV)**	**D(G)**	**D(DEV)**	**D(REC)**
Explanatory Variables	**EC(-1)**	-0.69*	0.14	-0.08	0.25	-0.87***
	D(D(-1))	-0.04	-0.19	0.01	-0.43*	0.51
	D(D(-2))	0.27	-0.12	-0.14	-0.25	0.62*
	D(REV(-1))	0.33	-0.09	0.01	0.51	0.51
	D(REV(-2))	1.39*	0.26	-0.32	-0.20	0.46
	D(G(-1))	1.87*	-0.02	-0.44	-0.75	1.77***
	D(G(-2))	0.53	-0.21	-0.75**	-1.21**	0.60
	D(DEV(-1))	-0.84	-0.02	0.34	0.35	-0.94*
	D(DEV(-2))	-0.53	-0.09	0.49*	0.69*	-0.73
	D(REC(-1))	-0.74	0.07	0.03	0.39	-1.29***
	D(REC(-2))	-0.63	-0.07	0.16	0.35	-1.05***
	Constant	-109.94	54.24	38.96	-11.20	86.37
	Dummy	1013.3*	154.9	1092.3***	312.1	2149.4***
	R^2	0.79	0.68	0.85	0.66	0.93
	Diagnostic tests					
	autocorrelation (lags)					
	1	26.2				
	2	19.6				
	heteroskedasticity, joint	341.1				
	normality, joint	72.0				

***,**,* = significant at 99, 95 and 90% levels

Table 4.2 Correlations between residuals in model 1

	D	**REV**	**G**	**DEV**	**REC**
D	1.00				
REV	-0.07	1.00			
G	-0.52	-0.04	1.00		
DEV	-0.05	0.01	0.76	1.00	
REC	0.85	0.28	-0.61	-0.12	1.00

The adjustment coefficient on the error correction term is significant for domestic borrowing (D) and recurrent expenditure (REC). The coefficient is correctly signed for the former,[19] which indicates that domestic borrowing responds to budget imbalances in the previous period according to the long-term relation in equation 4.3. This suggests that domestic borrowing is the residual variable in the fiscal system and acts as the financing item of last resort. In contrast to domestic borrowing, the adjustment coefficient on EC(1) in the equation for recurrent expenditure has an opposite sign to what is expected. This implies that recurrent expenditure does not respond to budget imbalances in the previous period by restoring the equilibrium. This interpretation tallies with the description of fiscal policy and the budgetary process in Malawi in Chapter 3 as the government has had to resort to high levels of domestic borrowing many times. The adjustment coefficients for the error correction term in the equations for all other variables are insignificant. Grants have not been provided to balance the budget.

We shall not try to draw many inferences of the effects of grants from Table 4.1, but a few direct effects are described for illustrative purposes. Grants have a significantly negative and significantly positive lagged impact on development expenditure and recurrent expenditure respectively. Domestic borrowing is significantly negatively affected by lagged domestic revenue, which implies that the two forms of finance may be substitutes. Domestic borrowing has a significantly negative lagged impact on the development budget and a positive effect on the recurrent budget. This coincides with the hypothesis that domestic borrowing has been diverted towards the recurrent budget. Development budget expenditure has a significantly negative lagged effect on recurrent budget expenditure, which implies that the two forms of expenditure could be substitutes.

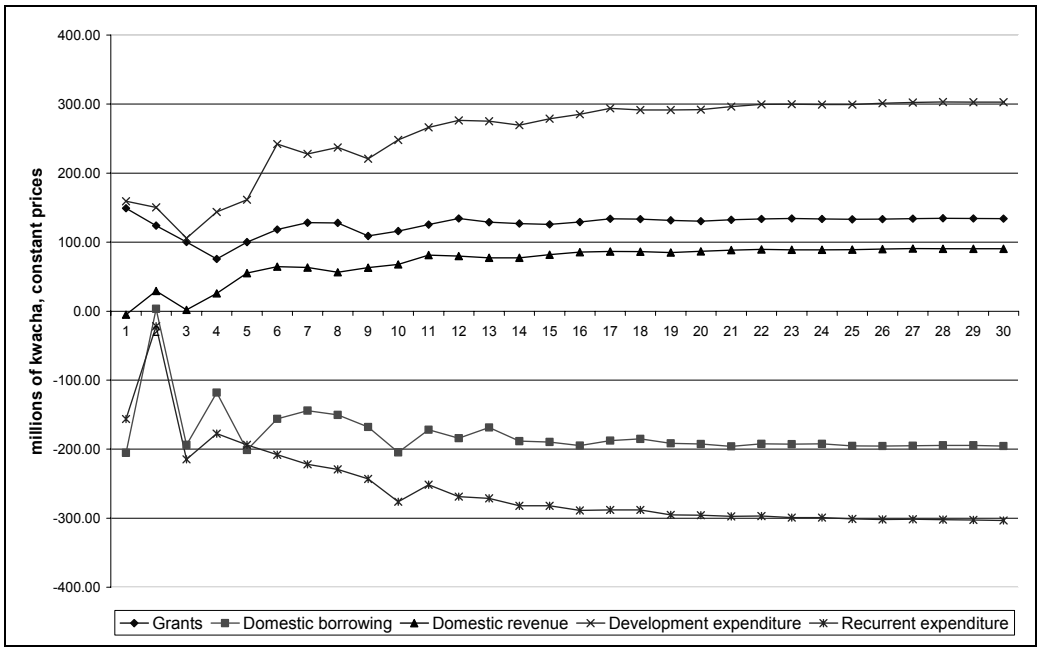
The final conclusions about the impact of grants will be largely based on the impulse response functions presented in Fig. 4.4. The cointegration and VEC analysis has, however, already revealed that in the long run grants have had a significantly negative effect on domestic borrowing and possibly a negative impact on recurrent expenditure.

Impulse Response Analysis

Fig. 4.4 shows the impulse responses of each of the variables to a permanent one standard error shock in grants, a magnitude of 149 million kwacha (in constant 1994 prices). The horizontal axis refers to years after the initial simulated shock. The impulse response function shows the increment to each variable due to an additional increase in grants, taking into account all interactions between the variables. The shock will have a permanent effect on the levels of the other variables, but the impact gradually stabilises at a new level that is consistent with the long-run cointegrating relationship. As a result of feedback effects from other variables, the grants impulse changes slightly with time, but eventually stabilises at a level of K134 million.

[19] Because the cointegrating vector that enters the VEC model is normalised on domestic borrowing, the adjustment coefficient on domestic borrowing should be negative and that for recurrent spending positive for these variables to adjust to imbalances from the long run. The coefficient on recurrent expenditure has an unexpected sign, but, as mentioned, the model is nevertheless stable as stability conditions hold and impulse responses converge (as will be shown later on).

Fig. 4.4 Impulse responses to a permanent increase in grants, model 1



An increase in grants leads to an increase in development budget expenditure and a fall in recurrent budget expenditure. Although the long-run impact on total spending is negligible (+/- K300 million for the two expenditure categories, i.e. adding up to about zero), the impact in the first two periods is positive. Total expenditure rises by K3 million in the first period and K128 million in the second period. Although the magnitudes should be held as approximate, some of the increase in grants appears to be used to finance higher spending and some of it to reduce domestic borrowing, despite the impact on borrowing being negligible in period 2.

