

**DISCUSSION PAPERS**  
**Department of Economics**  
**University of Copenhagen**

**06-13**

**Aid and Development:  
The Mozambican Case**

**Channing Arndt, Sam Jones,  
and Finn Tarp**

**Studivstræde 6, DK-1455 Copenhagen K., Denmark**  
**Tel. +45 35 32 30 82 - Fax +45 35 32 30 00**  
**<http://www.econ.ku.dk>**

# **Aid and Development: The Mozambican Case**

by

Channing Arndt<sup>a</sup>, Sam Jones<sup>b</sup> and Finn Tarp<sup>c</sup>

## **Abstract<sup>d</sup>**

*This paper considers the relationship between external aid and development in Mozambique from 1980 to 2004. The main objective is to identify the specific mechanisms through which aid has influenced the developmental trajectory of the country and whether one can plausibly link outcomes to aid inputs. We take as our point of departure a growth accounting analysis and review both intended and unintended effects of aid. Mozambique has benefited from sustained aid inflows in conflict, post-conflict and reconstruction periods. In each of these phases aid has made an unambiguous, positive contribution both enabling and supporting rapid growth since 1992. At the same time, the proliferation of donors and aid-supported interventions has burdened local administration and there is a distinct need to develop government accountability to its own citizens rather than donor agencies. In ensuring sustained future growth, Mozambique will have to develop its capacity to maximise the benefits from its natural resources while ensuring at the same time the necessary framework is put in place to promote constructive integration in international markets.*

**JEL Classification:** F35, O10, O55

**Key words:** Mozambique, foreign aid, development

a. Purdue University and Ministry of Planning and Development, Mozambique ([channingarndt@gmail.com](mailto:channingarndt@gmail.com))

b. Ministry of Planning and Development, Mozambique ([esamjones@gmail.com](mailto:esamjones@gmail.com))

c. Department of Economics, University of Copenhagen ([Finn.Tarp@econ.ku.dk](mailto:Finn.Tarp@econ.ku.dk))

d. The authors gratefully acknowledge support from UNICEF for this specific project. General support for capacity building within the National Directorate of Studies and Policy Analysis (DNEAP) of the Ministry of Planning and Development in Mozambique from the development cooperation programs of Denmark, Sweden, and Switzerland is also gratefully acknowledged. Finally, comments from participants at the UNU-WIDER conference on Aid: Principles, Policies and Performance held on 16 and 17 June 2006 in Helsinki, Finland are appreciated. The usual caveats apply.

## **CONTENTS**

<b>1. INTRODUCTION.....</b>	<b>3</b>
<b>2. METHODOLOGY AND BACKGROUND.....</b>	<b>4</b>
2.1. GENERAL METHODOLOGY AND LITERATURE.....	4
2.2. HISTORICAL CONTEXT.....	8
<b>3. AID AND GROWTH.....</b>	<b>14</b>
3.1. GROWTH ACCOUNTING EVIDENCE.....	14
3.2. TRENDS IN SOCIO-ECONOMIC INDICATORS .....	23
3.3. FOREIGN AID .....	25
3.4. AID FUNGIBILITY .....	32
<b>4. AID AND INTENDED OUTCOMES .....</b>	<b>34</b>
4.1. MACROECONOMIC POLICY .....	34
4.2. SOCIAL SERVICE PROVISION .....	39
4.3. PUBLIC INFRASTRUCTURE DEVELOPMENT .....	44
4.4. AGRICULTURAL PRODUCTION .....	48
<b>5. AID AND UNINTENDED OUTCOMES.....</b>	<b>52</b>
5.1. CURRENCY EFFECTS .....	52
5.2. STRUCTURAL DISTORTIONS .....	55
5.3. FISCAL IMBALANCES .....	56
5.4. POLICY AND PLANNING IMPLICATIONS .....	58
5.5. CORRUPTION AND INSTITUTIONAL EFFECTS .....	62
<b>6. MOZAMBIQUE IN THE CURRENT DEBATE.....</b>	<b>65</b>
6.1. REFLECTING ON THE PAST .....	65
6.2. LOOKING AHEAD.....	76
<b>7. CONCLUSION .....</b>	<b>79</b>
<b>BIBLIOGRAPHY .....</b>	<b>81</b>
<b>ANNEX A: TABLES.....</b>	<b>89</b>
<b>ANNEX B: FIGURES .....</b>	<b>95</b>

## 1. Introduction

Mozambique has for 25 years remained one of the most aid dependent countries in the world. According to DAC statistics, Mozambique received foreign aid in the order of US\$65.6 per capita each year during the past decade. This corresponds to around 40% of national income. The mix of ideologies through which Mozambique has travelled since Independence is astounding. But colonialism, idealism, socialism, war fuelled by racism, economic collapse and stout liberalism, finally gave way to growth and economic recovery from 1992 (Tarp et al., 2002). Mozambique is therefore an interesting case to study in order to understand the potential role of aid in furthering economic development. In this paper we focus on Mozambique and ask:

- Can aid be linked to growth and developmental outcomes in the past?
- Which are the specific channels through which aid has impacted (positively and negatively) on outcomes?
- What do we learn about the general role of aid in development from reflecting on the Mozambican experience?
- What are the challenges to continued growth and development?
- How can Mozambique maximise the benefits from future aid?

The relevance of a detailed case study of Mozambique is highlighted by the ongoing international debate about foreign aid and development. Easterly (2006) is highly sceptical of foreign aid referring to it as the ‘White Man’s Burden’. In contrast, Sachs (2005) passionately argues that a doubling of worldwide aid flows is our generation’s challenge, a moral obligation of rich countries that will send ‘forth mighty currents of hope’ and lead to ‘the end of poverty’. At the same time, while the number of new cross-country econometric studies of the aid-growth relationship has increased in recent years, controversy remains. Much of this debate has focused on whether the effectiveness of aid is conditional on policy or whether aid can be expected to have a separate and positive impact, independent of policy. Overall, the view that aid works in promoting growth and development has gained ground in recent years; but a number of disagreements remain open. These include: (i) the necessary and sufficient conditions for aid to have a positive contribution on the development process; (ii) how economic policy and deeper structural characteristics interact with the efficiency of

foreign aid; and (iii) the impact of the institutional framework through which aid is channelled.

A general aim of this paper is to provide a country-specific study of aid and growth in one of the most aid dependent countries in the world with a view to shedding further light on these concerns. The claim of the paper is not to be the final, decisive statement on the aid-growth relationship in Mozambique. Rather we hope to contribute, in an even-handed way, to a better understanding of the historical reality of aid and growth in Mozambique as well as some of the deeper factors lying behind what has been observed.

The paper is structured as follows: after this introduction, in section 2.1 we provide a brief literature background and lay out our methodology. We include in section 2.2 a historical outline of the external and internal developments that provide the backdrop to the growth success of Mozambique since 1992. Section 3 goes on to document the proximate evidence at the macro- and micro-levels, including a growth accounting exercise. Sections 4 and 5 review intended and unintended effects of aid, covering aid management. We return in section 6 to the international aid-growth debate considering the past and future challenges for the country. Section 7 concludes.

## **2. Methodology and background**

### **2.1. General methodology and literature**

The methodological difficulties in connecting external aid and developmental outcomes echo problems found in the earlier literature on the evaluation of stabilisation and structural adjustment programmes.<sup>1</sup> To be able to measure the effect of aid, the researcher must in principle be able to compare the value of a chosen indicator (such as growth or poverty reduction) in two strictly independent situations: with and without aid. To establish the ‘true’ measure of aid impact, the importance of all other circumstances that have affected a given country over time needs to be properly accounted for.<sup>2</sup> Alternatively, if a group of countries is compared (with and

---

<sup>1</sup> See Mosley, Toye and Harrigan (1991) for the various methodologies applied.

<sup>2</sup> This includes choosing the length of individual time units and an appropriate overall time horizon, which are by no means simple choices.

without aid) the analyst needs to account for the impact on the chosen indicator of the other differences that exist among the units of observation, like in a controlled experiment. This challenge of establishing an appropriate counterfactual is generic to the social sciences and is further confounded in this case by the extended time periods under analysis as well as difficulties in measuring our choice variables. Furthermore, given substantial ‘distance’ separating the independent (input) and dependent (final outcome) variables, their theoretical relationship is indefinite generating the potential for large specification errors in any evaluation. Simply put, we must accept that there are no unproblematic methodological fixes; rather, all methodological options have their drawbacks and might be questioned both in theory and in practice. This does not mean, however, that we should duck the challenge of assessing the channels through which aid impacts on development.

Given these methodological difficulties, it is unsurprising that the question whether aid works or not has been approached from numerous different perspectives.<sup>3</sup> As a point of departure for the remainder of this paper, it is relevant to stress that there is widespread agreement that aid has in many cases been highly successful at the microeconomic level. Rigorous project evaluations are done by the World Bank, and reports from its Operations Evaluation Department (OED) are generally encouraging. For the period 1993-2002, an average rate of return of 22 per cent has been noted and decent project rates of return have over the years been reported regularly in one survey after the other, including for example Mosley (1987) and Cassen (1994). Overall, a mass of project evidence has been collected, and few dispute that aid interventions have worked in helping improve social outcomes through better health, helping promote develop appropriate technology (i.e., the green revolution) etc..

Even so, doubts about aid’s overall impact on growth and development linger, and the question is raised whether all this adds up at the macro level. This idea was formalized in Mosley’s (1987) celebrated micro-macro paradox. He suggested that while aid seems to be effective at the microeconomic level, identifying any positive

---

<sup>3</sup> See Hansen and Tarp (2000). The reader may also wish to consult Cassen and Associates (1994) for a useful literature survey with a broad scope. Other references include World Bank (1998) and (2000) and Tarp (2000).

impact of aid at the macroeconomic level is harder, or even impossible, at least in cross-country econometric work. In fact, the micro-macro paradox seemed self evident to many at the time it was formulated where the general atmosphere was one of aid fatigue and lack of belief in a positive impact of aid on growth. Another explanation which could be referred to as the 'iron law of regressions' has received less attention. Once we try to explain a 'dirty' dependent variable (i.e., growth) with noisy data and weak proxies for variables such as institutions, regression results are biased towards zero. What Mosley and many after him have struggled with is how to control for the diverse and changing circumstances under which aid has been implemented. We can (and should) look to history (across countries and across time) and try to treat it as a controlled experiment, but ultimately we are limited by the extent to which we can control for the massive changes in circumstances under which aid is implemented.

The theoretical debate about aid's impact on growth has moved considerably beyond the simplistic Harrod-Domar framework commonly relied on in the early days of foreign aid. Current issues are rooted in an increasing recognition of endogeneities and non-linearities in the aid-growth relationship as set out in Dalgaard, Hansen and Tarp (2004) (hereafter DHT). They argue that aid and policy both depend on the average rate of growth even though they are predetermined in the original system. They take account of this in their empirical testing, which also controls for the potential endogeneity of institutions. In their attempt at assessing the importance of structural characteristics on aid effectiveness they add the fraction of land in tropical areas as a proxy for climate related variables. While, DHT make the point that it appears as if aid has been far less effective in tropical area over the last 30 years, they also stress it is hard to believe that aid should, inherently, be less potent in the tropics. The real explanation for the aid-tropics link is, in their assessment, likely to lie elsewhere; and they call for further research to help disentangle the channels through which aid matters for productivity and efficiency. Their result highlights that efficient aid allocation depends critically on understanding the complex links in particular country circumstances between aid, growth and development objectives such as poverty reduction.

What this (and the long list of other studies listed in for example Clemens et al., 2004) adds up to can in our assessment be set out as follows:

- It may well be true that ‘aid pays a growth price’ as growth regularly gives way to other concerns as the most important criterion for aid. Yet, the single most common result of recent empirical aid-growth studies is that aid has a positive impact on per capita growth. At the same time, aid is by no means a panacea for growth and poverty reduction.
- The way in which data are dealt with to address the complex issue of identifying the impact of aid on growth is critically important for the conclusions drawn. Methodological choices matter.
- The impact of aid on growth is not the same across aid recipients. There are differences in aid efficiency from country to country; and it remains unclear what drives these differences. In particular, the importance of ‘deep’ structural characteristics in affecting how aid impacts on growth is not yet fully understood.

Cross-country econometrics has brought us this far and it is evident that this research will continue. Meanwhile there is a clear need for country case studies. Case-specific analyses can provide information about the nature and relative importance of the various channels connecting the independent and dependent variables. On this basis, the rest of this paper examines the Mozambican aid-growth experience, providing a country-level perspective from which we reflect on some of the current debates surrounding aid effectiveness.

Rather than assuming, *ex-ante*, any fixed relationship between aid and developmental outcomes, we allow aid to speak for itself in the sense of reviewing both its intended and unintended effects across different sectors in historical perspective. Distinguishing between these intended and unintended effects focuses the discussion on the balance between growth-enhancing effects of aid, on the one hand, and the negative growth-retarding effects on the other. This approach intends to capture the multiplicity of channels through which aid can affect outcomes, as well as their shifting importance over time. While the choice of intended and unintended effects cannot be comprehensive and therefore is to some extent subjective, both the sectoral



composition of aid disbursements and the explicit policies adopted by donor agencies over time provides a clear guide to the intended effects. Relevant unintended effects can be drawn from the wide-ranging aid-growth theoretical and empirical literature (e.g. Kanbur, 2003), as well as secondary analytical sources for the country.

## 2.2. Historical context

The relevant starting point for an overview of the modern history of Mozambique is the period of economic expansion under Portuguese colonial rule in the early 1960s until 1973. During this period the Mozambican economy was structured mainly as a service economy to neighbouring states, integrated into a regional economy dominated by South African industrial capital through the provision of transport services and migrant labour. Together these sources accounted for the majority of foreign exchange earnings.<sup>4</sup>

The 1960s witnessed the emergence of the first unified nationalist movement, FRELIMO (*Frente de Libertação de Moçambique*), under the leadership of Eduardo Mondlane, having as its primary objectives the *liquidação* (liquidation) of colonialism and achievement of national Independence. The military activities of FRELIMO during the 1960s were limited largely to sporadic guerrilla warfare operations involving raids into the northern provinces of Mozambique from Tanzania. Despite and partially on account of the ferocious reprisals of the Portuguese, such as the 1970 “Operation Gordian Knot”, by the early 1970s FRELIMO influence had extended further south and nationalist Zimbabwean guerrillas were using FRELIMO bases inside Mozambique for operations into Rhodesia (Cooper, 2003).

The situation changed dramatically with the April 1974 *coup d'état* in Portugal, itself partly a reaction to the economic drain and international criticisms of its military operations in Africa. Negotiations of a cease-fire and terms of Independence were quickly organised; however, the intention of organising a smooth transfer of power to FRELIMO were not altogether successful and ended in the rapid departure of over

---

<sup>4</sup> Since the 1950s Mozambique had been seen as an integral part of Portugal and following increased support and investment during the 1960s, became home to approximately 250,000 Portuguese settlers who occupied essentially all skilled positions in the public and private sectors

200,000 Portuguese settlers. This exodus was accompanied by the (illegal) export of assets as well as numerous acts of economic sabotage, particularly against fixed capital assets.

The first few years of Independence were marked by a movement toward socialist central planning and, with it, the nationalisation of productive means including factories and farms abandoned by the Portuguese.<sup>5</sup> In certain respects this orientation represented a pragmatic response to given conditions, namely: (i) the absence of a local managerial class; (ii) the virtual collapse of the pre-Independence economy; (iii) the power of industrial capital directed by racist regimes in South Africa and Rhodesia; and (iv) the historical alignment of Portugal on the Western side of the Cold War divide. The objective of state-planned and -owned accumulation concentrated primarily on the development of a modern agricultural sector through “villagization” and mechanization accompanied by investments in education, health and infrastructure. With the 1979 ten-year plan, economic strategy aimed at promoting industrial growth financed by agricultural exports, targeting an annual real growth rate of 14.7%. As we know now, this proved to be nothing more than a pipe-dream.

It is beyond the scope of this paper to detail the historical causes of the long-term economic decline from 1973 to 1992. Clearly there were economic policy challenges in the midst of a chaotic socio-economic environment. Development strategy, norms and targets often relied on the advice of a broad range of foreign experts from Eastern-bloc countries in particular as well as UN advisors. Indeed, the influence of foreigners throughout the government and economy was pervasive, largely on account of the dearth of skilled locals. By the early 1980s, Pinto (1985) estimates that over 20,000 foreigners were employed across sectors and often in senior positions. The agricultural sector, for example, was supported by Bulgarians, East Germans dominated the central planning functions (O’Meara, 1991; Arndt et al., 2000a), and

---

<sup>5</sup> One should note that the socialist stance of FRELIMO had been a source of internal struggle and only prevailed following the election of Samora Machel to the party presidency in 1972 and the expulsion of many of the original FRELIMO leadership (O’Meara, 1991). FRELIMO’s transition from a national liberation movement was formalized in 1977 at FRELIMO’s third Congress when it proclaimed itself to be a Marxist-Leninist vanguard.

the head of the air force was North Vietnamese. For these and other reasons the policies and centralizing tendencies of FRELIMO, aggravated by the failure to meet economic targets, came to be a source of popular discontent epitomized by the reaction to 'Operation Production' considered by many to be little short of apartheid-style labour controls (O'Meara, 1991).