In the long run, domestic borrowing falls, domestic revenue rises and, as already mentioned, development expenditure increases and recurrent expenditure falls. The rise in domestic revenue, although fairly mild, suggests that, while grants do not have a contemporaneous or short-run effect on domestic revenue, in the long run there are indirect effects that lead to a positive change in domestic revenue. However, as the impact is not very large, the safest conclusion to draw, taking account of the uncertainty about standard errors for the impulses, is that grants have not discouraged tax effort.

One explanation for the fall in domestic borrowing is compliance with donor requirements. The reduction in domestic borrowing induces the government to curtail spending, the brunt of which falls on recurrent budget expenditure. This analysis supports our hypothesis that the recurrent budget has been largely domestically financed (through domestic revenue and borrowing), while the development budget has been dependent on external financing (grants and foreign loans). Table 4.2 reveals the correlations between the residuals in each equation.[20] Many of the correlations are large enough to produce significant contemporaneous effects, and the negative long-run impact of grants on recurrent expenditure is reinforced by the strong correlation between the residuals in the domestic borrowing and recurrent expenditure equations (0.85).

The impact on spending suggests that fiscal behaviour in Malawi fits the pattern whereby the government finances its priority (recurrent) spending through domestic revenue and borrowing, with non-priority spending allowed to be a function of aid availability. The budgetary process therefore appears to differ from the quadratic loss formulations of the fiscal response literature. Our result, however, does not offer full support to the hypothesis that a Stone-Geary type utility

[20] 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 in this study, except for a few cases, larger correlations relate to larger covariances.

function, as discussed in Chapter 1 of the synthesis paper (Fagernäs and Roberts, 2004a), fully characterises the budget process, as recurrent budget expenditure actually falls as a result of an increase in grants. A somewhat more complicated theoretical formulation would be required to take account of the interdependence between expenditures and different forms of finance, as the fall in recurrent expenditure is largely due to the fall in domestic financing. In good part it is probably explicable by the transfer of some recurrent expenditure to the development budget.

The fact that domestic borrowing falls also implies that domestic borrowing and grants have been substitutes. This implies that the inflow of grants may have had a stabilising impact on the economy, without lowering total expenditure. Domestic borrowing has previously been high with detrimental consequences. As mentioned, in the long run, the grant shock is not associated with higher total expenditure. Even though grants have a positive impact on total spending in the short run, at no point is there an over-proportional increase in spending (i.e. greater than the grant shock of K150 million), suggesting the absence of aid illusion. The composition of spending, however, shifts in favour of development budget expenditure at the expense of recurrent budget expenditure. The development budget has become increasingly oriented towards social spending. If the pattern continues, increases in grants may therefore have a positive impact in the form of improved health and education levels. There is however, capacity, for higher social expenditure, as a worrisome increase in the shares of general administration and housing in the development budget, is also observed in the 1990s.

It is worth mentioning that the impulse responses remain similar, but much more volatile, if the model is performed without the dummy. The only clear difference is a negative long-run effect on domestic revenue. This effect is small enough, however, to be negligible and therefore a rather similar conclusion applies to this case as to the model presented in this section. As already mentioned, excluding a dummy variable changes the cointegrating relationship somewhat, but it does not change the sign of the coefficients. However, without the dummy in the model, grants are affected more by lags of other variables, which implies that the model results are not entirely robust. The general qualitative results are largely similar, however, which is encouraging.

4.3.3 Model 2

Model 2 uses the same set of variables as model 1, but replaces grants with foreign loans. The dummy taking a value of 1 in year 1994 is included. Again the main difference between this and the model without the dummy is considerably more stability in the impulse responses. The dummy variable will again have an effect on the cointegrating relationships and the conclusions drawn about the number of relationships. The following two cointegrating relationships can be identified (*t*-statistic in parentheses):

$$\text{REC} - \underset{(-17.7)}{1.46\text{REV}} - \underset{(-0.49)}{0.13\text{D}} + \underset{(1.35)}{0.34\text{DEV}} + 343 = 0 \tag{4.4}$$

and

$$\text{F} - \underset{(-3.19)}{0.11\text{REV}} + \underset{(-3.95)}{0.44\text{D}} - \underset{(-2.57)}{0.27\text{DEV}} - 163.4 = 0. \tag{4.5}$$

the results for the cointegration test are shown in Annex 4, Table A6. Different normalisations were attempted, but the two were chosen, as the error correction model implied that the two normalised variables reacted to imbalances from the long-run relationship. The first relationship (equation 4.4) does not appear very strong as some of the *t*-statistics are not very high, but it implies that in the long run the two types of expenditure are positively related to domestic revenue and borrowing. Relationship 4.5 appears stronger and implies that there is a positive long-run relationship between development expenditure, foreign loans and domestic revenue and a negative relationship between foreign loans and domestic borrowing. The direction of causality between the variables cannot yet be determined.

The vector error correction model is shown in Table 4.3. There are two lagged error correction terms: EC1 refers to equation (4.4) and EC2 to (4.5). The VAR stability condition holds and the model passes all diagnostic tests. The correlations between residuals in each model are shown in Table 4.4. High correlations are observed again between the residuals in equations D(REC) and D(D), and D(F) and D(D), but the correlations between D(F) and D(DEV) are much lower than those between D(G) and D(DEV) in model 1.

Table 4.3 Error correction, model 2

	Dependent Variables					
Explanatory Variables		**D(REC)**	**D(F)**	**D(REV)**	**D(D)**	**D(DEV)**
	EC1(-1)	-1.13*	0.96***	-0.13	-0.92	0.31
	EC2(-1)	1.71	-3.05***	0.68	1.54	-0.51
	D(REC(-1))	0.13	-0.77***	0.09	0.80	-0.48
	D(REC(-2))	-0.44	-0.39**	-0.13	-0.19	-0.64***
	D(F(-1))	-1.22	1.83***	-0.48	-1.39	1.15
	D(F(-2))	-0.76	0.70*	-0.27	-0.48	1.15***
	D(REV(-1))	-0.68	1.28***	-0.04	-0.99	1.23***
	D(REV(-2))	-0.11	-0.27	0.08	1.02	0.41
	D(D(-1))	-0.71	1.28***	-0.37	-1.45	0.41
	D(D(-2))	0.04	0.79***	-0.18	-0.13	0.74**
	D(DEV(-1))	0.80	-0.73**	0.12	0.90	-0.59
	D(DEV(-2))	0.01	-0.31	-0.13	0.14	-0.40
	Constant	62.87	19.31	66.7*	-123.20	20.69
	Dummy	2484.9***	680.2**	115.5	1179.7	147.2
	R^2	0.92	0.88	0.72	0.78	0.68
	Diagnostic tests					
	autocorrelation (lags)					
	1	29.9				
	2	24.6				
	heteroskedasticity, joint	385.6				
	normality, joint	74.5				

***,**,* = significant at 99, 95 and 90% levels

Table 4.4 Correlations for residuals in model 2

	REC	**F**	**D**	**REV**	**DEV**
REC	1.00				
F	-0.40	1.00			
D	0.86	-0.70	1.00		
REV	0.38	0.20	0.00	1.00	
DEV	-0.13	0.25	-0.06	0.22	1.00

The first interesting result of this error correction model is that, whereas lags of other fiscal variables had little effect on grants in model 1, foreign loans are strongly influenced by changes in lagged fiscal aggregates. This is also confirmed by the fact that foreign loans move to adjust to imbalances in the cointegrating relation (4.5), demonstrated by the significant coefficient on the lagged error correction term EC2 in the D(F) equation. This implies that the estimated long-run relationship holds. Whereas changes in expenditure seem to have a significantly negative direct effect on foreign loans, changes in domestic borrowing and revenue, on the other hand, have a significantly positive direct effect. Although past policy appears to affect movements in foreign loans, the results cannot confirm whether this effect is contemporaneous. Foreign loans could be endogenous, as conditions have been attached to structural adjustment loans and, at least in the 1990s, donors have reacted to fiscal imbalances by withdrawing assistance. The other possible reason is the fact that foreign loans are measured in net terms and therefore changes in amortisation payments are recorded in net foreign loans. These payments tend to fall at times of default, when arrears accumulate, and to rise when arrears are paid. Amortisation performance reflects current, and past, fiscal policy.

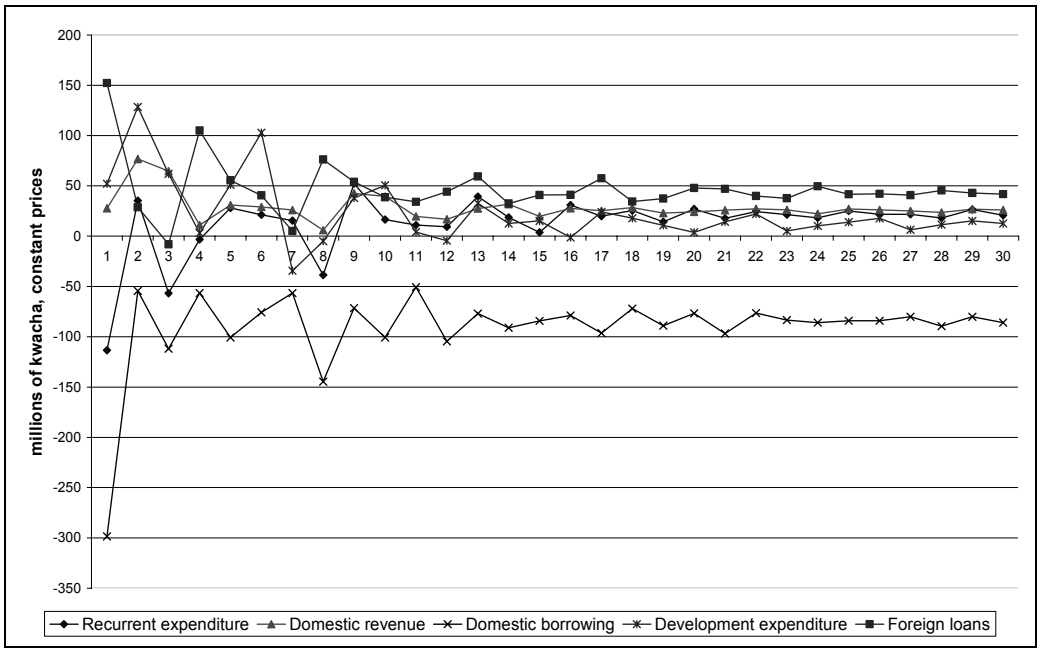
Because the coefficient on the lagged error correction term EC1 is significant and correctly signed for the REC equation, the long-run relationship (equation 4.4) is also likely to hold. Therefore, in the long run domestic borrowing and revenue have a significantly positive impact on recurrent budget expenditure, which is expected, and development expenditure has a negative effect. In the VEC model, domestic revenue and borrowing are not affected by lags of other fiscal variables.

Because changes in foreign loans are significantly affected by changes in other fiscal variables, the impulse response functions (Fig. 4.5) are somewhat difficult to interpret due to feedback effects. The initial shock examined is of a magnitude of K152 million (1994 prices), but falls to almost zero in period 3, after which it rises and stabilises at a level of around K45 million.

The impulse responses in the early periods following the shock are quite volatile. The impact on domestic revenue and development expenditure is mainly positive, in both the short and the long run. The short-run effect on recurrent expenditure oscillates between positive and negative, but in the long run stabilises at a positive level. As can be expected on the basis of the correlations shown in Table 4.4, the contemporaneous effect on recurrent expenditure is negative, which coincides with the result of model 1. The contemporaneous impact on domestic borrowing is strongly negative. At times, the impact on total expenditure appears over-proportional to the increase in foreign loans. However, as emphasised earlier, due to the uncertainty associated with standard errors and correlation among residuals, such claims should be avoided. Another reason for large increases in expenditure may be that grants are omitted and, as there is at times quite a strong correlation between grants and foreign loans, due to omitted variable bias, the impacts of grants may be reflected partly in those of foreign loans.

As the shock to foreign loans stabilises in the long run, it may be more advisable to pay attention to the long-run effects. There is a positive, although rather small, long-run impact on both types of expenditure and domestic revenue and a clearly negative impact on domestic borrowing. The difference between the results of model 1 and 2 is the effect on recurrent expenditure. This may be reflecting the difference in the nature of foreign loans and grants. Despite the institutional separation discussed in section 3.3, some foreign loans of a non-concessional nature may well have been devoted to the recurrent budget in the 1970s. The data also reveal that some external financing must have been allocated to the recurrent budget in the 1990s, as external financing recorded in the budget is larger in volume than the development budget. Because the model estimates average effects, it cannot cater properly for the changing nature of foreign loans throughout the years, that could result in changes in some of the relationships.

Fig. 4.5 Impulse responses to a permanent increase in foreign loans, model 2



4.3.4 Model 3

Finally, the results of the two models are complemented with model 3 that uses ODA instead of the other two external financing variables. Looking at the effects of ODA may also partly capture the effects of non-budgeted aid inflows on the budget. Since ODA is on average about twice the value of the sum of budgetary grants and foreign loans, the variables in model 3 do not represent an identity. As there is a very high correlation between the sum of foreign loans and grants and ODA, the effects of ODA may be a proxy for the joint impacts of the sum of the former two (at least the sign, but not necessarily the magnitude of the coefficients).

In this case, the results are more sensitive to the decision to include a dummy variable that controls for the spike in 1994. This may be because the spike in ODA in 1994 is very large compared with those in the other variables. Including a dummy may therefore be highly advisable. The model is somewhat over-parameterised, however, and the results are reported only briefly as they are not entirely robust.

ODA was shown to be a non-stationary variable and one cointegrating relationship was found between ODA and the four other variables. The results for the cointegration test can be found in Annex 4, Table A7. The relationship takes the form (normalised on ODA and *t*-statistics in parentheses):

$$\text{(4.6)} \qquad \underset{}{\text{ODA}} + \underset{(4.1)}{1.75\text{D}} - \underset{(-6.19)}{2.16\text{REV}} + \underset{(2.6)}{\text{DEV}} - \underset{(-0.27)}{0.1\text{REC}} + 830 = 0$$

The relationship implies that in the long run domestic borrowing is negatively related to ODA and the two might therefore again be substitutes. Revenue and recurrent budget expenditure are positively related to ODA and, perhaps somewhat strangely, development budget expenditure is negatively related. Once again, the relationship does not yet reveal anything about the direction of causality.

The error correction model is presented in Table 4.5 below. The interesting fact is that, while the impact of ODA on fiscal variables appears to be statistically insignificant (although impulse response analysis does generate fairly large responses), ODA is itself affected significantly by lags in the other variables, which may reflect the foreign loan component. Models 1 and 2 indicate that,

while grants were more or less unaffected by changes in other fiscal variables, changes in foreign loans were heavily influenced by lagged movements in other fiscal variables. The model is probably somewhat over-parameterised, as many coefficients are left insignificant, but it is stable and once again passes all diagnostic tests. The coefficient for the lagged error correction term is significant in the ODA equation, which implies that the long-run relationship in equation 4.6 holds. ODA responds to deviations from the long-run relationship or budget balance.