The developmental challenge was exacerbated by the almost total collapse of the rural-urban exchange economy on which (peasant) cash crop production had strongly depended due to the departure of the Portuguese. Starting in 1975 Mozambique also experienced a dramatic shift in its structural position within the regional economy. South Africa diverted its cargo away from Mozambican ports and severely cutback its use of Mozambican migrant workers. From 1976, Mozambique participated in the international sanctions applied to Rhodesia costing the country approximately \$250 million in lost export revenue (Hall and Young, 1997). On top of this, the early Independence period was scarred by a succession of natural disasters affecting agricultural production and transport infrastructure.<sup>6</sup> These changes occurred during a period of increased import demand required to finance investment and military expenditure. The result was a marked deterioration in the current account balance from a deficit of US\$115 million in 1973 to a deficit of US\$423 million in 1980 (IMF, 2001: 33).

The emergence of civil war from the early 1980s until 1992 was the final and decisive nail in the coffin of potential economic growth. Once again this must be understood in terms of regional and international dynamics. The main resistance movement RENAMO (*Resistência Nacional de Moçambique*), which brought together a number of disparate groups discontent with the socialist policies of FRELIMO, was first established under a Rhodesian initiative to weaken the Mozambican government and permit a more effective counter-insurgency against Zimbabwean fighters based in Mozambique. From 1976 military insurgency within Mozambique was dominated by

---

<sup>6</sup> In 1977 the Incomati and Limpopo rivers flooded followed by the Zambezi in 1978, causing over US\$90 million in damage alone. In 1980 a severe and prolonged drought started lasting until 1983 affecting over 1.5 million people (Hall and Young, 1997). Further floods occurred in 1984-85 and two other severe droughts in 1986-87 and 1991-92 respectively. Thus, 12 of the 18 years from 1975 to 1992 were in some way affected by climatic abnormality.

Rhodesian interests although RENAMO soon started to make its own strikes against infrastructure targets, becoming an increasing drain on the government. The movement toward Zimbabwean Independence, achieved in 1980, signified a reduction in Rhodesian support for RENAMO and gave real hope for peace and an end to external interference in domestic policy. This hope was short-lived as South African military capital quickly replaced Rhodesian support for RENAMO enabling a further escalation of insurgency with the explicit objectives of destabilisation and destruction of economic assets. Although the Mozambican army received some assistance from newly-Independent Zimbabwean and Zambian armed forces, as well as continued support from Soviet-bloc countries, this was not sufficient to reverse continued RENAMO gains. The government finally had to negotiate the Nkomati Accord of non-aggression with South Africa in 1984.

By the mid-1980s the economic situation of the country was desperate. Lack of foreign exchange, a shortage of inputs, irregular power supplies and transportation constraints had led to a 50% fall in industrial production by 1986 compared to 1981 (Arndt et al., 2000: 302). Control of the money supply largely had been lost due to the perceived necessity to keep the economy afloat and maintain minimum functioning of state-controlled firms (Hanlon, 2001). In the context of wide-ranging price controls this generated extensive repressed inflation and a severely overvalued exchange rate, both of which contributed to the rapid expansion of parallel markets. Despite having been a net external creditor at Independence, the combination of ambitious investment projects, military spending and the contraction of export earnings meant that the debt stock ballooned to over US\$2.4 billion by 1984, requiring an annual debt service equal to approximately 10% of GDP. In addition, agricultural production crisis related to war damage, internal rural-urban migration and the general failure of collective farms provoked an increasing reliance on external food assistance.

Without resources to confront the crisis, external financing became vital not least to service debt obligations and purchase food imports. Soviet-bloc allies were, however, reluctant to increase their financial assistance, and in mid-1981 Mozambique's application to the Soviet-bloc Council for Mutual Economic Assistance (CMEA) was refused (IMF, 2001: 20). As early as 1982 Samora Machel thus began to look to Western countries for economic support; in turn they recognized in the economic

crisis a political opportunity to nudge Mozambique toward a more neutral international stance through the provision of development aid (Pinto, 1985).<sup>7</sup> Favourable to a warming of relations with the West, the Fourth Congress of FRELIMO in 1983 gave a critical review of past policies recognising their over-ambitious nature and the lack of expertise and resources necessary for what USAID described as a “grandiose statist development strategy” (1990: 2). The party also noted, in an open and self-critical way, that it had neglected the smallholder sector, and needed to decentralise economic controls to promote private initiative. Market-based economic reforms were introduced slowly and with more vigour following the death of Samora Machel in a plane crash in 1986. The first of many Paris Club debt rescheduling agreements was reached in 1984, membership of the Bretton Woods institutions in 1986, and in 1987 the formal adoption by the national assembly of a structural-adjustment Economic Rehabilitation Programme (ERP). The latter contained the usual gamut of depreciation, price liberalisation and structural reform commitments in exchange for further debt rescheduling and acutely necessary external financing, including US\$330 million in emergency assistance raised by the United Nations.<sup>8</sup> In 1989 the government formally dropped its Marxist-Leninist status and further deepened its commitment to market-based reforms.

By the late 1980s the dynamics of the civil war were changing. Although the Nkomati Accords had not been adhered to by South Africa, and RENAMO had continued to make gains in the countryside, both the increasing market-orientation of FRELIMO and the thawing of the Cold War undermined the principal motivations for external support on each side of the war. Also, by this point in the conflict and given the condition of the economy, both factions were exhausted (Rupiya, 1998). In fact, in response to the growing emergency caused by insufficient agricultural production and with over 7 million Mozambicans facing starvation, RENAMO announced a temporary ceasefire to facilitate relief efforts in March 1989. In June of the same year

---

<sup>7</sup> As the USA international development agency wrote at the time: “The probable redoubling of development effort in Mozambique could lead the [county] to a more balanced relationship with the West, since the Western nations are best able to provide development assistance. U.S. willingness to support Mozambican developmental priorities would provide the [county] with an opportunity to move toward more genuine non-alignment.” (USAID, 1987: 5)

<sup>8</sup> See Arndt, Jensen and Tarp (2000a) for details of the adjustment program and its impacts.

the Soviets withdrew their 800 advisers from Mozambique and the government announced its desire to seek international mediation towards peace. Peace talks began in Rome in 1990 and continued in sporadic fashion through to October 1992 with the signing of the General Peace Agreement. Before the end of 1992, US\$400 million was raised in humanitarian and reconstruction assistance and the United Nations Operation in Mozambique (ONUMOZ) was formally established with a broad mandate to oversee the ceasefire, ensure rapid demobilisation and support the transition to a general election initially scheduled for October 1993. The movement from peace to stability, culminating in general elections in October 1994, was successful despite substantial delays in implementing the peace accord. This achievement testifies not only to a genuine desire for peace at all levels but also to the relatively well-coordinated efforts of donors and, in the eyes of an inside player at the time, Mozambique's acute level of dependence on external finance (Jett, 2002).

Since 1994, Mozambique has maintained a positive developmental momentum being able to establish lasting stability and move from an immediate post-war focus on emergency assistance to longer-term reconstruction, poverty reduction and economic growth. As shown in Figure B.1 (annex B), economic growth since 1993 has been rapid, averaging a real annual rate of 7.8% through to 2004. The sectoral breakdown in Table A.1 (annex A) shows that growth has been supported by robust recovery of the agricultural sector, with manufactures, transport and communications also playing major roles. The weight of the manufacturing sector, however, has in recent years been dominated by the contribution of a billion dollar aluminium-smelting project (Mozal) financed almost exclusively by FDI and operating on highly favourable tax terms. Excluding Mozal, the contribution of the manufacturing sector falls to under 10% and real growth in the sector only shadows aggregate real growth for the period. Further subtracting the contribution of a small number of other so-called industrial 'mega-projects', real growth for the period is estimated at an annual average rate of 6.5%.<sup>9</sup> Thus, whilst mega-projects have made a distinct contribution to aggregate

---

<sup>9</sup> Like Mozal, these mega-projects are large industrial projects which operate typically as enclave-type operations with few linkages to the domestic economy, benefiting from substantial fiscal incentives and undertaking all major financial operations through off-shore banks. Estimates of the contribution of mega-projects to the economy derive from unpublished figures collected by the Ministry of Planning and Development.

product, recent growth has not been dependent on them given their weak linkages to the rest of the economy (Castel-Branco, 2003).

### 3. Aid and Growth

#### 3.1. Growth accounting evidence

A first step towards a better understanding of the sources of economic growth in Mozambique can be made through a detailed growth accounting exercise. The central idea is to explore the determinants of growth based on an aggregate production function of the form  $Y = F(A, K, L)$  where total output ( $Y$ ) is a function of fixed capital inputs ( $K$ ), labour inputs ( $L$ ), and the level of technology and technical know-how ( $A$ ). The accounting approach enables the analyst to quantify the individual growth contribution of each of these three factors over a given period. This provides insight into the proximate determinants of growth, but the accounting does not explain deeper trends that influence the quality and quantity of factor inputs over time. Such an analysis is pursued in sections 4 and 5 with reference to the effect of external assistance. This section presents the methodology and results of the growth accounting exercise, documented in greater detail in Jones's (2006) background paper to this study.

##### 3.1.1. Methodology

The standard growth accounting conceptual framework assumes Cobb-Douglas aggregate production with Hicks-neutral technological change. As such, growth in aggregate production can be expressed by:

$$\Delta Y = \Delta A + s_K \Delta K + s_L \Delta L \quad (1)$$

where  $s_i$  represents the share of factor  $i$  in total product.<sup>10</sup> This allows us to estimate the  $A$  term as a simple residual capturing changes in total factor productivity (TFP) once movements in  $K$  and  $L$  and their respective factor shares are quantified. The empirical limitations of this approach have been noted repeatedly. In particular, the existence of a TFP residual may be little more than a measure of our 'ignorance'

---

<sup>10</sup> This formulation assumes that the factor marginal products are equivalent to factor prices. For example, in the case of labour this is equivalent to the assumption that the marginal product of labour is equal to the wage rate (Barro, 1998).

(Abramovitz, 1956) as it is unlikely to capture pure variations in the aggregate level of technology in production. Rather TFP changes may include errors in our factor input estimates as well as influences on growth not captured by the factor input measures such as exogenous shocks, macroeconomic stability and the institutional or policy environment.

Substantial empirical work in the field has focused on improving the quality of the estimates of labour and capital and how they enter the production function. Studies have shown that the size of residual TFP growth falls once we account for the quality or productivity of factor inputs rather than simply their raw amounts. Mindful of these issues, the methodology adopted here follows Young's (1994) application of a transcendental logarithmic (translog) production function and associated factor input indices to East Asian growth. It can be shown that based on a generic translog function of type:

$$F(X_i) = \exp \left\{ \alpha_0 + \sum_i \alpha_i \ln(X_i) + \frac{1}{2} \sum_i \sum_j \beta_{ij} \ln(X_i) \ln(X_j) \right\} \dots \forall i = j, i \neq j \quad (2)$$

where  $X_i$  represents a vector of choice variables, changes in a translog production function between two discrete time periods with aggregate inputs of fixed and human capital ( $K$  and  $H$ ) is given by:

$$\ln \left( \frac{Y_t}{Y_{t-1}} \right) = \bar{\theta}_K \ln \left( \frac{K_t}{K_{t-1}} \right) + \bar{\theta}_H \ln \left( \frac{H_t}{H_{t-1}} \right) + TFP_{t,t-1} \quad (3)$$

where  $\bar{\theta}_i = \frac{1}{2}(\theta_{i,t} + \theta_{i,t-1})$

in which the  $\theta_i$ 's represent the share of each input in total factor payments and the final term indicates the growth in a translog TFP measure representing the expected logarithmic growth in output between periods assuming all factor inputs remained constant (Young, 1994: 6).

A distinct advantage of this specification, compared to a more rudimentary Cobb-Douglas formulation, is that it imposes no constraints on variations in factor shares over time. Moreover, the additive nature of equation (3) is highly flexible, permitting the development of disaggregated factor indices based on the same specification and,



consequently, measurement of the individual contribution of these sub-factor components to aggregate output growth.<sup>11</sup> For example, changes in a human capital index can be estimated by an equation equivalent to (3) excluding the TFP term. Quality changes are reflected explicitly in the measure via movements in the respective sub-factor shares. This exercise makes extensive use of this feature, disaggregating labour into six education-location sub-categories and fixed capital into private and public sector components. The following sub-sections summarise the procedures used to estimate the fixed capital and human capital measures as well as the final estimation of equation (3) covering the period 1980-2004.

### 3.1.2. Human capital estimates

Rather than measuring human capital as a pure stock of labour, the post-Independence expansion of education in Mozambique suggests it is critical to include a rigorous estimation of changes in human capital quality. Education of the indigenous population was neglected during the colonial period such that on the eve of Independence there was no higher education institution open to black Mozambicans and approximately 93% of the population was illiterate (UNDP, 2000; UNESCO, 2000; MPF and MINED, 2003). As a result, the post-Independence government prioritized a massive expansion of literacy programmes and primary schooling (UNDP, 2000; Buendía Gómez, 1999; Johnston, 1990). Although the intensification of civil war in the early 1980s significantly constrained the success of this expansion, the civil war period nonetheless witnessed considerable advances in the educational profile of the population from an extremely low starting point.

In order to capture these changes, we calculate annually from 1980 the total number (stock) of economically active persons in six sub-categories. These divide the total active working-age population according to the highest level of education completed and their working location. We use three education categories:<sup>12</sup> (i) primary school (either EP1 or EP2); (ii) secondary school (ES1) or above; and (iii) no formal education. Working location is split between rural and urban areas. The base data are

---

<sup>11</sup> See Jones (2006).

<sup>12</sup> Note EP1 and EP2 refer to the two cycles of primary school (*Escola Primária*) and ES1 and ES2 refer to the two cycles of secondary school (*Escola Secundária*) in Mozambique.

annual student matriculation figures at the primary and secondary levels (INE, 2005). These can be used to construct perpetual inventory-type stocks similar to those used in fixed capital stock estimation (see section 3.1.3). Similar methods are found in the literature for both single- and cross-country studies, usually employing gross enrolment rates (e.g. Barro and Lee, 1993; Nehru et al., 1995; Ahuja and Filmer, 1995). These standard methods generally require long time-series data on repeat- and drop-out rates or must assume stability in the efficiency of the education system over time. Unfortunately, neither of these requirements hold for Mozambique; however, the combination of information contained in education transition matrices estimated in Arndt and Muzima (2004) as well as survival probabilities implicit in the data, given for example by the ratio of EP2 to EP1 students, are used to build a consistent series which reflects gradual improvements in efficiency. In addition, concrete data points from the 1997 census and the 2002/2003 IAF household survey are used to fix the series.<sup>13</sup>

To conclude the human capital translog index, estimates of the share of each sub-category in total payments to labour must be estimated. Effectively these represent ‘quality’ weights on the pure stock numbers, based on the proposition that time-spent in education represents a long-term investment by increasing individual economic productivity in the workforce. International microeconomic evidence generally supports this proposition (e.g. Harmon et al., 2000; Barro and Lee, 1993) and is confirmed for Mozambique in poverty studies showing a consistent association between higher levels of education and a lower incidence of poverty (Fox et al., 2005). To estimate the shares, we require accurate measures of the income increment associated with different education levels. Suitable wage data is neither available on a time series basis nor relevant as only a minority of the active workforce comes under the formal sector. Thus we presume consumption data provides a more reliable basis for inter-household welfare comparisons (Ravallion, 1992; MPF et al., 1998).

---

<sup>13</sup> See Jones (2006, section 5) for a detailed description of the estimation procedures here. The IAF IAFs (Inquérito aos Agregados Familiares) surveys of 1997/98 and 2002/03 are described in detail in MPF (2004). They calculate the headcount following the basic needs approach from consumption measures of the form contained in living standards measurement surveys.

On this basis we postulate that the productivity increment due to education can be estimated from a Mincerian-type regression of the form:

$$c_i = \beta_0 + \beta_1(edu_i) + \Phi X_i + \varepsilon_i \quad (4)$$

in which  $c_i$  is the logarithm of consumption of the  $i^{th}$  individual,  $edu$  is a measure of education,  $X$  a vector of control variables including age and  $\varepsilon$  the residual error term. Given the consumption indicator is available from household-level survey data, we must be aware of the potential bias in the results from estimations made at either the individual- or household-levels. To measure and correct for the size of the bias from each of these two approaches is not within the scope of this paper. Rather, using the most recent IAF 2002/03 data we estimate the coefficients derived from both approaches. As shown in Table A.2, the results are extremely comparable and have reasonable predictive accuracy. We also observe they are highly comparable to findings from similar regressions on the same survey data (following the household-level approach) estimated in Maximiano et al. (2005) and Fox et al. (2005).<sup>14</sup> Without knowing the extent of the bias inherent in each approach, we take our best predictor as the average of the coefficients from the two estimations. From this we estimate the nominal consumption premium for each education-location category against a base category (rural, no education).