Table 4.5 Error correction, model 3

	Dependent Variables					
Explanatory Variables		**D(ODA)**	**D(D)**	**D(REV)**	**D(DEV)**	**D(REC)**
	EC(-1)	-0.86***	-0.17	0.06*	-0.06	-0.21**
	D(ODA(-1))	-0.41**	-0.08	0.06	0.18	-0.03
	D(ODA(-2))	-0.43***	-0.09	-0.07	-0.11	-0.06
	D(D(-1))	0.74*	-0.79	0.03	0.35	-0.12
	D(D(-2))	0.20	0.06	-0.16	-0.01	0.45
	D(REV(-1))	-1.86**	-1.33	0.43	1.28**	-1.11
	D(REV(-2))	-3.94***	0.86	0.00	-0.55	0.08
	D(DEV(-1))	2.38***	0.72	-0.15	-0.09	0.56
	D(DEV(-2))	1.58***	0.44	-0.21	0.08	0.19
	D(REC(-1))	0.53	0.64	-0.33	-0.57	-0.03
	D(REC(-2))	0.62	-0.01	-0.07	0.02	-0.49
	Constant	333.2***	-87.81	61.2**	0.92	95.24
	Dummy	4064.4**	1048.2	371.9*	935.1**	2308.6***
	R^2	0.98	0.76	0.75	0.62	0.90
	Diagnostic tests					
	autocorrelation (lags)					
	1	20.1				
	2	15.3				
	heteroskedasticity, joint	335.6				
	normality, joint	70.4				

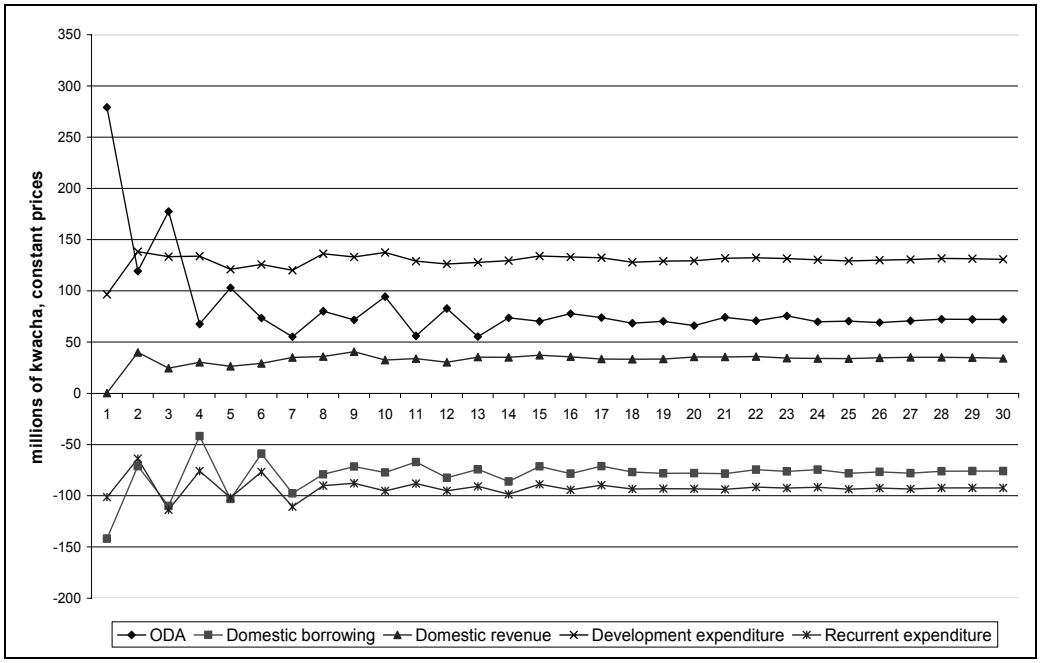
***,**,* = significant at 99, 95 and 90% levels

Domestic revenue also responds to deviations from the long-run relationship according to equation 4.6, which would indicate that, in the long run, a rise in ODA increases domestic revenue. Development budget expenditure does not appear to respond to imbalances in the cointegrating relationship, whereas recurrent budget expenditure responds significantly, but inversely. This implies that an increase in ODA might have a negative long-run effect on the recurrent budget.

The impulse response analysis (Fig. 4.6) tends to confirm the results of model 1. As in model 1, there is no contemporaneous impact on domestic revenue, but a positive contemporaneous effect on development expenditure, and a negative effect on recurrent expenditure and domestic borrowing. In the long run, domestic borrowing falls, domestic revenue rises, but only slightly, and again recurrent budget expenditure falls and development budget expenditure rises. Total expenditure rises somewhat in both the long and the short run. As ODA is affected by lags in other variables, the initial increase of K279 million stabilises at a much lower level (in the long run around K70 million). The initial impact on total expenditure is zero and the long-run impact

around K40 million. This would suggest that government spending is encouraged by ODA, but that the expenditure rise is not over-proportional to the increase in ODA, although, as suggested previously, such conclusions may not be valid.

Fig. 4.6 Impulse responses to a permanent increase in ODA, model 3



As already mentioned, in this case the results are rather more sensitive to whether a dummy to control for the spike in 1994 is included or not. In the latter case an increase in ODA has a positive long-run effect on all variables, including recurrent expenditure and domestic borrowing. This result may be due to the heavy influence of the outlier year 1994, when there is a large increase in ODA as well as in recurrent budget expenditure and domestic borrowing. For this reason, the results of the model version presented here are likely to be more reliable.

4.4 Summarising the fiscal impacts of aid

An increase in grants is found to fuel development budget expenditure and lead to a fall in recurrent budget expenditure. This is in accordance with the dual nature of budgetary planning in Malawi. It also suggests that the theoretical approach of the fiscal response literature, where governments maximise utility subject to targets, might not be a proper framework for addressing budgetary planning. A linear expenditure framework might be an option, although it would focus on expenditure and would not capture the interdependence between different forms of finance and expenditure.

The fall in recurrent expenditure as a result of an increase in grants may appear somewhat unexpected, but can partly be explained by the fact that the grant inflow improves the domestic borrowing position and that expenditure of a recurrent nature has been increasingly allocated to the development budget. Recurrent expenditure is shown to be largely domestically funded. An increase in grants does initially raise total expenditure, but not over-proportionally to the increase in grants. In the long run the impact on total expenditure is negligible. Not only does the increase in grants discourage tax effort, but any impact on tax effort is likely to be lagged and indirect.

The impulse responses are somewhat difficult to interpret for foreign loans, due to feedback effects. The long-run effects of an increase in foreign loans are otherwise similar in direction (but not magnitude) to those of grants, except for the rise in recurrent expenditure. At times the rise in total expenditure appears over-proportional, but, due to uncertainty about the standard errors of

the impulse response functions, this may not be a valid conclusion. It might suggest that foreign loans have been associated with more uncertainty than grants.

In the final model, ODA is used to determine the joint impact of an increase in grants and concessional foreign loans. The impulse responses to an increase in ODA are fairly similar to those of an increase in grants (model 1). Development budget expenditure and domestic revenue rise, whereas recurrent budget expenditure and domestic borrowing fall. However, in contrast to model 1, total expenditure increases also in the long run, but not over-proportionally. The impact on domestic revenue is fairly mild.

Finally, budgetary grants do not react strongly to lagged movements in other fiscal variables, whereas foreign loans do. However, this finding for grants may be partly due to model specification, as the model version without the dummy showed that grants were affected by other fiscal variables. This suggests that past fiscal policy has affected the provision of aid.

The general conclusions are that, whatever the type of aid, an increase in aid induces an increase in development budget expenditure. Secondly, aid does not discourage tax effort and reduces domestic borrowing. These are in line with the initial hypotheses presented in section 4.1. Conflicting results arise in the case of recurrent expenditure. The results of the model using ODA can be approximating the combination of the two types of external finance, although ODA is larger in magnitude. The model results for ODA and grants also reveal something about the nature of budgetary planning in Malawi. Domestic borrowing or aid has been a financing item of last resort, and spending plans are not reduced in response to previous year imbalances in the budget.

Chapter 5: Conclusions

This paper has discussed movements in aid and fiscal aggregates in Malawi, and the political economy background to fiscal policy, and has used several vector error correction models to estimate the effects of aid on fiscal aggregates over a thirty-year time period.

After a relatively good period in terms of economic performance in the 1970s, fiscal management started to deteriorate in the 1980s and Malawi found itself facing a debt crisis. Droughts, interest payments on debt, weak performance of parastatals and commodity price fluctuations have all complicated fiscal management. The country has repeatedly resorted to supplementary budgets. The 1990s was a volatile period, partly driven by the transition to democracy as well as many IMF-supported reforms. Aid flows were relatively low in the 1970s, but rose with the advent of structural adjustment in the early 1980s. Aid inflows became increasingly volatile in the 1990s, and donors have on several occasions withdrawn assistance because of non-compliance with the attached conditions. Before the late 1990s, decisions about the development and recurrent budgets were formulated by separate institutions. The development budget has been largely donor-financed, but also includes items of a recurrent nature.

Many of the features of budgetary planning in Malawi are reflected in the econometric results. The final conclusions about the effects of aid are based on impulse response functions that depict the changes in fiscal aggregates as a result of a permanent increase in aid. The study has looked at the impact of aid on domestic borrowing, domestic revenue, and the development and recurrent budgets. As the conclusions are summarised in section 4.4, they are not repeated here in detail. The general conclusions are that, whatever the type of external financing, an increase has a positive impact on the development budget and a negative effect on domestic borrowing. Increases in external financing do not appear to discourage tax effort. Foreign loans may be associated with higher uncertainty than grants, as they are strongly affected by past fiscal policy. Whereas increases in grants and ODA have a negative effect on the recurrent budget, foreign loans have a positive impact.

Although we have derived conclusions about the role of aid in the budgetary process, it is more difficult to assess the impact of the results in terms of growth. The fall in domestic borrowing as a result of an increase in aid can have a stabilising effect on the economy. However, the fact that the increase in grants or ODA also leads to a fall in the recurrent budget, needs to be assessed in the light of the type of expenditure affected and whether expenditures of a recurrent nature have actually been transferred to the development budget. Social expenditure has been shown to have captured an increasing share in the recurrent budget, whereas burdensome items such as debt-servicing have constituted a smaller share. A more detailed analysis would be required to determine the qualitative impact of reallocation between fiscal aggregates on the provision of public services. On the contrary, foreign loans appear to have a positive, although mild, long-run impact on the recurrent budget. The quality of the recurrent budget is crucial in transferring the increases into productive use. Increases in social sector spending should in practice have beneficial long-term effects.

The fact that increases in external financing lead to higher development budget expenditure should also have a positive long-term effect on growth, provided that development budget expenditure meets the criteria of allocative and technical efficiency and effectiveness. Much of the development budget is capital expenditure, but recurrent items have also been increasingly allocated to this category. As has already been mentioned, investment lending has often not succeeded in meeting its objectives and has on many occasions been irrelevant. However, the development budget has become more pro-poor throughout the years, with an increasing focus on social infrastructure, such as education, health and housing. This suggests that the goal of aid has moved to building capacity that increases growth in the long run (such as raising levels of education). But a large share of development expenditure is still being devoted to administration, and improvements in the quality of expenditure are required for sustained effects. As described,

an assessment of multilateral aid in the 1990s concludes that aid has indeed resulted in increases in public social expenditure, but that it has proved difficult to translate them into sustained improvement in the quality of social services.

Finally, the results of the effects of grants and ODA suggest that the theoretical approach to budgetary planning used in the fiscal response literature, where governments maximise utility subject to targets, might not be appropriate. No particular alternative that would match the results of this particular model has been proposed, but a budget constraint or formulation that views aid as a source of finance that allows discretionary (development) expenditure to be realised, could be more suitable. This should, however, somehow take into account the observed interdependence between fiscal aggregates.

The methodology used in this study has enabled us to obtain a number of interesting insights into both the effects of aid on fiscal variables and the budgetary process in Malawi. Because all variables are treated as endogenous, it is possible to confirm the hypothesis of a separation between expenditure devoted to the development and recurrent budgets. There are, however, some limitations. As some of the models tend to be over-parameterised, applying restrictions on certain parameters could be one enhancement. A second enhancement would be to pay more attention to possible structural breaks in the series of relationships. The model results, particularly those of model 3, are also somewhat sensitive to model specification and thus not entirely robust. Further analysis of the time series properties of each series might have allowed firmer judgement on the choice of the appropriate model. This would, however, require a dataset with more observations to allow tests to be carried out properly. Despite shortcomings, the results appear fairly plausible as they correspond closely with the hypotheses presented in section 4.1. Parallel case studies on the fiscal impact of aid in Uganda and Zambia using the same methodology result in broadly similar conclusions on the effects of development and recurrent expenditure, but the impact on domestic borrowing and revenue does appear to differ between the countries.

Bibliography

Beynon, J. (2003) *Poverty Efficient Aid Allocations – Collier/Dollar Revisited*, ESAU Working Paper No. 2, Overseas Development Institute, London.

Burnside, C. and Dollar, D. (2000) 'Aid, Policies, and Growth', *American Economic Review* Vol. 90 (4), pp. 847-68.

Cashell-Cordo, P. and Craig, S. (1990) 'The Public Sector Impact of International Resource Transfers', *Journal of Development Economics* Vol. 32, pp. 17-42.

Clay, E., Bohn, L., Blanco de Armas, E., Kabambe, S. and Tchale, H. (2003) *Malawi and Southern Africa: Climatic Variability and Economic Performance*, World Bank Disaster Management Working Paper Series No. 7, World Bank, Washington, DC.

Collier, P. and Dollar, D. (2002) 'Aid Allocation and Poverty Reduction', *European Economic Review* Vol. 46 (8), pp. 1475-500.

Dayton-Johnson, J. and Hoddinott, J. (2001) 'Aid, Policies and Growth: Comment', Department of Economics, Dalhouse University, 31 July, mimeo.

Devereux, S. (2002) 'Malawi's Food Crisis of 2001/02: Implications for Food Security Policy', Draft Country Document, Forum for Food Security in Southern Africa, Overseas Development Institute, London.

Easterly, W., Levine. R. and Roodman, D. (2003) *New Data, New Doubts: Revisiting Aid, Policies and Growth*, Working Paper No. 26, Center for Global Development, Washington, DC, June.

Economist Intelligence Unit (EIU) 'Malawi Country Report', various issues, years 1999-2002.

Enders, W. (1995) *Applied Econometric Time Series*, John Wiley & Sons, Inc., Chichester.

Fagernäs, S. and Roberts, J. (2004a) 'Fiscal Impact of Aid: A Survey of Issues and Synthesis of Country Studies of Malawi, Uganda and Zambia', Draft ESAU Working Paper, Overseas Development Institute, London.