The final issue concerns the stability of these consumption premia over time. Although time series data is not available, the IAF survey undertaken in 1996/97 indicates that at least through to 2002 these premia have remained broadly stable. During the 1980s, and despite greater scarcity in educated workers in the earlier period, socialist wage and price controls are likely to have dampened wage differentials. Also, both private and foreign investment levels did not recover immediately after the war such that growth in the demand for educated workers is

---

<sup>14</sup> Note that in Fox et al. (2005) the regression specification includes gender, industry and regional fixed effects. These are not included in the specifications used for this paper as the labour stock categories are not adjusted for these variables. In other words, we prefer to permit the estimated education coefficients to reflect the *average* effects associated with these variables. Note, however that when such effects are included in our specification the estimated coefficients track even more closely the results of Fox et al. (2005).

likely to have lagged aggregate economic growth. As a result, we make the conservative assumption that consumption premia have remained stable since 1980.

### 3.1.3. Fixed capital estimates

We disaggregate the total fixed capital stock into government and private sector components. This is worthwhile from the perspective of analysing the relative contributions of private and public sector investment to post-war growth, possibly related to destruction and rebuilding of public infrastructure. For this estimation we calculate separately the aggregate and the government fixed capital stocks for each year from 1980 to 2004. We then treat the private sector stock as the residual. As already noted, these two sub-categories of aggregate fixed capital can be inserted into the translog growth accounting equation in the same fashion as the human capital sub-indices. The relevant sub-factor shares are taken as being equal to the simple weight of public and private capital in aggregate fixed capital.

Consistent with numerous other studies, real capital stocks can be estimated via the perpetual inventory method which can be applied at both aggregate and sectoral levels where the relevant investment and depreciation rates are known. The former are estimated from various official sources described in Jones (2006). A departure of this exercise, however, is the application of variable depreciation rates to reflect the destruction of the civil war years. The depreciation rates used for the government sector are higher than those used for the economy as a whole in order to account for deliberate damage inflicted on public infrastructure. Government estimates of the early 1990s, quoted in Brück (1997), suggest that annual destruction of core government buildings such as schools and health posts averaged around 6% per annum during the war years. Thus, we estimate public infrastructure depreciation (including both destruction and normal declines in value) peaked during the height of the war at 12.8%, falling to 5% in the post-war period with a similar spike in 2000 due to the floods.

### 3.1.4. Aggregate factor shares

The final elements required to complete our estimation of equation (3) are the aggregate factor shares which represent the relative contribution of each factor to total product. While it is common to fix these at around 60% for labour with the rest to

capital (IMF, 2005; Tahari, 2004), rapid changes both during and after the civil war undermine the validity of this assumption. This is confirmed by the social accounting matrices developed for the post-war period which estimate the fixed capital share of total factor income has fallen from approximately 40% in 1995 to 30% in 2002 (see Arndt et al., 1998; Arndt et al., 2000b; Tarp et al., 2002), suggesting the civil war period may have been associated with a higher fixed capital share than observed currently. This trend probably reflects that while fixed capital was becoming increasingly scarce during the war, its relative price increased – a feature that has been reversed since 1992. Thus, in order to capture the changing pattern of labour and factor accumulation during the period, we allow the labour and factor shares to move according to their relative scarcities.

### 3.1.5. Results and analysis

Table A.3 and Table A.4 present a summary of the results; the former distinguishes between the contribution of changes in the pure stock of labour and the impact of education. This clearly indicates that the quality-adjustment leads to a fall in the residual TFP measure. The second table presents the same results with a combined human capital measure sub-divided according to those with and without educational qualifications (skilled and unskilled respectively). Figure B.2 provides a graphical summary of the full results, sketching the trends in the principal variables constructed from log growth rates indexed at 1980 = 100. As can be seen, the civil war period is associated with substantial falls in both the aggregate capital stock ( $K$ ) and the TFP index ( $A$ ) despite slow gains in unskilled ( $U$ ) and skilled labour stocks ( $S$ ). The post-war period is starkly different with strong gains particularly evident for capital and skilled labour stocks; the TFP residual shows a robust recovery to slightly above its 1980 level.

An analysis of these results suggests five main findings. First there have been strong returns to education at the level of aggregate output. For the period as a whole (1981-2004), pure educational improvements account for 15.5% of observed growth; however, this result should be treated with caution as it relates in part to the fact that while output declined steadily during the civil war period, both labour stocks and education indices gradually increased. The post-war phase is more appropriate for

analysis and clearly shows a *rising* contribution of education to growth consistent with known improvements in both enrolment and efficiency rates (MPF and MINED, 2003). Of particular interest is the 13.9% contribution of education to growth for 1999-2004 which, according to cross-country studies (see Benito-Spinetto and Moll, 2005: 48-49), represents a relatively high return to education for a developing country and testifies to the enormous progress made in expanding the education system initiated during the war years but pursued more successfully since 1992. According to the estimates developed here, in 1980 91% of the economically active working population had no educational qualification; by 2004 this had fallen to 77%. Taking a population-perspective this also highlights that educational improvements take time and are highly path-dependent. Thus, *early* investments in the education system in both the conflict and post-conflict phases provided a critical foundation to the post-war growth experience.

Second, the results indicate we must be sensitive to the structure of improvements in the work force. This can be seen from the breakdown of human capital growth between skilled and unskilled labour in Table A.4 which shows very weak growth in unskilled labour since the civil war and a negative contribution (-4.1%) of this category from 1999-2004. The latter result is revealing as it indicates that due to the much higher coverage of primary education, the number of workers without any education has been falling in absolute terms. This is confirmed by the 1.5% absolute fall in the same stock registered between the 1997 census and the 2002/03 IAF survey.

Further exploiting the full disaggregated results, Table A.5 gives a breakdown of the sub-components of the skilled labour index, showing nearly 80% of the growth gains from skilled labour in the post-war period derive from improvements in urban education. This result is a function of three effects – the higher wage premia associated with urban as opposed to rural education, the higher proportion of educated members of the workforce found in urban areas and the relocation of rural workers to urban areas during the period. Indeed, the population shift out of rural areas has been significant – we estimate that while 79.2% of the active working population were located in rural areas in 1980, this had fallen to 68.5% by 2004. We also find that the contribution to growth from the skilled workforce during the post-war period has been

*increasingly* driven by secondary-level education (for both urban and rural areas), suggesting that further expansion of education at this level and beyond will be necessary to support future employment needs and the demands of modern technology. Of course, the implications of these results for future education policy are by no means straightforward; however, they indicate the likely existence of trade-offs between the wholesale expansion of education at all levels in all areas against targeted interventions aimed at more specific population segments.

Third, at an aggregate level it appears incontrovertible that the recovery and later expansion of fixed capital stock has been a foundation of post-war growth. Indeed, as with skilled human capital, growth here has played a larger contribution in later as compared to earlier post-war phases – e.g. for 1993-98 capital accumulation explains 41.2% of growth rising to 53.1% for 1999-2004. The breakdown of capital growth between the government and private sectors also points to an interesting trend, namely that while the accumulation of private sector capital has remained dominant in aggregate terms, government sector investment played a larger relative role in the immediate post-war period. This may indicate a degree of crowding-in of private sector investment, at least in a post-conflict setting, as well as the critical function of public infrastructure reconstruction for the reestablishment of broad/deep markets and reduction of transaction costs.

Fourth, once human capital accumulation is included growth in what might be considered TFP or technical advancement is more moderate. For the post-war phase TFP growth explains a reasonable 34.6% of growth, consistent with the realisation of peace, the return of dislocated populations and the reestablishment of internal markets. These TFP increases therefore suggest a robust recovery in the production possibilities frontier that had been weakened by civil war. Two results, however, would indicate that these rates of TFP growth may not be guaranteed for the future. In the later post-war phase the contribution to GDP growth of changes in TFP fell compared to the early post-war phase, a sign of a slowing rate of improvement. Second, in the long-view since 1980 the aggregate change in TFP has not been strong, explaining only 10.6% of growth. Of course, changes in the TFP term capture more than just technology and this result is consistent with the effects of civil war and a succession of natural disasters from 1980 to 1992. Indeed, as shown in Figure B.2, all

the large falls recorded in the TFP index during the full period (in 1982-83, 1991-92 and 2000) correspond to natural disasters. Thus, the short-term fluctuations in TFP growth highlight the continued vulnerability of the economy to production shocks caused by climatic disturbances.

Finally, one can point out some weaknesses in the above analysis. First, and probably most crucial, is the lack of robust employment data concerning the intensity of employment among the active working-age population. This is particularly relevant in our case as the civil war was associated with substantial dislocation of rural populations. Second, we do not explicitly adjust for changes in industrial capacity utilization which various analysts have suggested was adversely affected during the civil war period and continues to be weak (Sulemane, 2001). Third, the fixed capital estimates would be improved if it were possible to include the contribution from cultivated land as the expansion of areas under cultivation has been an important driver of agricultural growth in the post-war period (World Bank, 2005a). Notwithstanding these points, the exercise gives a robust basis on which to explore the impact of external assistance.

### 3.2. Trends in socio-economic indicators

The rapid economic growth of the post-war period has been accompanied by robust improvements across a wide range of socio-economic indicators. These support the authenticity of the growth record and show that it has had relatively broad-based, impact at the household level. This evidence can be taken as a counter-weight to the scepticism of certain analysts, such as Hanlon, who questions the validity of the Mozambique 'success story' (Hanlon 1997, 2002). Of course, this is not to ignore regional variations and apposite concerns regarding the extent and sustainability of the improvements observed which we shall discuss below.

The headline achievement has been a reduction in the poverty headcount index from 69.4% in 1996/97 to 54.1% in 2002/03 based on the IAF household survey data. Recent poverty estimates, consistent with these household surveys and based on preliminary data from a national employment survey, confirms a continued decline in the poverty headcount to around 50% of the population in 2005 (Mathiassen and Øvansen, 2006).



Agricultural production income data taken from agricultural income (TIA) surveys for similar periods confirms the trend increase in household incomes.<sup>15</sup> As shown in Table A.6, the IAF surveys indicate a 22% improvement in the poverty headcount index for the period 1996/97 – 2002/03 against a 27% national average increase in agricultural production incomes for the same period from the TIA surveys. There are also broad similarities in the regional pattern of change despite certain obvious differences (e.g. Manica province). The principal finding, however, is that post-war rates of real economic growth have been associated with a robust improvement in both consumption and incomes across large swathes of the population.

A summary review of health, education and other socio-economic indicators also demonstrates a broadly consistent pattern of improvements in the post-war period. Table A.7 shows that infant and child mortality rates have dropped rapidly and particularly since 1997, corresponding to the first nationally representative health survey. Vaccine coverage and malnutrition indicators also show good progress. Advances in the education profile of the population have been noted in the growth accounting exercise, which shows educational gains have been more rapid and have had a relatively greater impact in the most recent 5 year period due to the cumulative and gradual nature of the impact of educational change. It should be noted that progress on these aggregate level indicators is not simply the product of large improvements for a minority of the population; rather, as Ibraimo (2005) documents, the regional coefficient of variation for a wide range of socio-economic indicators has fallen, indicating a reduction in regional disparities. However, regional GDP estimates undertaken by UNDP (2001: 25, Table 2.2) suggest large provincial differences remain with the bulk of economic production being concentrated in only a few regions and particularly the South.<sup>16</sup>

This progress is indicative of a positive developmental trend over the last decade compared to the civil war period; but this does not mean that there are no grounds for concern. Obviously, these post-war advances are relative to the extremely deficient

---

<sup>15</sup> The TIA surveys are described in MPF (2004).

<sup>16</sup> In part this is a legacy of the colonial economic structure which favoured highly uneven development concentrated around urban hubs (Sulemane, 2001).

levels of economic production and provision of public services occasioned by the combined effects of colonialism, rapid Independence and civil war. Thus, despite educational growth, in 2004 only around 5% of the stock of adults were educated above a primary school level. From a comparative perspective, Mozambique remains one of the poorest countries in the world, ranking 168 out of 177 countries on the human development index and with a relatively low life expectancy at birth of 41.9 years compared to 43.6 in 1980 (INE, 2005) and an average of 46.1 for sub-Saharan Africa as a whole.<sup>17</sup> In part this fall in life expectancy is attributable to growth in the HIV/AIDS prevalence rate, currently situated at around 12.2% of the adult population, almost double the 7.3% average for sub-Saharan Africa.

In addition to these issues, Mozambique faces very considerable economic challenges that warn against any form of ‘triumphalism’. Whilst inequality does not appear to have risen substantially between the first and second IAF surveys (James et al., 2005), the risk of unequal access to the benefits of growth remains a challenge. Moreover, exports outside of certain large industrial projects continue to be low despite growth since 1992 – on average (2000-04) goods exports only cover 31.2% of imports (excluding mega-projects) and have remained broadly stable at around 7% of GDP since the end of the civil war. The point here is that additional, sustainable sources of foreign exchange must be developed over the long-term to replace external assistance.

### 3.3. Foreign aid

It would be impossible to analyse the impact of foreign aid without an understanding of its changing role and composition. We define external aid broadly, covering all forms of external financing towards Mozambique including grants, credits, aid-in-kind, technical assistance and debt relief. A survey of changes in aid must consider four dimensions over time, namely the: (a) absolute levels of aid; (b) relative economic importance of aid; (c) objectives of aid; and (d) the mixture of aid modalities. While none of these areas is unproblematic, either from a conceptual or estimation standpoint, the following paragraphs briefly review the evidence in each dimension.

---

<sup>17</sup> Unless otherwise stated the comparative statistics in this paragraph are taken from UNDP (2005).

With respect to the pure levels of external aid, a serious obstacle is a lack of consistent and comprehensive time series data at both an economy-wide and governmental level, despite substantial improvements in recent years.<sup>18</sup> For our purposes three sources of information can be used – the Balance of Payments (BoP) statistics, the government fiscal accounts, and the OECD Development Assistance Committee (DAC) data on aid commitments and disbursements. None of these sources is comprehensive or bias-free. Compared to government statistics, the DAC disbursement data is likely to give a more complete and accurate treatment of certain forms of aid such as aid-in-kind and technical assistance. Yet the data is only available at an aggregate rather than sectoral level. On the other hand, the DAC commitments data is disaggregated to a sector level but one cannot assume it tallies exactly with the sectoral composition of disbursements. An advantage of using government statistics is that theoretically they should capture all aid flows including those from non-DAC participants. Government data also allows one to calculate the final net flow associated with external aid after *all* debt capital and interest repayments, the latter not being available in the DAC data due to the existence of debts to Soviet-bloc countries as well as other non-DAC participants. In reality, and aside from technical capacity weaknesses that may lead to data accuracy problems, government data is weak where aid flows do not enter the domestic financial system in full and/or they occur outside the government budget or public financial management systems. The latter represent off-budget funds which are negotiated and managed directly between individual donors and sector Ministries, falling partially or fully outside the compass of centralised government information systems (see World Bank, 2001). Whilst in principle these amounts should enter the aggregate BoP statistics, both data collection weaknesses and the existence of non-financial aid flows (such as pre-paid imports) mean this cannot be assured and, even if they are captured there is no guarantee they will be correctly classified. Lastly, all three of the potential

---

<sup>18</sup> A positive step in this regard is the recent donor initiative, in partnership with the government, to create a standardized donor reporting system covering aid commitments and disbursements by sector.

sources suffer from an inadequate treatment of aid flows associated with non-governmental organisations (NGOs).<sup>19</sup>

Table A.8 presents 5 year averages for different definitions of aid inflows according to the main sources; Figure B.3 plots the trend in net aid inflows before and after debt service from the BoP and DAC data sets. While the definition of gross aid before and after debt relief grants is straightforward, the calculation of net aid should be clarified. From the DAC disbursement data we take the given net aid figure, which is after loan repayments, and subtract debt relief grants. For the BoP statistics we use the definition of net aid in IMF (2005b) calculated as the value of the current account deficit (before debt service charges) minus private financing to the capital account and the change in net reserves. As such, both the BoP and DAC definitions express net aid as being net of all debt-related capital flows.