Fagernäs, S. and Roberts, J. (2004b) 'The Fiscal Effects of Aid in Uganda', Draft ESAU Working Paper, Overseas Development Institute, London.

Fagernäs, S. and Roberts, J. (2004c) 'Zambia: Fiscal Effects of Aid', Draft ESAU Working Paper, Overseas Development Institute, London.

Fozzard, A. and Simwaka, C. (2002) *How, When and Why does Poverty get Budget Priority – Poverty Reduction Strategy and Public Expenditure in Malawi*, Working Paper No. 166, Overseas Development Institute, London.

Gemmell, N. (2000) *Fiscal Policy in a Growth Framework*, WIDER Discussion Paper No. 2001/84, Helsinki.

Government of Malawi (2002) *Malawi Poverty Reduction Strategy Paper*, Lilongwe, April.

Govindan, K. and Kherallah, M. (1997) *The Sequencing of Agricultural Market Reforms in Malawi*, International Food Policy Research Institute Discussion Paper No. 13, IFPRI, Washington, DC.

Hansen, H. and Tarp, F. (2000) 'Aid Effectiveness Disputed', *Journal of International Development* Vol. 12, pp. 375-98.

Heady, C. (2001) "Taxation Policy in Low-Income Countries", WIDER Discussion Paper No. 2001/81.

International Monetary Fund (1997) *Malawi – Recent Economic Developments*, IMF Staff Country Report No. 97/107, IMF, Washington, DC.

International Monetary Fund (2001a) *Malawi Article IV Consultation and Request for a Three-Year Arrangement under the PRGF*, IMF Country Report No. 01/38, IMF, Washington, DC, February.

International Monetary Fund (2001b) *Malawi Selected Issues and Statistical Appendix*, IMF Country Report No. 01/32, IMF, Washington, DC.

International Monetary Fund (2002) *Malawi Selected Issues and Statistical Appendix*, IMF Country Report No. 02/182, IMF, Washington, DC.

Joyeux, R. (2001) 'How to Deal with Structural Breaks in Practical Cointegration Analysis', Macquarie University, Sydney, mimeo.

McGillivray, M. and Ahmed, A. (1999) 'Aid, Adjustment and Public Sector Fiscal Behaviour in the Philippines', *Journal of the Asia-Pacific Economy* Vol. 4, pp. 381-91.

McGillivray, M. and Morrissey, O. (2001) *Fiscal Effects of Aid*, WIDER Discussion Paper No. 61, Helsinki.

McGillivray, M. and Morrissey, O. (2000) *Aid Illusion and Public Sector Fiscal Behaviour*, CREDIT Research Paper No. 00/9, School of Economics, Nottingham University.

MFEP (2000) *Budget Statement, 30 June*, Minister of Finance and Economic Planning, Republic of Malawi.

Osei, R. and Morrissey, O. (2003) *Modelling the Fiscal Effects of Aid: an Impulse Response Analysis for Ghana*, CREDIT Research Paper No. 03/10, School of Economics, Nottingham University.

Pesaran, H. and Shin, Y. (1998) 'Generalized Impulse Response Analysis in Linear Multivariate Models", *Economics Letters* Vol. 58, pp. 17-29.

Rakner, L., Mukubvu, L., Ngwira, N. and Smiddy, K. (2004) 'The Budget as Theatre – the Formal and Informal Institutional Makings of the Budget Process in Malawi', Draft Final Report, World Bank, Washington, DC.

Reserve Bank of Malawi 'Malawi Economic Report (MER)', various issues, years 1975-2000.

Shalizi, Z. and Thirsk, W. (1990) *Tax Reform in Malawi*, Working Paper No. 493, World Bank, Washington, DC.

World Bank (2003a) Malawi *Country Financial Accountability Assessment*, Report No. 26765-MAI, World Bank, Washington, DC.

World Bank (2003b) *Fiscal Management and Accelerating Growth Project*, Project Information Document, Project No. 27423, World Bank, Washington, DC.

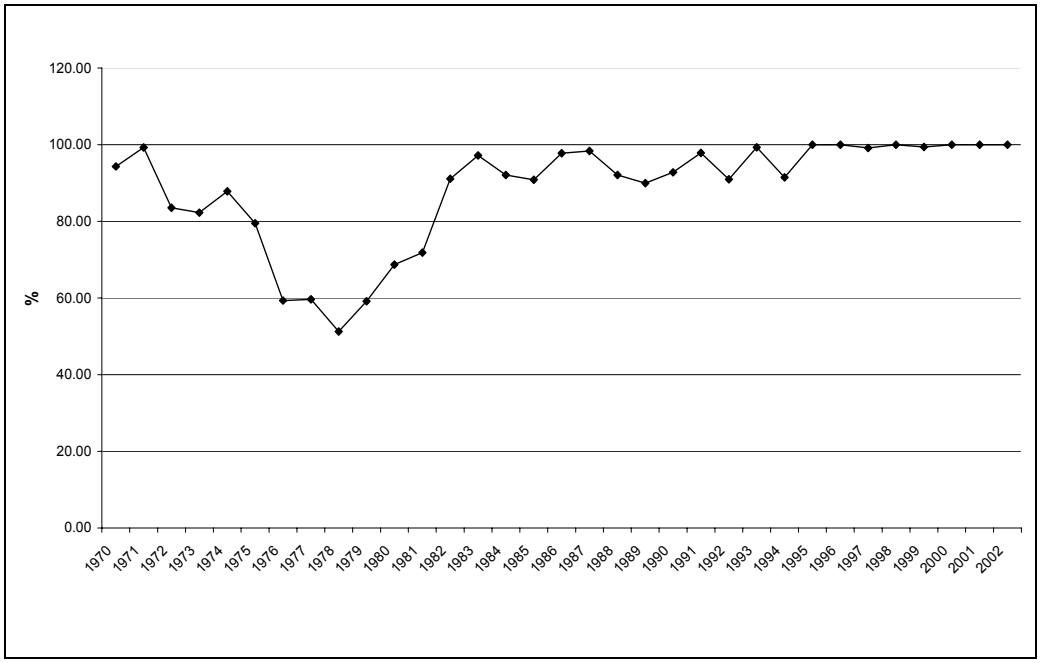
World Bank (1998) Malawi – *The World Bank and the Agricultural Sector*, Report No. 17898, Operations Evaluation Department, World Bank, Washington, DC.

World Bank (2000) *Malawi Country Assistance Evaluation*, Report No. 21395, Operations Evaluation Department, World Bank, Washington, DC.