As expected, the DAC figures are considerably higher than those of the BoP for all periods other than 1980-1989 when substantial external financing originated from Soviet-bloc countries not covered by the DAC database. In fact one notes a switch in the direction of the error in the early 1990s where the DAC disbursements (actuals) data records much higher inflows than the BoP series. This is likely to be due to substantial humanitarian funding as well as funding to non-governmental organisations including the UN peacekeeping force during that period. As made clear in Figure B.3, however, since the mid-1990s the two series are broadly equivalent at least in terms of movements if not in terms of exact levels.<sup>20</sup>

---

<sup>19</sup> There are no accurate figures concerning the number of NGOs operating in the country or the size of their programmes; however, estimates suggest that over 150 NGOs were operative in 1990 and that these numbers have risen given the openness of the post-civil war government to NGOs. In terms of their financial weight, one recognises that a substantial portion of NGO funding is received from bilateral and multilateral donors. Recent estimates of the disbursements covering the 17 principal bilateral and multilateral donors to Mozambique in 2004 and 2005 suggest that between US\$50-60 million of their aid, equal to around 6% of the total, is channelled through NGOs (Ernst & Young, 2006). Considering these and other NGOs have alternative sources of funds (often matched to official support), a *very rough* estimate would suggest that total NGO aid to Mozambique may be in the region of US\$50-80m per year (equal to 2% of GDP). Whilst this is by no means insignificant, the rest of this paper concentrates on official flows to the government simply due to the better availability of data at this level

<sup>20</sup> Note that in the majority of periods the BoP figures suggest net aid was in fact higher than gross aid. We suggest this is mainly due to errors in the underlying gross BoP figures which are compensated for

The gap between the DAC and BoP data, as well as the much more substantial gap between the BoP figures and the value represented in the government's fiscal accounts for net aid after debt service, indicates the existence of substantial aid flows that are not captured by government financial management systems. While the size of the latter divergence provides evidence of large and continued off-budget aid financing, alternative sources indicate that even the BoP figures do not correctly capture the size of aid disbursements either to the government or NGOs. Selected disbursement figures stated in Ernst & Young (2006) for 2005, for example, suggest that the 17 principal donors to Mozambique who account for around 90% of total aid, disbursed US\$1,015.2 million in total aid of which US\$908.7 was made to the Mozambican government. In contrast, the preliminary BoP estimate for gross aid in 2005 covering disbursements to all economic agents is US\$811.8 million, indicating that around 20% of total aid and/or at least 10% of aid to the government is not adequately captured by government sources.

Both the DAC and BoP series (excluding the initial period) indicate that aid has shown substantial inter-annual volatility, not least due to changing humanitarian needs. The medium-term trend in both gross and total net aid was broadly stable in the 1990s showing only recently a trend increase, in part due to the impact of debt relief programmes. The early 1980s were associated with a rapid increase in both the net debt burden and obligations, such that in the late 1980s over 50% of gross aid was being used to pay debt obligations. While the advent of IMF and World Bank supported programmes allowed some debt renegotiation, the HIPC, enhanced HIPC and Paris Club programmes to which Mozambique has been party since the late 1990s have enabled a marked reduction in annual debt principal and interest payments and, thus, a much smaller gap between net aid before and after debt service. As a result, net external funding effectively available to support real government expenditure (*inter alia*) has increased substantially from an average of US\$554.9 million during the 1980s to US\$825.3 million in the latest period 2000-2004. To put it another way, debt relief and renegotiation has liberated internal funds, permitting increases in real

---

in the indirect (backwards) method of calculating net aid (i.e. net aid is assumed to be the remaining financing of the current account deficit after private inflows).

government spending (e.g. Chao and Kostermans, 2002: 12). From this perspective we prefer the BoP measure of aid after all debt service flows as it more fully captures the movements in effective aid available to the government. Whilst for the reasons already mentioned these estimates are likely to be biased downwards, they remain consistent with other balance of payments items and therefore are used as the preferred aid measure in the rest of the paper unless otherwise stated.

The indicators in Table A.8 highlight the relative weight of external assistance within the economy. Whatever aid indicator one takes, it is clear that the relative resource increment due to external aid has been consistently high. Gross aid including debt relief grants from the DAC actuals data has averaged over 40% of GNI in per capita terms since 1985 with a peak of 93.2% in 1992. Taking net aid after debt service from the BoP series, it is apparent that for 25 years external aid has averaged over 20%. Since 1994, the ratio of external aid to GDP has declined; however, this is less marked in the gross aid data including debt relief precisely because of the effect of HIPC and other debt relief programmes evident in 1999 and 2002. The considerable weight of aid in the economy is stark in relation to external trade. Figure B.4 clearly shows that net aid has been the dominant source of foreign exchange to support goods imports throughout the period. The increase in net aid from 1984 thus was associated with a higher level of imports both in absolute terms and in relation to GDP, indicating that the initiation of structural adjustment enabled a relaxation of foreign exchange shortages which had developed by the early 1980s. External aid also has played a critical long-term role in support of government expenditure. Since the mid-1980s, external financing has been equal in value to over 100% of government investment and approximately 50% of total government expenditure. Recalling that these government figures exclude off-budget expenditures financed from external sources, the true weight of external finance in total government expenditure including off-budgets is likely to be nearer 55-60%. This seemingly high economic importance of external aid to Mozambique is confirmed by comparison with other developing countries, see Tarp (2006).

Although the DAC commitments data may be biased as to the specific levels of disbursement, it provides a consistent indication of the relative priority of different sectors from a donor viewpoint. As expected, and consistent both with historical

events and the recent emphasis on poverty reduction, there has been a clear shift in the post-war period toward the financing of social sectors. Employing the distinction of Clemens et al. (2004) between humanitarian, late- and early-impact external aid, it is clear that the composition of funds has changed very substantially with the shift from conflict to peace.<sup>21</sup> As to be expected, during the civil war period the majority of aid went to humanitarian relief as well as some early-impact funding; since 1992 there has been a trend switch from humanitarian funding into later impact funding. For example, assistance to social sectors has risen from an average of 7% of total aid for the 5 year period 1985-89 to 25.9% in 2000-04. Also noticeable is the long-term stability of assistance to early-impact funding, particularly infrastructure, at around 45% and 20% of total funding commitments respectively. These recent trends are confirmed from government budget execution figures. In 2003, for example, over 70% of externally-financed expenditure was affected to education, health and infrastructure. Finally, alongside recent growth in late-impact aid we notice a broadening of the scope of aid. This is exemplified by the trend growth in funding to the complex areas of ‘government and civil society’ initiatives from zero in the 1980s to over 11% of total aid for 2000-04. The DAC figures also show an increase in the number of distinct sectors receiving aid from 11 out of a potential 29 in 1980 to 26 in 2004.

The fourth aspect of trends in external assistance concerns the modalities through which aid is disbursed. Two main changes are evident from the data. First, there has been a considerable shift away from credit- and towards grant-based financing consistent with Mozambique’s increasing alignment with the Bretton Woods institutions, changes in ‘development thinking’ in the West and a consequent reduction of the relative debt burden of the country. According to the BoP series, grants now comprise 71% of gross aid inflows compared to less than 20% in the early 1980s. Second, an increasing portion of aid is not tied to specific projects but rather is

---

<sup>21</sup> Early-impact aid refers to aid which is more likely to have a growth-enhancing effect in the short-run; this included general budget support given its contribution to the balance of payments. Late-impact aid refers to all other aid, excluding that for humanitarian or immediate relief purposes, that is likely to have a longer-term impact on economic growth and/or developmental outcomes. See Clemens et al. (2004) for a detailed description of the categorization they apply; however it should be noted that here we follow the spirit rather than the exact detail of their categorization.

‘programmatic’, being disbursed to common funding pools managed at either a sector or government-wide level. Together these instruments are intended to promote greater government ownership as well as enhance the efficiency and coordination of government expenditure. While direct budget support began in the early 1990s under the guise of support to the balance of payments, more coordinated funding mechanisms have gained political and financial weight principally in the last 5 years. This is exemplified by the joint memorandum of understanding signed by direct budget support donors and the government in April 2004. As a result, these instruments now represent around 40% of gross aid in the government budget; see Table A.10 for a breakdown of the 2005 budget by modality. The move toward more coordinated funding, however, is not consistent across donors and coexists with a continued reliance on project financing. According to USAID (2004), for example, while the Netherlands provides around 74% of its aid to Mozambique through these coordinated modes, the USA only gives 15% and Japan 0%. Even for the 17 principal direct budget support donors, the weight of project aid in their total disbursements to the government actually has increased from 36.9% in 2004 to a projected estimate of 42.3% in 2006, representing an absolute increase of US\$78 million (Ernst & Young, 2006).

In summary, the period 1980-2004 has witnessed substantial changes in the nature of external assistance. Both donors and the government have adapted to changing circumstances and have learnt from past experiences in terms of aid modalities and aid management more generally. Having fallen from a peak in the early 1990s, both gross and net aid recently have increased, driven in part by substantial reductions in debt-related outflows. The direction of external assistance to Mozambique in the post-war era has become dominated by the objective of expanding the provision of core public goods at a faster rate than possible through internal financing alone. More recently, external aid has grown into later-impact and as such wider and, arguably, more complex areas including governance and public sector reform. The instruments used by donors have broadened to include the use of coordinated funding mechanisms although these are not predominant. Finally, and consistent with these trends, there has been an increase in the sheer number of donors active in the country. According to DAC statistics there were 16 multilateral and bilateral donors providing external



assistance to Mozambique in 1987, increasing to 29 by 2004. The 2005 government budget identifies over 107 different organisations providing external funding to the public sector which is likely to be an underestimate given the existence of off-budget flows (see Table A.10).

### 3.4. Aid Fungibility

Before moving on to consider the connection between aid and outcomes, we must first address the critique that aid is fungible. This refers to the idea that public funds from different sources may be interchangeable making it impossible to postulate any direct connection between specific public expenditures and specific sources of financing. This property of aid thus has been used to argue that foreign aid cannot be linked to specific developmental outcomes associated with public sector spending (see Devarajan and Swaroop, 1998).

Within the literature we can identify three separate aspects of aid fungibility. The first, most often encountered, strong form of fungibility defines it as the case where external assistance to a specific sector replaces otherwise available local financing, allowing the latter to be used elsewhere often for lower priority spending. Thus, in the absence of external financing, alternative local financing would be allocated to the sector to ensure the same level of final spending. As such aid only affects spending at the margins or in non-core areas. A weaker, second, form of this argument is that funds are fungible within a given sector but not across them. Here external financing does not affect the core portfolio of activities within a sector but merely allows an expansion of non-core spending. A third case, often discussed outside of the fungibility framework, is where external aid replaces local financing in the sense that the government raises less local financing than would have occurred without external assistance. For example, external assistance can allow the government to make certain tax breaks equal to the value of external assistance (Adam and O'Connell, 1999). In each of these cases the principal point is that external aid does not alter the hypothetical portfolio of government spending before aid, meaning that aid really only finances 'whatever the government chooses to do' (World Bank, 1998b).

The first two cases of aid fungibility are not highly relevant to an analysis of aid effectiveness in Mozambique given the sheer volume of aid relative to local revenue.

Most analyses of fungibility in fact tend to recognise that where donor inflows are substantial compared to other sources of financing, aid is at best *partially* fungible (Berg, 2002: 21). As documented in section 3.3, for almost 20 years net external aid has made up over 50% of government spending being equal in value to and essentially financing the entire government investment budget. A review of the budgets of the main sectors in receipt of external funding also shows not only a very heavy donor presence, but also that aid has gone principally towards capital investment (see sections 4.2 and 4.3). Indeed it is well known that donors historically have been unwilling to provide funds towards recurrent spending, reducing the degree to which funds truly are interchangeable even at the sector level. A further weakness of the fungibility criticism for Mozambique is the existence of large off-budget flows. These flows are not coordinated at an aggregate, government-wide level and it is frequently the case that the government as a whole and even the relevant sector does not have complete information as regards the size or objectives of external funding. Together these factors necessarily limit the extent to which aid can be described as fungible with other sources of funding.

The third basis to claim fungibility is also weakened by the historical volume of aid inflows. The total replacement of external aid by internal revenue would have demanded a doubling of internal revenue from an average of 12.1% to 26.8% of GDP during the post-civil war period. Given that cross-country evidence broadly supports a positive association between per capita income and the tax-to-GDP ratio (as per Wagner's Law), a tax take of this size would be a clear outlier among the group of low income countries to which Mozambique belongs. A more subtle argument, however, contends that internal revenue growth has been suppressed because of the availability of external inflows. The hypothesis is that in the absence of external assistance there would have been stronger domestic and political pressure resulting in more effective revenue reform and/or efficiency gains in collection.

The data demonstrates that internal revenue growth only has matched GDP growth in the post-civil war era, leading to a relatively stable tax-to-GDP ratio at around 12% for the period. Figure B.5 shows that following substantial real falls in tax revenue in the early 1980s, revenues grew strongly from 1986-1993 doubling in real terms despite stagnant real aggregate production. Since 1992 the trend has been fairly stable

with no robust evidence of sustainable increases in the tax-to-GDP ratio despite considerable reforms of the tax and customs administration systems as documented in Byiers (2005). In recent years it remains the case that targeted improvements in the tax-to-GDP ratio, as emphasised by the IMF, have not been achieved. For example, the goal of Mozambique's first comprehensive poverty reduction strategy paper (PRSP), also known by its Mozambican acronym PARPA, was to raise 14.2% of GDP in budget revenues by 2004. The final execution figures for the same year, however, indicate only 11.9% were collected, implying no lasting advances were made throughout the 5 year period covered by the plan.

Whether or not the absence of gains in the tax-to-GDP ratio can be attributed solely to the effect of external assistance ultimately is uncertain in the absence of a solid counterfactual. However, Van Dunem (2005) has shown that there has been a 'spectacular' increase in discretionary tax exemptions since 2002 alongside continued high rates of fiscal evasion estimated at a rate of 36% of recorded imports (Van Dunem, 2006). These points suggest that external finance effectively has substituted for some sources of internal revenue, allowing the sensitive and technically difficult challenge of internal revenue growth to be a lower priority for the government. We discuss these deeper institutional and incentive effects of aid in sections 5 and 6. In aggregate terms, however, we return to highlight the point that the sheer volume of aid to Mozambique undermines any strong criticisms of aid fungibility, opening the analytical door to a more detailed review of the effects of aid.

#### **4. Aid and Intended Outcomes**

##### **4.1. Macroeconomic policy**

The promotion of 'good macroeconomic policy' is clearly important, and the pursuit of longer-term macroeconomic stability and sustainability has been a principal motivation behind donor macroeconomic support such as stabilisation and structural adjustment lending. While there is no single, commonly-agreed definition of what constitutes good macroeconomic policy, there is a broad consensus that it refers to helping to ensure a reasonably stable and predictable macroeconomic environment. There are two main paths where we find a relationship between external aid and macroeconomic policy. First, technical assistance and policy advice can support the

government and Central Bank in their management of the economy. Going further, external agencies may make financial assistance conditional on certain policy and/or structural reforms. Second, external financing through balance of payments support and debt relief can help avoid sudden crises as well as support a more sustainable overall macroeconomic balance consistent with economic development. This section briefly reviews Mozambique's macroeconomic performance before moving to a discussion of the role of external aid.

The historical overview described growing macroeconomic instability associated with the early post-Independence period and escalation of the civil war. This was one of the main reasons why Mozambique looked to the West for economic support and, relatedly, moved away from socialist policies. Figure B.6 plots the logarithm of the nominal indices of three key variables for the period 1980-2004 setting 1980 as the base year. It is patent (at least visually) that consumer prices, the official exchange rate and the global government deficit all are broadly correlated in terms of levels and trends. Three main phases in these variables can be noted. First, the period to 1986 is characterised by relatively low rates of change and a growing divergence between consumer prices and the exchange rate leading to real appreciation of the domestic currency. This is consistent with price controls as well as official price setting of the exchange rate to promote cheap imports. The second period, 1987-1995, is associated with relatively high rates of change across the three variables initiated by sharp depreciation and a spike in the rate of inflation. This is a direct reflection of the acceptance of the economic programme supported by the World Bank, IMF and donor community. Indeed such movements are relatively common *initial* features of structural adjustment type programmes and are indicative of price liberalisation. During this period one also observes very large reductions in the black-market exchange rate premium from over 3000% in 1985 to under 10% in 1995. From the mid-1990s the graph indicates a trend break with a shift towards a much lower rate of change across the indices. For example, while the rate of inflation was around 50% per year during the mid-1980s this has fallen to an average of 13% in the five years to 2004.

With respect to external macroeconomic indicators, we have discussed the increase in external debt during the early 1980s as well as the debt relief programmes from which

Mozambique continues to benefit. The data here are shown in Figure B.7, which plots annual estimates of the debt stock and the trend in debt service as a percentage of exports – a standard measure of debt sustainability. These show expansion of net debt both before and after the economic rehabilitation programme followed by large debt forgiveness since the late 1990s. One observes that the debt stock in 2004 remains high in absolute terms at 41.4% of GDP; however much of this debt is on adjusted or concessional terms and further debt cancellation has been promised. In terms of sustainability, the ratio of debt service to exports fell rapidly from its peak in the early 1980s with a further downward spurt in the most recent period reflecting the impact of debt relief and higher economic (export) growth. Finally, Mozambique's international reserves have grown steadily from a nadir of negative US\$357 million in 1983 to positive US\$961 million in 2004. These indicators therefore show consistent movement throughout the 1990s toward a more robust macroeconomic environment compared to the civil war period.

The critical role of external assistance in these trends has been unambiguous from the point of view of supporting the external balance. Relatively high levels of aid inflows have supported the current account deficit and provided crucial foreign exchange necessary for consumer and investment inputs. World Bank (2001: 20) estimates that from 1987 to 1999 over 65% of all foreign exchange available to Mozambique came through foreign assistance. Debt rescheduling and forgiveness also have brought Mozambique into a much more sustainable long term debt position enabling, as noted previously, a trend increase in net aid available to the government to support development expenditures. However, it should not be overlooked that the country continues to rely on such inflows, permitting the government to run a relatively large current account deficit of nearly US\$800 million before transfers in 2004, higher in absolute terms than the deficit in 1986. Therefore, comprehensive external sustainability, where all foreign currency needs are generated from internal resources, does not appear to be a feasible policy objective in the short- or medium-terms.

A couple of issues remain controversial. First, the extent to which policy changes have contributed to macroeconomic performance; and, second, the influence of external agencies over domestic policy formulation. The various policy and structural reforms initiated during the period have been discussed at length elsewhere (see for

example Tarp and Lau, 1996; Arndt et al., 2000; World Bank, 2001) and do not need to be repeated in full. The 1987 economic rehabilitation programme was oriented at both stabilization and structural change. Measures thus included tighter fiscal and monetary policy, price and trade liberalization as well as extensive privatization and institutional reforms to promote fiscal/monetary control and permit the allocation of resources within the economy according to market principles. Of course, not all of these reforms were attempted at once and there is a general consensus that, despite a slow start, more rapid progress has been achieved since the mid-1990s with the end of civil war, demobilisation and relocation of internal refugees (World Bank, 2001). For example, a privatization programme was initiated in 1989, but achieved limited progress until after the war in the mid-1990s; by 1994 only 5% of the gross value of industrial output had been transferred to private hands rising to 37% by mid-1996 (World Bank, 1995).

Fiscal reforms commenced immediately driven by falls in real tax revenue in the early 1980s (see Figure B.5). In 1987 a framework law was passed allowing a switch in tax policy to allow a greater role for indirect taxation (Byiers, 2005). Financial sector reform began in 1992 with the separation of the commercial and core central banking functions of the *Banco de Moçambique* followed by privatization of the two major commercial banks, completed in 1997. These reforms have been essential in asserting greater independence of the central bank, enabling it to concentrate on its core task of macroeconomic management. The monthly CPI data shows this very clearly – control over inflation was achieved exactly when the privatization of the commercial banks was finalised. Budgetary and public sector reforms have occurred since the late 1990s, comprising reform of the tax and customs administrations among numerous other initiatives. Whilst these reforms are still ongoing it remains clear they have reduced economic distortions and provided a much improved basis for macroeconomic management. The shift shown in Figure B.6 to a more stable macroeconomic environment in the mid-1990s corroborates this story as does the growth in real tax revenue from 1986 to 1993. The maintenance of rapid rates of growth beyond immediate post-war recovery also substantiates the argument.

The available evidence suggests that external donors have been instrumental in these policy developments. *A priori*, the level of reliance on external finance that

Mozambique has shown throughout the period would not have been compatible with any substantial policy divergence between Mozambique and the donor community. It should also be noted that historically the bilateral donors have allowed the Bretton Woods institutions to lead on issues of macroeconomic reform and economic policy. We would expect, therefore, these institutions to have guided the policy reforms in Mozambique since the late 1980s. Arndt et al.'s (2000: 303) documentation of the structural adjustment period confirm that their influence was 'massive' – it was the World Bank and IMF who drafted many of the new economic policies, often from Washington, and as was standard at the time they explicitly made external assistance conditional on reform implementation. The government openly recognises the depth of this influence. At a conference in the early 1990s President Chissano remarked in reference to the degree of independent policy manoeuvrability, "... we don't see which other way [there is]. We are totally dependent on inputs from outside. If they are not forthcoming in the correct manner it is of no use." (quoted in Saul, 1991: 106). According to Hanlon (2002), the 'grip' of the IMF over fiscal policy was so acute in the early 1990s that bilateral donors made a public complaint over an IMF-imposed fiscal cap on public investment. The 'joint review' process instituted under the memorandum of understanding between the government and direct budget support donors to Mozambique (GRM & PAPs, 2004) exemplifies how far this relationship has evolved. In the latest review of government performance concerning 2005, the process involved the evaluation of government policy and reform implementation across twenty four working groups involving government, donors and civil society representatives (PAP Secretariat, 2006), illustrating the depth to which the policy environment in Mozambique continues to be influenced by donor agencies.

Thus, external assistance has been fundamental to improved macroeconomic performance, both in terms of pure financial support and policy formulation. This is partially confirmed by the growth accounting results which show a positive trend in TFP since 1992 as well as the particularly strong contribution of TFP to growth during the immediate post-war period. However, this is not to argue that there have been no negative consequences arising from both the nature and rate of change throughout the period. These issues are discussed further in sections 5 and 6.

#### 4.2. Social service provision

It requires no leap of faith to accept that a major donor objective has been to support the provision of social services. Its growing importance is evident from the aid commitments data (Table A.9) as well as the policy focus of donors on these areas. This being the case, however, it is not immediately clear what *kind* of provision donors have supported. Differing sub-objectives such as expanded access, improved quality and enhanced equity in the provision of social services are not always mutually consistent. Without going further into this discussion now, we allow the ensuing analysis to highlight the relevance of this observation.

The link between public spending on social services and outcomes is notoriously difficult to determine due to environmental and exogenous variables that influence the final outcomes. While this is particularly acute in the area of health (Heltberg, Simmler and Tarp, 2001), education outcomes are moderately easier to relate back to spending as the achievement of a school qualification simply cannot occur without schools and teachers. Furthermore, it is recognised that education levels represent a robust proxy indicator for a variety of environmental variables (Caldwell and Caldwell, 1985). Education tends to improve one's capacity to recognise and act upon hygiene and sanitation problems as well as to take better advantage of economic opportunities. We therefore treat the education sector in greater detail than the health sector.

In order to trace the impact of external assistance through to final education and health outcomes, two intended or direct outcomes of public expenditure are of immediate interest – namely, the expansion of services to the target population and improvements in the efficiency or quality of these services. Included in the first dimension are equity considerations, such as reaching previously under-represented sections of the population. The relevance of the second aspect should not be understated – better quality services ensure expenditure is translated more effectively into final outcomes. Although these questions form the core of standard public expenditure analysis, it is not within the scope of this paper to undertake substantial new analysis. We therefore rely mainly on the data and findings of previous studies



the majority of which, we observe, either have been initiated by agencies external to the government or have been funded externally.

Sections 3.1 and 3.2 have noted improvements in the education system and the educational profile of the population since 1980. In the post-war period alone (1992-2004) the number of students matriculating in the primary school system (EP1 and EP2) increased by 174% while matriculations to the secondary system (ES1 and ES2) increased by 537%. There can be little doubt that the increase in students and consequent output from the system has been driven by an expansion of access to schooling made possible by public spending increases supported by external funds. The expansion of the public network of schools (at primary and secondary levels) since 1992 is shown in Table A.11; on average, each year around 500 new schools have been constructed and 3,500 new teachers recruited.

Historical data on public spending on education is not available on a consistent basis and is complicated by off-budget resources and expenditures. However, a compilation of estimates from various sources, depicted in Figure B.8, indicates total spending on education has doubled in dollar terms since 1992 to US\$253 million in 2004 of which, on average, almost 50% has derived from external sources including off-budgets. Growth in both internal and external funding has enabled total education spending to remain relatively stable as a percentage of GDP, averaging 4.7% for the period. At an aggregate level, therefore, the outcome of a substantially expanded education system and improved educational profile of the population, which in turn has been linked to economic growth via the growth accounting exercise, can be associated with increased public spending. *Ceteris paribus*, the magnitude of this expansion would not have been possible without external financial support.

Despite these improvements, a deeper analysis of trends in the education sector reveals a number of emerging difficulties. First, the enrolment profile follows a backward-leaning 'L shape' showing a bias of access towards primary levels with low coverage at the secondary level. This is associated with low net and gross enrolment rates beyond the first primary school cycle (EP1). In 2004, for example, the number of pupils entering the two secondary levels was equivalent to 8% of pupils in the primary system (up from 3.5% in 1992). UNESCO (2005) statistics suggest

Mozambique's net enrolment rate for levels EP2 to ES2 (ISCED levels 2 and 3) is 12% against a 30% regional average in 2002/03. There are two implications of this prioritization of primary schooling. First, there is a notable increase in pressure within the system as graduates from EP1 and EP2 frequently find they cannot continue their education. In 2005 alone, vacancies in the secondary system were 70,000 short of the number of pupils completing primary education (PAPs Secretariat, 2006). This pressure also appears to be associated with an increase in petty corruption whereby school places are "sold" by local teachers.

Second, and related to the above problem of diminishing access at higher levels, the expansion of the education system has not been matched by equally rapid efficiency gains, documented in detail by World Bank (2003a, 2003b).<sup>22</sup> High repetition and desistance rates at all scholastic levels result in high average costs per graduating student and are one indication of a low quality of education services. Although the survival rate to the last grade in EP1, for example, has increased from 34.0% in 1993 to 42.9% in 2003, it remains the case that the majority of students starting EP1 will not conclude this level.<sup>23</sup> Put another way, it takes an average of 21 input resource years to produce one primary school graduate (EP1 and EP2) compared to only 10 years in Zambia (World Bank, 2003b) or 7 years in theory. These inefficiencies continue through the system such that on average 212 resource years are required for a student to reach the final year of secondary school. The relatively high burden of central administration costs and high absolute school construction costs (also noted in the aforementioned World Bank studies) further undermine the overall efficiency of the sector.

A third worrying tendency is the deterioration of pupil-teacher ratios that has accompanied the expansion in pupil numbers. As shown in Table A.11, between 1992 and 2004 the ratio deteriorated by 11.2% at the primary level (EP1 and EP2) and by

---

<sup>22</sup> This is not to say there have been no efficiency gains; Arndt and Muzima (2004) and MPF and MINED (2003) observe gradual improvements in transition rates through the post-war period.

<sup>23</sup> The survival rate between two sequential grades is calculated as the number of entrants in grade n at time t divided by the number of entrants in grade n-1 at time t-1. The survival rate between two non-sequential grades is given by the multiple of all individual sequential survival rates between the first and last grades of interest.

88.7% at the secondary level, the latter figure reinforcing the higher priority given to primary education. In 2002/03 according to UNESCO (2005) the primary school (EP1) pupil-teacher ratio was 67, only exceeded in sub-Saharan Africa by Chad with 68. From the point of view of quality, it is widely recognised that a teacher-pupil ratio above 45 can severely reduce effectiveness. Aggravating this development is an increasing use of unqualified teachers, which again is most notable at the secondary level where 38% of all teachers were unqualified in 2004 against only 7.5% in 1992.<sup>24</sup> These teachers have been employed to reduce pressure (enable expansion) within the system in the apparent absence of a sufficient output of qualified teachers from training institutes possibly as well as in reaction to the higher costs of hiring qualified teachers. These points indicate, therefore, that while external aid has unambiguously supported quantitative expansion, the quality of education has remained at best stable if not fallen.

Tendencies in the health sector also indicate the existence of quality concerns despite significant progress in widening access to services. The historical importance of external funds and therefore their contribution to progress in the health sector is, as in the education sector, undeniable. Following expansion of external assistance to the sector in the late 1980s, aid consistently has financed around 60-70% of total spending against only 9% in 1983 (MPF and MISAU, 2004). Since the end of the civil war, external and internal funds have grown at similar rates, permitting total health care spending to rapidly increase in real terms from an estimated US\$5.0 per capita in 1997 to US\$10.7 in 2002 (World Bank, 2003b). External funding also has financed around 80% of all capital investment such that the construction and rehabilitation of health service infrastructure, a major priority in the 1990s, has been due in large part to this funding. The real expansion in health services is patent from the available delivery statistics. For example, the number of public health centres grew from 161 in 1994 to 683 in 2004; the total number of beds provided by the

---

<sup>24</sup> The definition of unqualified in these (Ministry of Education) data captures those teachers who do not possess one of the recognized teaching qualifications and/or do not have a qualification from a higher (tertiary) education institution. Note that in 2004 the majority (50%) of all qualified teachers held a CFPP (Centro de Formação de Professores Primários) qualification for which the minimum entry requirement is completion of primary school cycle EP2. As a result, one cannot assume that even all qualified primary teachers hold a secondary school level qualification.

public health service grew from around 9,000 in 1994 to over 17,000 in 2004 (INE; 2005). The number of pre-natal consultations has doubled and vaccine coverage has expanded very significantly (see Table A.7).

These gains in access contrast with efficiency and equity concerns in the sector. In particular, analyses point to continued sizeable inequalities in service delivery outputs and weak incentives for staff to provide more efficient, better quality services. Maputo City, for example, receives around 4 times the average funding per person and has over 3 times the average number of beds per person (data for 1999 in World Bank, 2002). In response to staff incentive problems, real expenditure growth has enabled large increases in remuneration but this has not been matched by improvements in personnel productivity. Between 1997 and 2000, for example, real staff expenditure increased by 94% while services delivered per staff member only increased by 7% (World Bank, 2003b). In comparative terms, salaries remain low in the sector which can be linked to evidence of various quality- and equity-harming activities. These include staff pursuing secondary income generating activities, the diversion of funds from goods and services into personnel compensation, and the non-application of fee-wavers and/or over-charging for certain users (World Bank, 2003b). Such difficulties are compounded by large caseloads and concomitant pressure on medical staff; in 2002, for example, there were approximately 43,584 inhabitants per doctor in Mozambique against an average of 21,970 in sub-Saharan Africa. Lastly, poor staff pay and conditions create weaker incentives for both technical and administrative staff to work in remote or under-served provinces, aggravating equity considerations. In turn, these under-staffed locations can face absorptive capacity difficulties due to greater technical constraints. World Bank (2002), for example, identifies that the most poorly serviced province, Zambézia, also tends to have the lowest budget execution rates while the better served provinces, with higher staff-population ratios, show generally higher and more consistent rates.

Evidence from the two sectors discussed here thus demonstrates that external aid has had a very positive impact on service delivery expansion. This has been reflected in the positive trend in social development indicators as well as the strong contribution of education in the growth accounting. It is not evident, however, that improvements in the quality of services have been achieved by nearly the same extent. These issues

reinforce the point that the efficiency and equity of public expenditure should not be obscured by a focus on quantitative expansion alone. Rather, there is a risk that where the former is neglected not only the realisation of the latter may become increasingly difficult but also the impact of expenditure on final outcomes is undermined. In terms of the impact on growth, lowering the quality of education may lower the salary-premium associated with educational attainment.

#### 4.3. Public infrastructure development

The positive relationship between household well-being and access to public infrastructure has been observed consistently across the literature. From the point of view of intended outcomes, the objective of external aid towards the provision of public infrastructure is to enhance access to these public goods in the most effective, equitable and sustainable manner possible. With respect to Mozambique, we have noted that one of the government's priorities since the end of the civil war has been the rebuilding and expansion of public infrastructure, including water, energy and communications networks. The fundamental contribution of both government and private investment to post-war economic growth has been highlighted in the growth accounting exercise. It is relevant therefore to consider the role of external aid in this sector.

Due to space limitations, rather than consider all aspects of public infrastructure we focus exclusively on the roads sector. This is apposite not only because the network registered substantial damage during the war but also as it is crucial to trade and production in a sparsely populated and geographically diverse country such as Mozambique.<sup>25</sup> Indeed, the road network is the principal means of transport in the country, representing over 60% of the value added of the transport and communications sector (INE). We also recall that prior to Independence, Mozambique served as a key provider of transport services to neighbouring countries, indicating the considerable economic potential of the sector.

---

<sup>25</sup> An important aspect of Mozambique's geographical diversity relates to the existence of very distinct agro-ecologies creating the potential for substantial inter-provincial trade as well as necessitating transport access from interior regions to export gateways.

The available statistics indicate that since 1992 very substantial progress has been made in rehabilitating and upgrading the classified road network. At the end of the war only 10% of roads were in good/fair condition and 50% were impassable.<sup>26</sup> By 2002, and as shown in Table A.12, 56% of the road network had been restored to good/fair condition and only 8% were impassable. Routine maintenance had been expanded to cover over 10,000 km of the network per year against less than 4,000 km in 1994. These improvements are reflected by large increases in real traffic volumes; road cargo traffic, for example, increased by over 650% from 1993-2002 and passenger traffic increased by over 100%. Tertiary and unclassified roads have also benefited from substantial rehabilitation, indicating that developmental efforts have not focused exclusively on arteries linking the main urban centres. Over 6,000 km of these rural feeder roads have been rehabilitated, mainly in more remote provinces, principally using labour intensive techniques with a local workforce. According to World Bank (2003b) over 40 of these labour-intensive brigades are operative in 10 provinces and these programmes have provided employment to over 40,000 people (UNDP, 2002).

The direct, developmental impact of these trends is apparent at both an aggregate and microeconomic level. At the household level, both government and donors have stated repeatedly that access to transport is a central determinant of rural production and overall household well-being. The World Bank 2001 country memorandum, for example, clarifies that improvement of the road network is the “single most important factor” able to stimulate agricultural and aggregate growth in the short- and long-term (2001b: 37). Survey evidence confirms that rehabilitation of the road network has made a robust contribution to poverty reduction to date. According to the IAF surveys, (see Table A.7), the percentage of the population with access to markets and collective transport almost doubled between 1997 and 2003. Estimates by Herman (2003) combining road density and poverty data suggest there is a negative correlation between access to roads and poverty. Nhate and Simler (2002) find that districts with a higher incidence of poverty tend to be served, if at all, by roads in a poor condition; conversely, districts with access to better roads appear to show lower poverty levels.