Annex 1: External financing and debt rescheduling

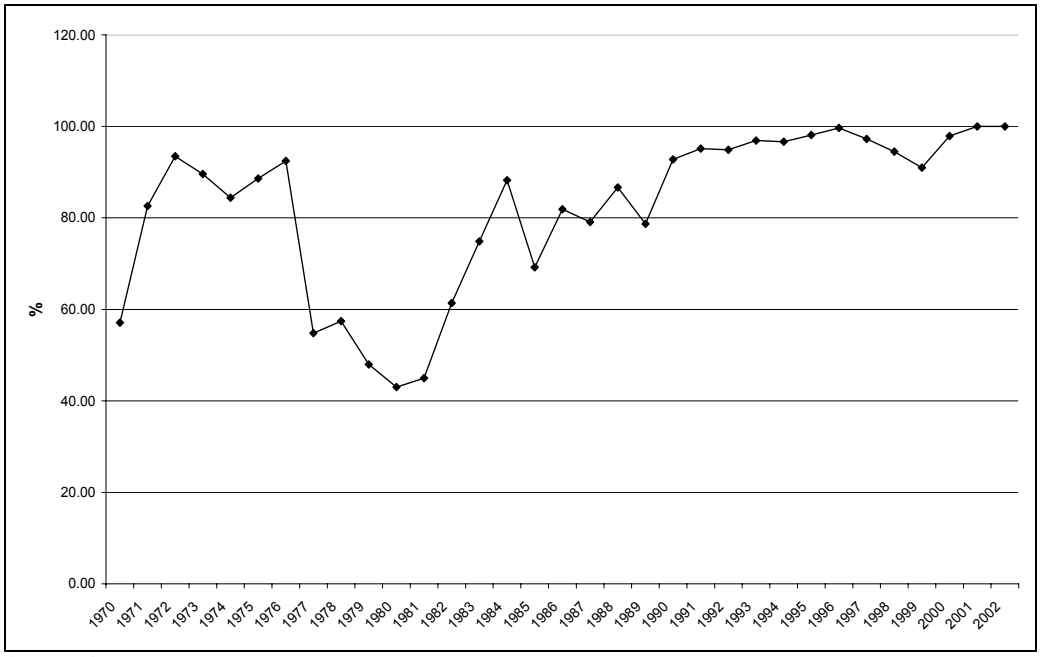
Fig. A1 shows the share of official loans in gross long-term disbursements of external debt. It demonstrates that, in the 1970s, the share of private disbursements in total long-term disbursements was on the rise. The pattern was reversed in the 1980s and by the mid-1980s most disbursements were from official sources. In the late 1990s, this share reached 100%. Fig. A2 demonstrates that, between 1977 and 1982, the share of concessional loans in total official disbursements was as low as 40-50%. This led to a rapid accumulation of repayment obligations.

Fig. A1 Share of official loans in total (gross) long-term disbursements



Source: GDF

Fig. A2 Share of concessional loans in total official (bilateral and multilateral) long-term disbursements (gross)



Source: GDF

Malawi's debt burden has widened the fiscal deficit, drained foreign exchange and diverted expenditure from priority areas. In 1999, its stock of public and publicly guaranteed external debt was estimated at US$2,600 million in nominal terms, which represents US$1,480 million in net present value terms (NPV). Total external debt in 1999 was equivalent to around 155% of GNP. In net present value terms, 74% of the debt was owed to multilateral institutions, including 51% to the World Bank, 11% to the African Development Bank and 5% to the IMF. Bilateral debt was owed mostly to Japan, with 18% of total debt, with limited exposure to non-Paris Club bilateral creditors (2% of total debt) and commercial creditors (3% of total debt) (EIU, 2002).

Malawi has benefited from debt rescheduling and relief in 1982, 1983, 1988 (Paris and London Clubs) and 2001 (Paris Club). In December 2000 it reached decision point under the IMF-World Bank's heavily indebted poor countries (HIPC) initiative. This led to further debt rescheduling in 2001, designed to reduce the average annual debt-service from 16.8% as a share of government revenue between 1997 and 1999 to 8% between 2001 and 2009. Relative to GDP, Malawi's debt stock was to fall from 81% of GDP in 1999 to 39% in 2010.[21] The improvement in debt-service indicators was partly conditional on the baseline macroeconomic scenario assumed. Given that Malawi is subject to exogenous shocks, improvements in the indicators might turn out to be less significant than envisaged. Resources released under the initiative are to be spent mainly on anti-poverty items such as health and education (60%), rural roads, borehole construction and maintenance, agricultural extension and social services.

[21] IMF (2000), Malawi Decision Point Document for the Enhanced Heavily Indebted Poor Countries Initiative.

Annex 2: Details about ODA

The data source used in this section is the OECD/DAC Online Statistics on International Development, Geographical Distribution of Financial Flows.

Fig. A3 Average bilateral ODA (net) by country

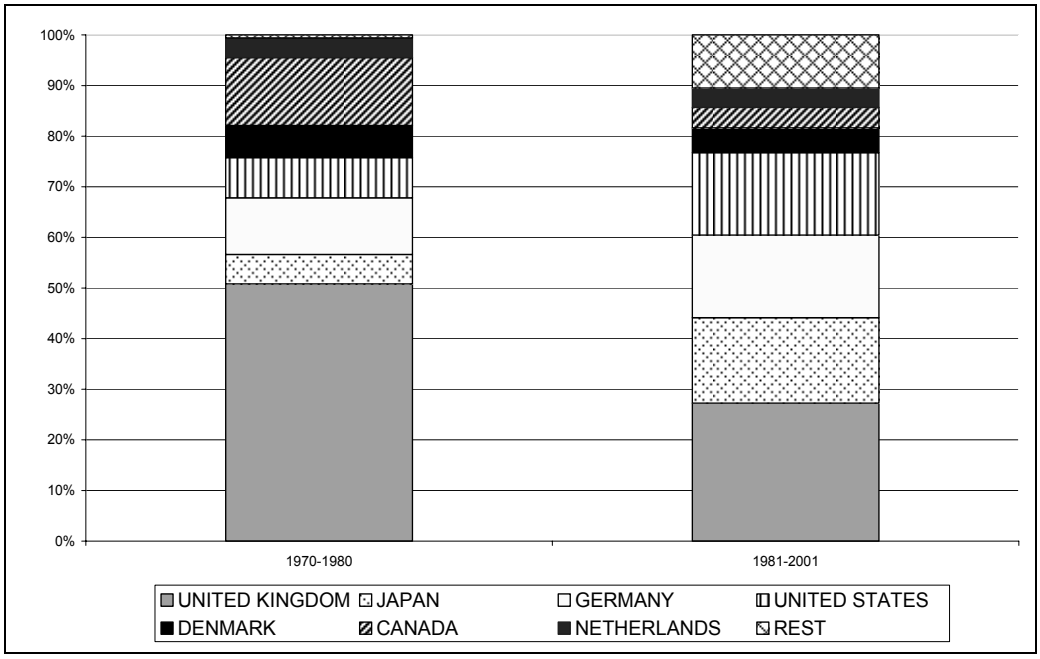
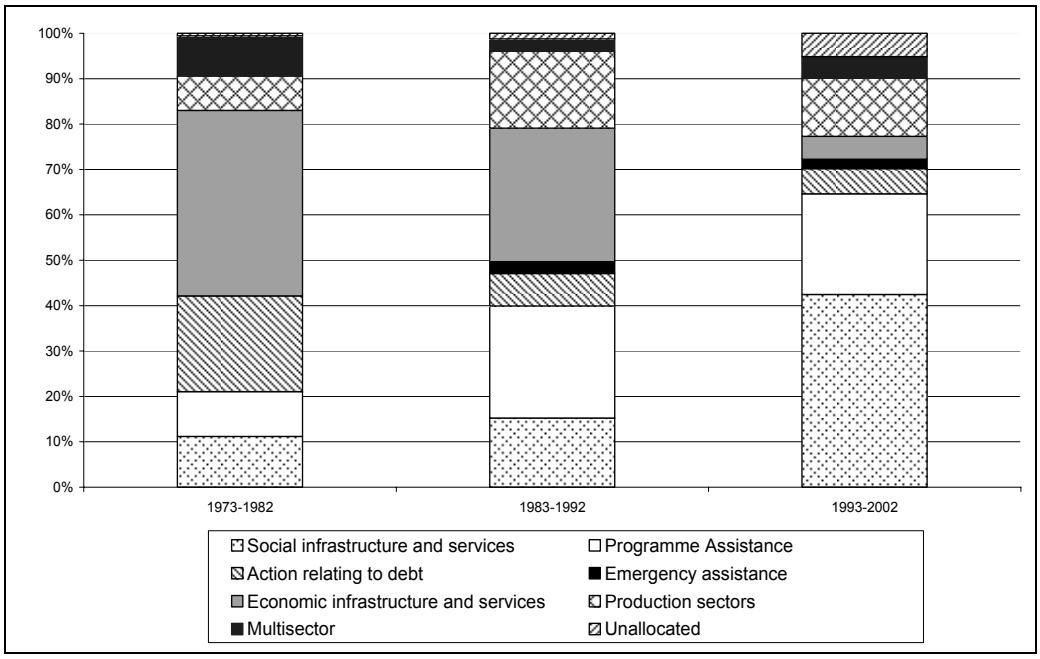