---

<sup>26</sup> Unless otherwise stated, the statistics in this section are taken from Herman (2003).

Qualitative analyses of poverty reinforce the very close connection between access to transport and well-being (Mate et al., 2005). These analyses also highlight the positive income contribution of wage labour on local road and bridge construction works to rural areas.

Comparative agricultural income data from the TIA surveys (1996 and 2002) indicate substantial gains from activities logically and necessarily linked to better access to transport and market-based opportunities. Three findings can be highlighted here. First, with respect to income from crop production, there has been a substantial diversification in the number of crops produced per household increasing from an average of 4.7 to 7.9 between the two survey dates. Second, increases in net income per person over the period have derived principally from wage employment (47%) and non-crop household production (39%). Within the latter category we notice that resource extraction activities such as wood cutting and charcoal production, often requiring transport for movement on a large scale, registered the most rapid growth, particularly in terms of the number of households engaged in this activity. Third, the surveys register a large jump from 7% to 23% of households owning a bicycle. All of these trends are consistent with gains from improved access to markets and reduced transport costs made possible through road network rehabilitation.

Finally, from a macroeconomic standpoint, the sectors encompassing transport, communications and commercial activities, whose performance depends on the road network, have contributed strongly to aggregate economic growth in the post-war period. INE estimates that the weight of these sectors in real GDP has remained around 30% for the entire 1992-2004 period, adding on average around 2 percentage points to annual real GDP growth, equivalent to 20% of aggregate growth for the period. Thus micro- and macro-economic evidence provides consistent support for the hypothesis that improvements in public infrastructure have enabled significant welfare gains from increased trade and access to markets and other public services.

The considerable influence of external assistance over the institutional and financial development of the roads sector is clear. As suggested in section 3.3, support to public infrastructure consistently has been one of the main priorities of aggregate external aid to the country. Donors have been active in the sector since at least 1981 (UNDP;

2002), although the main phase of expansion of external support has occurred since 1992. Data collected by Herman (2003) and World Bank (2003b) show that during the period 1996-2002 donors have financed approximately 75% of all expenditure in the roads sector. While the majority of this financing has been towards rehabilitation, with the government covering less than 10% of such costs, donors have also supported recurrent maintenance and administration expenditures. For 2003 and 2004, the government accounts (*Conta Geral do Estado*) suggest donor funding was equal to at least 60% of total expenditure in the sector. This figure is an underestimate as it *excludes* the indirect contribution of external funding via general budget support classified as internal investment.

In terms of the structure of external funding, the World Bank has been the lead agency since 1992, coordinating the contributions of up to 19 donors under a series of investment projects – namely, the First and Second Roads and Coastal Shipping (ROCS) projects (1992-1994 and 1994-2002), and the current Roads and Bridges Management and Maintenance Programme, (2002-2011). As a result, the World Bank has come to dominate both policy-development and analysis in the sector, evident from the substantial strategy and institutional changes that the Bank has made integral to its programmes. For example, the 1989 government transport strategy prioritised links to neighbouring countries. In contrast, the actual strategy executed since 1992 has been oriented more toward improving access routes throughout the country (World Bank, 1998a). World Bank emphasis on the use of private contractors has been reflected by an increasing use of competitive tendering as well as moves towards the privatization of parastatal public works companies (Herman, 2003). More recently in April 1999, the government undertook significant institutional reform, consistent with donor preferences, establishing the National Roads Administration (*Administração Nacional de Estradas, ANE*) as an autonomous body. However, according to the World Bank this reform did not go far enough and a second generation of deeper reforms to clarify and separate responsibilities within ANE has been called for (World Bank, 2000; Herman, 2003).<sup>27</sup>

---

<sup>27</sup> Some of these have been implemented, for example, in 2003 the Road Fund, which channels government contributions to the sector, was separated from ANE.



Despite these observed achievements, the sector has been marred by difficulties in achieving maintenance targets caused principally by uneven and inadequate government financial contributions to the sector as well as previous institutional weaknesses (Herman, 2003). During the 1990s this led to the build-up of a massive backlog in maintenance requirements and consequently an increase in the length of the network needing rehabilitation (World Bank, 2003b). For example, through 1994 to 1999 periodic maintenance only covered an average of 434 km per year against a target of over 3,000 km generating a backlog of over 16,000 km. In response to these internal funding difficulties, the current World Bank roads programme envisages donors funding a substantial portion of maintenance expenditures, decreasing over time. In addition, recent reforms to both the Road Fund and its financial arrangements would appear to place the sector on a more sustainable future footing (PAP Secretariat, 2006) although the success of this will depend on future government capacity and commitment.

From the growth accounting results we recall that government investment has made a considerable impact on economic growth. Within government investment, which we have seen is dependent on external funding, the roads sector represents one of the major expenditure items. The above overview thus confirms the deep influence, both financial and institutional, of external agencies over road sector development throughout the post-war period. The performance of the roads sector has been broadly robust and there appears to be general consensus among donors that the sector now benefits from an improved institutional structure. It is also evident that the influence of donors probably has been favourable to a more equitable allocation of investment funds than may otherwise have been the case in the sector. The positive effect of external aid on growth through the financing of much-needed public infrastructure thus appears quite distinct in this case.

#### 4.4. Agricultural production

The importance of the agricultural sector to growth and poverty reduction is well established. Indeed, “it is difficult to conceive of large scale reductions in poverty

---

without agricultural sector growth” (GRM, 2006: 18). This observation stems from basic structural features of the Mozambican economy. Nearly 70% of the population is rural and more than 90% of economically active people in rural areas point to agriculture as their principal occupation. Moreover, poverty rates are higher in rural versus urban areas.

Agriculture is also central to concerns related to gender and gender equity. Women are much more likely than men to cite agriculture as their primary occupation. In addition, women compose a larger share of the rural population than men. Overall, while employment in non-agricultural sectors is an important route out of poverty, the sheer volume of employment in the agricultural sector implies that agricultural sector growth is a condition sine qua non for large scale reductions in poverty at least through the medium term.

Finally, agriculture is important because fundamental growth prospects in the sector are good. As pointed out by Coughlin (2006), Mozambique possesses both a long coastline and vast tracts of virgin arable land. Numerous rivers traverse the country on their way to the ocean opening possibilities for irrigation on both large and small scales. As a result, agriculture and agricultural processing are regarded in the Mozambican PRSP as leading sectors for economic development.

Since 1992, performance of the agricultural sector, in terms of trend, has been relatively good. As highlighted in section 3.2, agricultural income surveys indicate growth in real income per adult equivalent between 1996 and 2002 of 65% using the mean and 30% using the median. The same survey also indicates: (i) strong diversification in terms of number of crops grown; (ii) an increase in mean area cropped per household; (iii) diversification in household income sources with increases in the relative importance of livestock, wage, and small business income; and (iv) improvements in indicators of sophistication of production, such as use of animal traction, chemical fertilizer, manure, and irrigation. While conflicting estimates emerge from different sources, the official data confirm agricultural production gains at about 25 – 30 percent for the same period. This is largely in line with income and consumption gains (as well as other welfare indicators such as health and assets). In addition, the growth in the number of crops planted indicates a relative

shift in effort away from major crops and towards other crops, particularly higher value horticultural crops, over the period 1996 – 2002.

A large portion of donor-funded activities in the agricultural sector are carried out under the overall framework of the PROAGRI programme channelled through the Ministry of Agriculture. However, specific project-assistance to the Ministry and a diverse set of NGO operations remain. Donor support accounts for some 80% of total spending in the sector, corresponding to about 5% of total government spending, equivalent to under 2% of GDP. As such, this falls short of the commitment to allocate 10% of total government spending to agriculture as made by African heads of state and government at the African Union summit in Mozambique in 2003. These figures are broadly consistent with the weight of agriculture in DAC donor commitments (Table A.9) which suggest that support to agriculture has fallen from 9% of donor funds in 1990-91 to 4.3% in 2000-2004. Thus, while flows have been important in absolute terms they have been below stated commitments in relative terms. Moreover, it should be recognized that the challenges of the agricultural sector are extremely large given the dispersed family-farm and technologically underdeveloped nature of agricultural production in Mozambique.

Allocation of funds within the sector appears to be unbalanced. For example, in 2006, agricultural research accounts for only about 10% of the total resource allocation of the Ministry (GRM, 2006) and extension amounts to 5%. Ministry insiders describe the effective allocation to research as considerably less than 10%. In contrast, general and administrative expenses budgeted for 2006, at 38% of the budget, are more than twice the allocation to research and extension combined.

Assessing the impact of foreign aid to agriculture is complicated. While gains in school enrolments or vaccination coverage rates are quite easily attributable to the Ministries of Education and Health respectively, gains in agricultural production and rural income stem from a wide variety of sources, many which are entirely unrelated to the activities of the Ministry of Agriculture. Such possible sources include favourable climate outcomes, improved marketing infrastructure such as roads, higher literacy rates amongst the population, improved health, and a general snapback from

depressed conditions post war. In short, demonstrating impact of external funding to the agricultural sector is far more difficult than in many of the social sectors.

The complexity of the endeavour, combined with data constraints, which are gradually receding, have contributed to the relative dearth of solid impact evaluation of agricultural sector spending. World Bank (2005b), for example, presents an attempt to link extension programs of both the government and NGOs with key variables such as agricultural production/income and poverty. Unfortunately, substantial methodological concerns means that their broadly positive conclusions appear to be overstated both in terms of magnitude and robustness.

Failure to document impact of programs in the agricultural sector does not necessarily imply an absence of impact. There could be impact and no documentation. Certainly, the Ministry of Agriculture does have some tangible successes to point to. For example, agricultural statistics have improved from an effectively non-existent base in 1992 (though ample room for continued improvement remains). A detailed market information system now makes available price information via publication and radio broadcast on a wide scale. In addition, farmers, particularly better-off farmers, report using this price information in their marketing decisions (Walker et al., 2005). Contract growing schemes in cotton and tobacco have experienced some success in producing for export and in introducing purchased inputs into the production process. With the current high world prices for sugar, the decision to place high border protection on sugar in order to maintain a domestic sugar price sufficient to attract investment looks, at the moment, positively clairvoyant. Finally, a small number of improved agricultural technologies have been disseminated on a reasonably wide scale (Coughlin, 2006).

Nevertheless, despite these changes it is clear that the strategically important research and extension activities of the Ministry remain very weak. Arguably, research and extension should be the fundamental core of government support to the sector. Instead, we note that these activities are repeatedly described as under-funded with a concomitant failure to generate and disseminate technologies adapted to local circumstances that are capable of broad impact (Coughlin, 2006; Eicher, 2004; Gemo, et al., 2005). Some orders of magnitude are instructive. As shown in Table A.11, the

Ministry of Education employed nearly 70,000 teachers in 2004 with the number of teachers growing continuously since 1992. The Ministry of Agriculture, on the other hand, employed 708 extension agents in 2004 with the number of extension agents essentially constant since 1999 (MADER, 2004). The extension system is evidently a very long way from providing national coverage, and there is no positive growth trend.

In our overall assessment, it would appear that, while donor support to agriculture has been forthcoming, there is a perplexing lack of attention to what appear to be priority needs, and donor support has not been sufficiently consistent. A case in point is the fluctuating attention paid to agricultural research and extension. Only recently does one find renewed emphasis on this area within the donor community. In sum, it is difficult to establish the contribution of donor support/government activity to the increased agricultural production and rural incomes observed over the past decade. Donor support has contributed to increased institutional capacity within the Ministry of Agriculture; however, considerable challenges remain, particularly in agricultural research and extension, before these gains are consolidated into a system that catalyzes sustained agricultural growth.

## **5. Aid and Unintended Outcomes**

### **5.1. Currency effects**

The salient debate concerning the relationship between capital inflows and exchange rates concerns the extent to which these inflows may lead to unintended distortions of the nominal and/or real exchange rates of the recipient country. For the purpose of this section we undertake a review of two main issues, namely the impact of external assistance on the level and volatility of the exchange. We focus here on shorter-term effects and cover in section 5.2 the longer-term structural effects and deeper potential influence on the private sector of aid flows.

The existence of ‘Dutch Disease’ is frequently cited as a potentially damaging effect of increased aid inflows.<sup>28</sup> The fundamental concept here is that a sustained increase

---

<sup>28</sup> For an overview of this topic see DFID (2002); for more detailed recent discussions see Adam (2005) and IMF (2005).

in capital inflows can lead to a re-allocation of productive incentives within the economy away from the production of tradables (exports and domestically produced import substitutes) and towards non-tradables (goods and services produced and consumed domestically). The mechanism through which this occurs is an increase in the price of the latter goods *relative* to the former through increased domestic spending occasioned by the capital inflow. The shift in prices squeezes the profit margins of exporters, makes imports relatively cheaper and therefore can lead to a relative contraction of exporting industries as seen in the Netherlands after the discovery of natural gas giving the phenomenon its name. While this is the theory, the empirical reality as Adam (2005) remarks is ‘generally ambiguous’, not least due to difficulties in estimating accurately the real exchange rate defined as the ratio of the prices of tradeables to non-tradables. In the context of Mozambique, distinguishing the unique exchange rate impact of foreign aid from changes in macroeconomic policy and structural reforms is far from easy. Nevertheless, it is possible to uncover some tentative conclusions for the relationship between aid and the real exchange rate in Mozambique for the period 1980-2004.

We approximate the real exchange rate ( $r$ ) in the standard fashion as:

$$r = n \cdot \left( \frac{p_w}{p_d} \right) \quad (5)$$

where  $n$  is the nominal exchange rate and  $p_w$  and  $p_d$  are world and domestic price indices respectively. For purposes of simplicity, we refer only to the exchange rate between the Metical and the US dollar; world prices are taken as a selected basket of world commodity prices taken from IMF statistics and domestic prices are represented by the official consumer price index. Looking at annual averages for these variables, Figure B.9 plots the real exchange rate against a lagged (one period) index of net aid.<sup>29</sup> Visually the two variables present a strong positive association (increases in aid are associated with a real depreciation). This is confirmed by a Spearman’s Rho statistic of 55% representing a (non-parametric) probability of less than 1% that the two variables are independent. There is little doubt that aid inflows have affected

---

<sup>29</sup> Note we lag one period to capture transmission effects. Real exchange rate appreciation is given by reduction in the value of the index (i.e. a strengthening of the local currency).

resource allocation, (see section 5.2), but these trends suggest that Mozambique is not a patient suffering Dutch Disease. The absence of standard ‘Dutch Disease’ effects is undoubtedly related to the fact that in large measure aid inflows have been absorbed by imports. Aid inflows are quickly transmitted through to movements in the current account deficit. This is illustrated by the clear relationship in terms of levels and trends between the current account deficit and net aid shown in Figure B.10. The IMF’s (2005b) analysis of the increase in net aid to Mozambique in the early 2000’s supports such a conclusion.

To be sure, the above analysis does not mean that aid inflows have had no interaction with the real exchange rate. It would, however, be equally erroneous to assume that throughout the period shown in Figure B.9 there has operated a relatively stable underlying mechanism connecting changes in aid inflows to movements in the real exchange rate. While this cannot be examined in detail, it would appear that for the period 1986-1995 the driving force behind real depreciation was weak monetary control and high inflation in the war-economy, as well as economic adjustment after currency overvaluation. From 1995-1999 lower inflation and rapid strengthening of international reserves enabled a readjustment of the real exchange rate towards levels of the late 1980s.

More recently, the annual and intra-annual volatility of both nominal and real exchange rates has been a dominant concern. Volatility can generate substantial negative effects for exporters; even temporary real movements (overshooting) can generate long-term effects where fixed investments are made in response to these changes (Adam, 2005). Alternatively, ongoing volatility can reduce investment in the tradables sector due to perceptions of elevated currency risk and weak government credibility and/or capacity to maintain currency stability. In 2004 the nominal rate with the US\$ appreciated by 21% followed by a 28% depreciation the following year, with much greater shifts between peaks and troughs. Monthly changes are also often large – between October and December 2005 the nominal rate appreciated 10% despite a 7% rise in consumer prices for the same period indicating an even larger real appreciation.

While it is not possible to prove conclusively that these variations can be connected directly to aid inflows in the absence of data on the timing of aid flows, the evidence is highly suggestive. Recall that foreign aid financed on average 90% of the current account deficit (1980-2004). Furthermore, aid inflows typically are volatile, lumpy and do not arrive according to a schedule known by the Central Bank. This generates liquidity management challenges and can contribute toward exchange rate volatility in a thin market. Broadly, evidence indicates that even direct budget support, which ought to be the ‘most’ predictable, does not always arrive as planned. Analysis of actual against planned quarterly disbursements for 2003 to 2005 shows a preponderance to disburse in the first half of the year less direct budget support than pledged followed by more than pledged in the second. Ernst & Young (2006) also find that despite improvements in the predictability of budget support, 30% of budget support donors did not disburse according to schedule in 2005 and over 20% did not meet the deadline to pre-advise the government their intended disbursement schedule. The point here is that external aid generates substantial foreign exchange management challenges, particularly where aid is one of the principal sources of currency and there is no necessary coincidence in the timing of supply and demand of such funds. It is highly likely that the extent of these challenges have exacerbated real and nominal exchange rate volatility.