Fig. A4 Share of bilateral ODA in total net ODA

Fig. A5 Average bilateral ODA commitments by category



Annex 3: Classification of expenditure

Table A1 Classification of expenditure

Economic classification	Functional classification
Total expenditure Recurrent expenditure Gross consumption Salaries and wages Goods and services Interest on debt Pensions and gratuities Grants and subsidies Gross fixed capital formation Loans and capital transfers Development expenditure Gross consumption Wages and salaries Other goods and services Grants Gross fixed capital formation Building Construction of works - of which roads and bridges Services Equipment Loans to public enterprises	Total expenditure Recurrent expenditure General public services General administration Defence affairs Public order and safety Social and community services Education Health Other social services Economic services Energy and mining (n) Agriculture Tourism (n) Industry and commerce Transport Other economic services (n) Unallocated services Public debt servicing Pensions and gratuities (n) Other unallocated services (n) Development expenditure General public services General administration Defence affairs (n) Public order and safety (n) Social and community services Education Health Housing Other social services (n) Economic services Energy and mining (n) Agriculture Tourism (n) Industry and commerce (n) Transport Other economic services (n) Labour relations and employment services (n, except 1993) Unallocated services (n)

n = negligible

Annex 4: Additional information for Chapter 4

Tests for order of integration

In both the Phillips-Perron and Dickey Fuller tests, the null hypothesis is that of a unit root. The Dickey-Fuller test may, however, not be appropriate for variables for which the error term does not have a constant variance, which is probably the case for many of the variables. We therefore also use the Phillips-Perron test.

The results for each variable are presented below in Tables A2-A4. The tables include a column describing the type of regression used, the value for the test statistic and the critical values for rejecting the null hypothesis of a unit root. The Dickey-Fuller test results for the whole period 1970-2000 indicate that REC, D and ODA could be stationary variables. The others are integrated of order 1 and therefore non-stationary. In addition to REC, D and ODA, the Phillips-Perron test identifies F as stationary.

Figs. 4.1-4.3 in Chapter 4 do not necessarily confirm that the series identified as stationary would be circulating around a constant mean and thus be stationary. There is a change in the pattern of the series in the early 1990s, when they became more volatile. The tests for stationarity are highly sensitive to breaks in the series. For this reason the tests were repeated for the more stable period, 1970-92. Although there is some uncertainty concerning D or F, the decision was made to treat all the variables as integrated of order 1. This is justifiable as most of the series are clearly non-stationary and all are quite closely related. According to the Dickey-Fuller test, D is stationary at the 95, but not the 99% level, but the Phillips-Perron test implies that it is non-stationary. On the other hand, the Dickey-Fuller test implies that F is non-stationary, whereas according to the Phillips-Perron test, it is stationary at the 95 but not at the 99% level.

Table A2 Results for Dickey Fuller tests

Variable	Constant (C), Trend (T), No. of lags	Value of test statistic	Critical value (95% level)	Stationarity
G	C, T	-2.76	-3.56	I(1)
REC	C, T, 1	-5.13	-3.56	I(0)
DEV	C	-1.41	-2.96	I(1)
D	C, 3	-4.29	-2.97	I(0)
REV	C, T	-3.11	-3.56	I(1)
F	C, T, 3	-1.97	-3.58	I(1)
ODA	C, T	-4.96	-3.56	I(0)

Table A3 Results for Phillips-Perron test

	1970 - 2000			1970-1992		
Variable	**Value of test statistic**	**Critical value (95% level)**	**Stationarity**	**Value of test statistic**	**Critical value (95% level)**	**Stationarity**
G	-2.59	-3.56	I(1)	-2.95	-3.63	I(1)
REC	-5.14	-3.56	I(0)	-2.35	-3.63	I(1)
DEV	-1.41	-2.96	I(1)	-2.07	-3.63	I(1)
D	-6.00	-2.97	I(0)	-2.64	-3.00	I(1)
REV	-3.10	-3.56	I(1)	-2.10	-3.63	I(1)
F	-5.53	-3.56	I(0)	-4.20	-3.63	I(0)
ODA	-4.93	-3.56	I(0)	-0.30	-3.63	I(1)

Note: Different number of truncation lags may be used for each variable

Table A4 Results for Dickey Fuller tests for period 1970-92

Variable	**Constant (C), Trend (T), No. of lags**	**Value of test statistic**	**Critical value (95% level)**	**Stationarity**
G	C, T	-2.96	-3.63	I(1)
REC	C, T	-2.55	-3.63	I(1)
DEV	C	-2.13	-3.00	I(1)
D	C, 1	-3.47	-3.01	I(0)
REV	C, 1	-2.57	-3.64	I(1)
F	C, T	-3.09	-3.62	I(1)
ODA	C, T, 3	0.66	-3.67	I(1)

Cointegration test results

In each case, the test VAR includes an unrestricted constant. The critical values for the test statistics are asymptotic and therefore not the precise ones for the rather short time series used here. Corrections for small sample size generally increase the critical values, which strengthens the conclusion that there is one cointegrating relationship.

Table A5 Results for Johansen test, model 1

Number of cointegrating vectors	**Trace Statistic**	**95% Critical Value**	**Eigenvalue Statistic**	**95% Critical Value**
None	112.9***	68.5	66.0***	33.5
At most 1	46.9	47.2	28.1**	27.1
At most 2	18.8	29.7	17.7	21.0
At most 3	1.1	15.4	1.0	14.1
At most 4	0.1	3.8	0.1	3.8

***,** = rejection of null hypothesis at 99 and 95% levels

Conclusion: One cointegrating relationship.

Table A6 Results for Johansen test, model 2

Number of cointegrating vectors	Trace Statistic	95% Critical Value	Eigenvalue Statistic	95% Critical Value
None	121.9***	68.5	62.2***	33.5
At most 1	59.7***	47.2	32.0**	27.1
At most 2	27.68	29.7	23.4**	21.0
At most 3	4.3	15.4	4.0	14.1
At most 4	0.4	3.8	0.4	3.8

***,** = rejection of null hypothesis at 99 and 95% levels

Conclusion: Two cointegrating relationships.

Table A7 Results for Johansen test, model 3

Number of cointegrating vectors	Trace Statistic	95% Critical Value	Eigenvalue Statistic	95% Critical Value
None	123.6***	68.5	76.1***	33.5
At most 1	47.5**	47.2	23.0	27.1
At most 2	24.5	29.7	19.5	21.0
At most 3	5.0	15.4	5.0	14.1
At most 4	0.0	3.8	0.0	3.8

***,** = rejection of null hypothesis at 99 and 95% levels

Conclusion: One cointegrating relationship.