In sum, while short-term Dutch Disease effects have been avoided in the past through the ‘spend and absorb’ (IMF 2005b) approach to external aid in a highly resource-constrained economy, this does not prove that longer-term exchange rate misalignment is absent. We pursue this question below.

## 5.2. Structural distortions

As noted above, empirical analysis of ‘Dutch Disease’ tends to focus on appreciation of the real exchange rate as measured by the nominal exchange rate deflated by the ratio of world and domestic prices. However an analysis of these effects does not necessarily capture the full impact on long-term productive incentives associated with aid inflows. Aid has certainly affected resource allocation evidenced by the relative amount of resources going into the public sector. The basic issue, therefore, is the extent to which aid has undermined the potential development of the domestic private



sector via a misalignment of the real exchange rate compared to its hypothetical position under long-run external balance.<sup>30</sup>

Perhaps the best way to pose this question is to consider the principal constraints to growth in the post-war period. We submit that the complete lack of a domestic entrepreneurial class, high levels of illiteracy, highly deficient public infrastructure and lack of penetration into international markets have been the critical impediments. None of these can be attributed to aid. Thus, it is unhelpful to suggest that aid would have been more productive had it been allocated, for example, towards labour-intensive manufacturing such as textiles production. One can of course point to specific areas where aid could have been spent more efficiently, as evident in the discussion of other sections of this paper, but this does not subtract from the principal argument here. However, these reflections relate to the past and one should carefully scrutinize the validity of this approach as a guide to the future, as discussed in section 6.

A final observation is that while one might speculate about how aid could have been directed more pointedly to private sector development in the past, this cannot be perceived as a specific critique of aid to Mozambique, i.e. aid failure. Instead this has been inherent, first, to the statist approach to development characteristic before 1980 and, second, to the neo-liberal paradigm where prices were the exclusive key to unlock private sector growth. More targeted approaches to private sector development involving aid is a more recent phenomenon.

### 5.3. Fiscal imbalances

The analysis of the education sector, and to a lesser extent the health sector, has made clear that quantitative expansion in access may not always be matched by improvements, or even maintenance of existing low-levels of quality. The pertinent issue is whether these trends directly relate to the structure of funding and, specifically, pressure on recurrent budgets *caused* by the lagged impact of investment expenditure. Certainly in the education sector the skew in the enrolment profile

---

<sup>30</sup> See Rajan and Subramanian (2005) for elaboration.

towards the first level of primary schooling matches a historical skew in expenditure from both internal and external sources. Throughout the 1990s, primary education has represented at least 60% of total education spending; in 1998, for example, 44% of expenditure, excluding related administrative costs, went to EP1 compared to 12% for EP2 and only 9% for the entire secondary system (World Bank, 2003a: 30). According to MPF and MINED (2003) the weight of external funding has been slightly more heavily in favour of primary schooling, being in line with the influential view that (universal) access to primary schooling should be a key priority for low income countries. Whether or not this external consensus has *driven* the allocation of education funds in Mozambique is impossible to judge, although the fit between this consensus and the evident needs of Mozambique clearly has facilitated the flow of external funds to the sector.

Of more significance, however, is that external funds have predominantly financed the construction of schools rather than ongoing staff or maintenance requirements. This is in line with the well-known preference of donors to fund capital investment as opposed to recurrent costs. In 2000, for example, 65% of all capital expenditures in the public education sector were funded by donors as against 15% of recurrent costs (World Bank, 2003b: 50). Investment has been a priority in the sector with some estimates suggesting up to a third of all education spending may have been on school construction during the 1990s (World Bank, 2003a: 37). Deterioration of both the pupil-teacher and the qualified teacher ratios would indicate that recurrent funding, from internal sources, has not been able to keep pace with the investment-led expansion in access. This is not only due to an insufficiency of internal tax receipts nor is this because education has received a relatively low proportion of internal funds. Macroeconomic stability has obliged fiscal caution, particularly in the domain of public sector salaries. As part of the IMF programme with Mozambique there has been an implicit cap on total government salary expenditure at under 8% of GDP.

A further challenge, as discussed by the World Bank (2003b), relates to the relatively high salaries and unequal pay structure of qualified teachers, seen as an impediment to growth of the teacher stock particularly beyond EP1 level. A consequent recommendation has been a reduction in these salaries. This would diminish incentives to enter the teaching profession, running counter to the need to attract

substantially more teachers in the context of a relatively small stock of working adults holding a secondary level qualification and growing private sector demand. The point is that continued rapid expansion of the education sector, particularly at the primary level, may not be compatible with fiscal and macroeconomic objectives or with labour market dynamics.

In common with the education sector, pressures on recurrent expenditure in the health sector also appear to result from the prioritization of expanded coverage of services through health infrastructure expansion. This agenda is certainly shared, if not driven, by external partners and has led to a weight of investment in total spending of around 15%-20% (1997-2000), deemed to be excessive for a low income country (MPF and MISAU, 2004).<sup>31</sup> Indeed, the same review of health sector spending concludes that, "... investments have been made with little reflection and concern for their impact on future recurrent costs." (2004: 18; authors' translation). Despite recent evidence of tighter control of investment and a greater willingness of donors to support recurrent costs, the 2005 ministerial sector plan estimates that the weight of investment remains around 18% (MISAU, 2005).

The above discussion has made a connection between the scaling-up of the provision of public goods, made possible through external support, with longer-term recurrent funding challenges. The message is that the customary focus of external aid on meeting sector-specific goals can generate unintended fiscal imbalances at least at an aggregate level. In turn, funding shortages or delays associated with these imbalances can undermine the quality and effectiveness of service delivery.

#### 5.4. Policy and planning implications

Fiscal imbalances often are a symptom of planning weaknesses at either the aggregate or sector levels. The former is encountered where funding requirements identified (agreed) at the sector-level are not compatible with aggregate budget demands and/or

---

<sup>31</sup> This view, however, is not encountered consistently across Ministry of Health documents. A 2001 study of funding sources argued that investment rates were unacceptably low in the sector and recommended the development of an investment plan and creation of a new common investment fund. In contrast, according to MPF and MISAU (2004: 73), in 2002 the Ministry produced a preliminary investment plan explicitly *limiting* new investments precisely due to their recurrent cost implications.

public financial management capacities. In other words, sector- and aggregate-level expectations may be disconnected. Planning incoherence is found within a sector where the dynamic, long-term impacts of policy interventions simply are not considered fully by the sector itself. Two common features of external funding can contribute to planning difficulties at the sector level. First, informational and institutional fragmentation can occur when a sector receives funds from various sources earmarked for distinct activities. This is aggravated when funding agencies are not synchronised with sector planning instruments and when they make specific reporting and accounting demands. Second, the different policy priorities of funding agencies *within* a given sector can generate inconsistencies in the pursued objectives. Together these effects can act against both coordinated policymaking and the more equitable distribution of resources.

A case in point here is the health sector which, due to its very high reliance on external funding, embraces a large number of funding agencies each with specific preferences and working procedures. A problematic relationship between external assistance and policy coordination was identified as early as 1992 in a health sector public expenditure review (World Bank, 1992). MPF and MISAU (2004) and World Bank (2002, 2003b) continue to make similar observations, also noting substantial inefficiencies in resource management connected with the coordination of external aid. Although common funding instruments are now significant in the sector, the majority (60%) of external funding according to the 2006 sector plan continues to arrive in the form of projects over which the central ministry has varying levels of control and information. Despite progress, the ministry plan for 2005 remarks that external investment funds are unpredictable and poorly integrated with wider sector planning mechanisms (MISAU, 2005: 14). Cabral et al.'s (2005) detailed review of resources in the sector confirms that a unified, single annual resource planning exercise still does not take place.

In the education sector, we have noted that the long-term fiscal implications of investment activities have not been considered in detail, either by the sector or more generally by the government. In the minimum, it would appear that donors have been complicit with this trend – sector plans and donor reviews often fail to stress the considerable fiscal challenges presented by current education targets. Weakness in

sectoral planning were highlighted recently in negotiations with the IMF for the preparation of the 2006 budget – the IMF, rightly, expressed scepticism concerning the very large number of new recruits requested by the education sector as these were not supported by robust planning documents and/or resource projections.<sup>32</sup> Even at an aggregate level, the 2005 joint donor-government review fails to place the recognised resource needs of the sector within its wider (non-sectoral) fiscal context (PAP Secretariat, 2006: 14). These challenges may also have been exacerbated by a lack of coordination or even competition among donors. For example, a Nordic review of the PRSP processes criticises Washington-based World Bank staff for pushing the Fast-track for Education initiative outside the sector working-group approach (Scanteam, 2003). Thus there are elements of weak planning at both the sector and aggregate levels in this case.

The case of the roads sector demonstrates the simple existence of a disconnect between sector- and macro-level planning. Here the government, in agreement with the World Bank, made clear multi-annual pre-commitments regarding its financial contribution to the sector and consequent maintenance targets. While donor-funded rehabilitation works were completed largely as planned, inadequate and uneven government transfers to the Road Fund from internal revenue resulted in a ‘massive failure’ of periodic maintenance (Herman, 2003). Why the government did not transfer sufficient funds, to the extent that the Road Fund often received substantially less than the value of raised fuel taxes, appears mainly to have been due to the precedence of aggregate fiscal and macroeconomic targets imposed by the Ministry of Planning and Finance (World Bank, 2003d: 14). The point here is that as external aid has dynamic long-term fiscal implications, the effective scaling-up of aid interventions demands considerable coordinated planning both within and across these sectors.

Planning incoherence at an aggregate level also can be associated with external funding. The principal driver behind this is the elevated importance and autonomy of government sectors in comparison to central (coordinating) ministries, an unintended

---

<sup>32</sup> The education ministry initially requested funding to permit the recruitment of 11,500 new staff; the final budget, nonetheless, projected the recruitment of only 4,715 new teachers (GM, 2006).

effect of external assistance being targeted specifically and often disbursed directly to the sectors. Where external assistance is substantial, as in the case of Mozambique, central planning instruments including the government budget can be undermined and become of limited importance to the individual sectors. The most obvious example of this is found in the historical importance of off-budget flows already discussed. In the health sector alone, estimates for 2002 and 2003 suggest that over 20% of funds forecast as being available to the sector were not inscribed in the government budget, over 50% of executed funds did not pass through the central treasury, and over 40% of received funds were not reflected in government execution accounts (Cabral et al., 2005). Although there are certain internal revenues also considered off-budget, the vast majority of such flows come from external sources. A result is a lack of information at the central government level concerning the volume and allocation of funds even where sectors are aware of this data. The quality of aggregate fiscal projections and planning is thus undermined, further weakening incentives for sectors to participate fully in aggregate planning exercises. Furthermore, such participation is associated with high transaction costs as well as the downside risk that internal government funding will be reduced if central ministries are aware of the true volume of finance available to the sector (Cabral et al., 2005; Hodges and Tibana, 2005).

In sum, the historical tendency of channelling external funding directly towards sectors, bypassing central review and management, has contributed both to weak central planning capacities and poorly coordinated policy interventions. As expressed in a World Bank expenditure review: “The policy process does not always consist of formulating a strategy and then having donors contribute to specified parts of it. Instead donors make proposals and, in a decentralized fashion, projects are taken on. The result is a mosaic of programs based on different philosophies, of differing quality and with widely differing cost structures” (World Bank, 2003b: 33-34).

The gradual movement towards pooled funding (programme) instruments in Mozambique since the mid-1990s has been in recognition to these unintended negative effects of project-based funding. While we acknowledge these instruments have been helpful, a number of reservations can be made concerning the effective contribution of these instruments to sectoral and aggregate planning. First, it has been stressed that pooled mechanisms are growing *alongside* rather than replacing

traditional project-based instruments. As the former tend to place much greater demands on individual ministries in terms of time and capacity (Pavignani and Hauck, 2002), clear progress in reducing the overall transaction costs associated with external aid are not yet obvious. Killick's (2005: 47-50) review of the status and benefits of sector programme instruments confirms this, arguing that the 'reality' of these instruments has fallen a long-way short of their potential. Second, with expansion of sectoral pooled instruments rather than general budget support alone, aid to Mozambique continues to have a very strong sectoral focus. As a result, information sharing and aggregate coordination remains weak, recognised explicitly in the 2005 government-donor review (PAP Secretariat, 2006: 21). Third, and particularly at the sector level, pooling instruments have been developed on an *ad hoc* basis with little interaction between sectors or with central planning functions. This further exacerbates the sectoral dimension of aid flows. Lastly, coordination at all levels is being undermined by the emergence of large, (multi)-sectoral funds such as the Millennium Challenge Account (MCA) which often are not linked to pooled instruments or sector plans. Thus, recent changes in funding modalities are not uniform and have yet to yield distinct improvements in the quality of sector or aggregate planning; it would be misleading, therefore, to view the expansion of new instruments as a panacea.

#### 5.5. Corruption and institutional effects

The discussions in previous sections have already alerted the reader to the existence of a two-way relationship between external aid and the institutional framework, representing the formal and informal structures and processes (rules of the game) which govern the broad spectrum of government activities. We have noted that in the early 1980s, when Mozambique turned to Western donors, the country was facing a deep economic and policy crisis. The relatively rapid movement away from socialist central planning and the implementation of wide-ranging reforms indicates a considerable institutional transformation closely connected with the influence and direct advice of external agencies. Some of the resulting changes to the institutional environment, for example, in the greater independence of the Central Bank and reduction of government interference in the market, undeniably have had a long-term beneficial economic impact.

At the same time, we have documented that the historical tendency to channel funding towards sectors often through projects has contributed to institutional fragmentation and planning weaknesses. The experience of external aid thus has shaped the evolution of the institutional framework leading to the entrenchment of certain rules of the game that are detrimental to coordinated policy and planning interventions. These represent historical responses to the complex institutional challenges arising from high aid intensity and multiple donors, indicating a degree of path-dependency in institution formation in response to external aid flows.

Analysis of the relationship between public sector corruption and external aid provides a concrete example of the historical interweaving of aid and institutional development in Mozambique. Various analysts (e.g. Mosse, 2004, Hanlon, 2002) contrast the evidence of extremely low levels of corruption during the immediate post-Independence socialist era against examples of low and high-level corruption throughout the public sector in modern Mozambique. The latter was exemplified by the murders in 2000 and 2001, and subsequent judicial inertia, of the investigative journalist Carlos Cardoso and the temporary administrator of a crisis-ridden commercial bank, António Siba Siba Macuácuá. Both investigated the connections of senior political figures to substantial bank frauds in the 1990s. More recently, the admission that corruption now has a broad and deep political and economic influence was unmistakable in Armando Guebuza's frequent criticism, during his Presidential campaign in 2004 and after winning office. He referred to an entrenched culture of neglect and licence ("*espírito de deixar andar*") within the public sector.

The relevant issue here is not whether corruption exists or has intensified, but rather what relation these perceptible trends have had with external aid. Three main arguments have been employed in this vein. First, Hanlon (1991) argues that external pressure to see rapid and deep public sector reforms facilitated the emergence of a predatory elite who took advantage of privatizations and public loans for personal enrichment. Second, and relatedly, one encounters the argument that donors have been either complicit with public sector corruption (Hanlon, 2002) or at least insufficiently critical of weak institutional oversight thus permitting the misuse of



public funds (Mosse, 2004).<sup>33</sup> Third, a more specific variant of this point is that the existence of fragmented external funding to the public sector, frequently outside of normal fiscal channels (*off-budgets*), also has created greater opportunities for the misuse of funds in the absence of strong inspection and audit mechanisms (Scanteam, 2004).

The extent to which one can hold external agencies responsible for the emergence of public sector corruption ultimately is a matter of historical judgement. Of course, the sheer volume of resource transfers in the context of an institutionally weak and resource-poor public sector has created additional opportunities, and perhaps incentives, for the misuse of public funds. A more useful framework, however, is to consider these trends in light of what Pitcher (2003) calls the ‘reinvention’ of Mozambican public life. The rapid transformation from a socialist to a market-oriented ideology has taken place without equivalent changes in the ruling elite. Political stability, as elsewhere, has been dependent on achieving a balance between the diverse objectives of senior figures. In Mozambique these have ranged from the outright ‘predatory’ to ‘developmental’ (Mosse, 2004). The (re)-negotiation of these objectives alongside the perceived need to maintain economic and political stability in the context of demobilisation of influential military personnel, who initially had fought under a socialist banner, clearly have interacted with the possibilities presented by the inflow of external funds and pressures for reform, both external and internal.<sup>34</sup> Thus, as emphasised above, one finds that external aid has had dynamic institutional effects in the sense of both being shaped by and helping to shape institutional development in the transition to a market-based economy. A result of this interaction has been the politicization and immature development of public institutions which

---

<sup>33</sup> A case in point here is that no due diligence was undertaken prior to the privatization of two major commercial banks in the late 1990s (Hanlon, 2002).

<sup>34</sup> Internal pressures and a belief in market-based reforms were by no means non-existent. Indeed, in interviews with the media in reaction to criticisms of corruption and negligence in the public sector since leaving office, former President Chissano has observed that the privatization process was influenced by both economic and internal political forces including the need to reward political supporters after the civil war. Furthermore, he has suggested that the perceived passivity of the government towards negligence in the public sector also was, in part, related to the need to maintain political stability and not return to civil war.

might promote accountability and transparency in the use of public funds, a trend that Mosse (2004) considers has been strategic for the reproduction of political elites.

Of further interest is the extent to which external agencies have understood and/or attempted to redress these negative institutional dynamics associated with external aid. Certainly the recent donor emphasis on public financial management and justice reform represents recognition of deficiencies in these areas that may be aggravated by external funds. Evaluations of past interventions however have noted insufficient attention to institutional strengthening such as the development of internal checks and balances through internal audit and an independent judiciary. For example, an independent evaluation of the EC's support of post-war rehabilitation argues that the programme was "... biased towards physical rather than institutional rehabilitation." (APT Consult, 1999: 50). A former head of the World Bank's office in Mozambique, who served during the epoch of rapid privatization and policy reform, also has commented that both the Bank and the government neglected certain political and institutional challenges in the 'rush' to achieve concrete results (Pomerantz, 2005). Despite these retrospectives, the staggering number of donor-supported endeavours to which the government either has committed or is required to respond continues to generate uneven and often unmanageable institutional pressures in an environment of well-known coordination difficulties and human capacity constraints (Sulemane, 2001; Hodges and Tibana, 2005).

## **6. Mozambique in the Current Debate**

### **6.1. Reflecting on the past**

The above analysis of the intended and unintended consequences of aid in Mozambique provides grounds for reflection on a number of the current debates concerning the impact and effectiveness of external assistance. Clearly, the extent to which one can extrapolate from the specific case of Mozambique to general trends in external assistance is limited – an advantage of cross-country analysis is in providing some kind of credible counterfactual (Tarp, 2006). At the same time, we have noted that the cross-country evidence has been inconclusive in explaining when and why external assistance has a positive effect on both macro and micro developmental outcomes. Thus, while the case of Mozambique may represent an outlier in aid-

growth regressions, its importance lies in contributing to a better understanding of the processes that generate the considerable observed variance in the aid-growth relationship. Much of this derives from an examination of deeper variables that have influenced the interaction between aid and growth and their relative importance over time.

An organizing framework for sifting through these relationships can be borrowed from DHT (2004) who present an aid-augmented intergenerational transfers model in the tradition of Diamond to outline the theoretical foundations of the channels through which aid may affect growth. The model focuses on aid and factor productivity; from a growth accounting perspective, the impact of aid is felt via the quality/ efficiency parameters used to weigh raw factor inputs as well as through TFP as a whole. Explicitly, they suggest long-run productivity ( $y^*$ ) can be modelled in reduced form as a function of foreign aid ( $\alpha$ ), policies ( $\pi$ ) and other structural factors ( $\delta$ ):

$$y^* = F(\alpha, \pi, \delta) \quad (6)$$

Without knowing the exact functional form of  $F(\cdot)$ , a Taylor approximation would imply the existence of linear, quadratic and interaction terms across the variables. This indicates, *a priori*, that we may find a ‘mutually intertwined’ (DHT, 2004: 196) relationship between these variables in their impact on long-run productivity. Much of the recent aid effectiveness literature represents empirical attempts to decipher the general empirical form of equation (6).

Focusing first on the impact of aid on growth, it is worth addressing the critique that Mozambican growth has been independent of external aid. Certainly ‘natural’ post-war recuperation, such as the return of internally displaced peoples to rural areas and improved incentives for private investment, has played a critical role. However, even from the perspective of political stability, the relevance of which is shown by the immediate response of growth to peace and the switch to trend positive TFP growth found in the growth accounting exercise, external aid played a pivotal role. The majority of commentators, such as Vines (1998), have argued that financial incentives for peace, including aid pledges and direct payments to the parties involved, were

crucial in securing the final peace accord.<sup>35</sup> The achievement of democratic elections in 1994, 1999 and 2004 since has also been heavily supported by external agencies. In addition, we have documented the economic weight of external resource transfers as the primary source of finance for foreign exchange, providing a very direct contribution to economic stability. As such external aid has been integral to the establishment of a more growth-conducive environment, confirmed by the slightly lagged recuperation of private investment also found in the growth accounting results.

From equation (6) the nature of this aid effect has been to nudge the economy back toward its production possibilities frontier, easing restrictions on factor productivity caused by political and economic instability. In aid-growth regressions this channel may be captured by policy and aid-policy interaction terms where instability is reflected by measures of institutional quality. An important point here, however, is that while this stabilising effect of aid may promote short-term growth, it does not necessarily augment the long-term equilibrium level of productivity. For Mozambique this is implied in a declining rate of TFP growth the greater the distance from peace (see Table A.3, Figure B.2). The growth response to external aid therefore is unlikely to be stable but must be a function of the recipient country's distance from the theoretical production possibilities frontier as well as the degree to which aid in fact supports economic and political stabilisation.

Beyond the stabilising effects of external aid, we can identify more direct long-term growth effects via external financing of government investment, essentially in its entirety both prior to and throughout the post-war period. The most immediate and quantified example of this is found in the expansion of education, which has seen substantial progress since 1992. Investment in education has sustained recent rates of rapid growth, contributing to 13.9% of annual average real growth in 1999-2004 against 8.4% in the immediate post-war period based on our estimates. While the growth impact of investment in roads and health infrastructure has not been quantified in a similar fashion, it is reasonable to conclude that the direct contributions to economic growth of government and private sector investment in the post-war period,

---

<sup>35</sup> Renamo leaders, for example, were given exclusive access for over one year to a large international hotel in Maputo while the peace accords were being negotiated.

whose shares in actual growth represented 13.5% and 33.6% respectively, would have been substantially reduced in the absence of such external finance. Most obviously, growth in commerce, tourism and construction has been strongly supported by government investment in public infrastructure financed by external aid.

These findings appear to give credence to the argument in Clemens et al. (2004) that specific types of aid have different growth impacts over unequal time periods. Returning to the example of education, the observed growth effect attributable to graduates from the secondary school education system cannot be derived solely from aid-financed investments in the past 4 years – the period typically examined in aid-growth regressions. Rather, as demonstrated in Figure B.11, the impact of education is necessarily a cumulative process where expansion of the primary and secondary systems over many years provides the basis for lagged population-level economic effects. Thus, it is investment in education both during the war and afterwards that is now yielding aggregate economic benefits. In contrast, infrastructure investment is likely to have had a much more immediate impact, illustrated by the jump in the percentage of the population with access to markets between 1997 and 2003 (Table A.7).

These arguments indicate that a useful extension to equation (6) may be a decomposition of the aid term according to its type. Applying the approach of Clemens et al. (2004) discussed in section 3.3, we can note that during the 1980s on average at least 45% of aid was directed toward general humanitarian needs, including food aid. We also know that a substantial portion of aid during that period was motivated by geo-strategic concerns, reducing its growth effect. Since the end of the civil war an average of 80% of net aid has been directed toward developmental (growth) concerns with an expected impact in both early and later time horizons. These relationships are shown clearly in Figure B.12 which plots the growth rate against the ratio of developmental aid in total net aid for each year.<sup>36</sup> We note a positive relationship between the growth rate and the developmental aid ratio, also

---

<sup>36</sup> We define developmental aid as the sum of early and late impact aid as defined in section 3.3. The developmental aid ratio thus gives the percentage of developmental aid in total net aid.

demonstrated in Table A.13. Of course, this does not mean there is a simple causal relationship between the two variables but confirms they are mutually related.

This evidence would seem to support the existence of virtuous and vicious aid-growth episodes in which the quality and credibility of growth as well as the modality of aid are relevant factors. The concept of vicious growth cycles is not new but generally is associated with conflict and its economic roots (e.g. Collier and Hoeffler, 2002). We stretch the idea here to cover the relationship between aid and growth, noting that a vicious cycle may emerge where prolonged or repeated humanitarian crisis stimulates high inflows of humanitarian aid. The effect of any growth-oriented aid in these episodes is likely to be undermined by the effects of the crisis. Also, as documented in the literature, inflows of external aid in such crisis situations can generate highly perverse institutional incentives and/or fuel corruption (Bolongaita, 2004). Thus where sustained growth is not a credible political objective, we may find low growth alongside considerable (humanitarian) aid inflows. More virtuous cycles are generated from improved conditions which stimulate both domestic support for the circumstances associated with growth but also a movement towards greater early and late-impact developmental aid.<sup>37</sup> The Mozambican experience represents a shift from a vicious to a virtuous cycle, marked by the end of civil war and the emergence of sustained growth supported by external aid. Importantly, as the evidence shows, the end of the civil war coincided with the rapid relocation of displaced populations and a swift restart to growth, assisted by improved climatic conditions from 1994 onwards. In virtuous episodes, however, the aid-growth relation is not likely to be stable. Rather it will depend on the interaction between the changing nature of developmental challenges and the changing aid-growth lag structure associated with the composition of net aid. Unfortunately, the limited number of data points available to us in the Mozambican case restricts the use of rigorous quantitative time series analysis to investigate further these relationships.

---

<sup>37</sup> As Rajan puts it: “While it is believed that a good institutional environment is needed to facilitate growth, growth itself can create a domestic constituency powerful enough to demand and sustain the good institutional environment.” (2004: 8)

Related to the question of aid composition is the existence of diminishing returns represented by quadratic terms in aid. In the framework of cross-country aid-growth regressions, the concept of diminishing returns (embedded in constrained absorptive capacity) usually refers to reducing marginal returns to increases in the volume of external aid. In addition to this concept, we can suggest there may be diminishing returns to aid over time. Where external aid has a stabilisation effect, the short-run growth impact of external aid would be consistent with this hypothesis. In theory, one would also expect diminishing marginal returns over time to early impact investments in public infrastructure. The growth accounting evidence certainly suggests that the relative contribution of public investment to growth has diminished in the later as compared to the earlier post-war period, although this does not distinguish between the different forms of investment undertaken.

Deeper evidence for diminishing returns (over time and in levels terms) comes from the fiscal pressures generated by externally financed investments in public and social infrastructure. It is evident that the rate of return from such investments was particularly high in the early post-war period for Mozambique due to the very low base from which they were made. However, our analysis suggests these rates are unlikely to be sustained due to difficulties in meeting recurrent costs without prejudicing the quality of public goods offered. Thus, the existence of fiscal constraints indicates that as the economy tends towards its maximum (fiscal) capacity to absorb aid, the average rate of return on aid inflows is likely to fall. In these cases we would expect a growing focus on improving the productivity of aid through, *inter alia*, institutional strengthening. This is characteristic in Mozambique where the trend decline in humanitarian aid has been replaced by a growing emphasis on later-impact governance reforms.

These findings help us to put the concept of a stable linear relationship between growth and aid into perspective. Not only is the changing composition and potential rate of return to aid an essential dimension for analysis, but evidence suggests that the composition of aid is itself endogenous to the growth process. Moreover, the return to aid may depend on interactions between these decomposed aid terms. For example, improvements in absorptive capacity made possible through better fiscal management may reduce the size of diminishing returns to early-impact aid. Theoretical and

econometric work to untangle these channels thus might represent a fruitful direction for aid-effectiveness research.

Turning to the second term in equation (6), the DHT model identifies the direct impact of policies on productivity via the rate of return to investment. However both the discussion of section 5, as well as the argument of this section, immediately challenges a simplistic notion that aid is only effective in a good policy environment. In contrast to a substantial portion of the literature which treats policy and public institutions as independent of external aid, a more useful perspective is that the nature and structure of external funding both responds to (is complicit with) and acts upon (shapes) the institutional framework over time.<sup>38</sup> We have seen in Mozambique that movement towards political and macroeconomic stabilisation, as well as the creation of more market-friendly institutions, cannot be treated as occurring independently of external aid. Under certain conditions aid can be instrumental in promoting a ‘better’ policy / institutional environment that supports future growth – indeed this is the very objective of certain late-impact types of aid. On the other hand, perverse institutional effects are also a potential by-product of aid inflows. More generally, even where the quality of the policy environment is high, the average rate of return to aid is likely to be lower when there are substantial constraints on absorptive capacity. Thus, while an aid-policy interaction term may exist, the direction and strength of this relationship cannot be known *a priori* and can be expected to evolve over time depending on the quality of past growth and the composition of aid flows.

It is at this juncture that analysis of political economy variables can help towards a deeper understanding of the interaction between aid, institutions (policy) and growth. Considering that many of the generic criticisms of aid can be found in Mozambique – e.g., high aid intensity, fragmented donors, weak institutions and a fragile but improved policy environment – of interest is how these distortions have not translated into weak or transitory real growth. Part of the answer here relates to the degree to which market-based reforms have not met substantial internal resistance but rather have played an integral role in domestic political development. It has been noted that

---

<sup>38</sup> Note that while DHT (2004) make a distinction between policy and institutions, for simplicity we treat them together in this discussion.



the ruling elite (FRELIMO) co-opted the reform process, using it as a vehicle for the transformation of the political landscape through '*empresarialização*' (Mosse, 2004), that is the creation of a business elite with continued links to the party. The embracing of market-based reforms not only provided an opportunity to reward and strengthen FRELIMO, but also helped to support the ideological transition from conflict and socialism to peace. Furthermore, as Pitcher (2003) argues, there is substantial historical continuity linking the socialist past with the market-based era through the high degree of openness to external aid and policy influence that has characterized both periods. Acceptance of external aid for both political and developmental reasons also helps explain the depth of penetration and dispersion of aid *across* the public sector. That this coincided with very immediate and extensive developmental needs has meant, at least until recently, that the negative institutional effects of the structure of external aid have not substantially undermined its impact.

Easterly (2005) argues that 'the best plan is no plan' with regard to external aid. The Mozambique case suggests that fragmented and uncoordinated external aid has the potential to plant the seed of its own destruction, rendering itself increasingly ineffective over the long-run even generating negative returns. Among the various incentive problems found in the donor-government relationship (e.g., Moss et al., 2006; Svensson, 2005), there is a potential collective action problem between donors that may lead to an under-investment or under-prioritisation of capacity and institutional building that might permit a more positive long-term aid-growth relationship. Even where agencies recognise the importance of better coordination, there are considerable incentives to free-ride on information sharing, planning and coordination activities which are costly, time-consuming and generate public benefits for other donors. These costs also generate classic first-mover problems placing limits on the extent to which any single donor is willing to invest in these areas. In contrast, there are greater incentives to direct funding towards activities that give more concrete and identifiable results in part due to domestic political pressures facing donor agencies (de Renzio et al., 2005).

While the extent of this collective action problem in the aggregate is difficult to determine, this issue has at least arisen in specific instances. The MCA, for example, has been since 2004 a heavy demander of government capacity with no contributions

to local capacity to date and no identifiable plans for capacity building in the future. The MCA emphasizes concrete and identifiable results *for MCA funded programmes* to the exclusion of any other criteria. Political pressure from the United States Congress is frequently referred to explicitly by MCA staff as a major driver behind their behaviour.

On the government side one also encounters substantial incentives that support dispersed and uncoordinated access to external aid. As has been noted extensively, external funds can provide private benefits for civil servants in the form of salary increments and opportunities for training, travel and consultancies.<sup>39</sup> External finance also can furnish managers with greater capacity and autonomy to achieve results, enabling them to gain status within the organisation and the wider professional community. Under conditions of institutional disarray and deficient technical capacity, such as post-conflict Mozambique, it is unsurprising that both the domestic technical skills and confidence to elaborate and implement effective developmental social and economic policies (whatever these might be) simply have not been abundant. Confronted by the financial weight and political influence of donor agencies, there are high political costs associated with attempts to limit external aid inflows and few *perceived* benefits from doing so. For Mozambique, these incentive structures combined with a tradition of external influence and a high-level of reliance and political openness to aid have produced a situation in which there has been minimal discussion of the potential negative consequences of external aid. In contrast, we find managers often actively compete for access to external (project) funds (MPF and MISAU, 2004).<sup>40</sup>

A wider dimension to this discussion relates to the impact of external aid on political institutions and the state-citizen relationship. As has been discussed by Moss et al.

---

<sup>39</sup> These aspects of aid have been discussed widely in the literature and are seen to be exacerbated under fragmented, project aid. For Mozambique see for example Killick (2005).

<sup>40</sup> This was demonstrated in the recent discussion concerning Mozambique's second poverty reduction strategy paper. The first draft of the paper included a projection of external aid remaining roughly constant in absolute terms through the period to 2009 based on fiscal prudence as well as the perceived necessity to evaluate absorptive capacity constraints. However, in response to donor concerns that these projections represented ceilings to aid inflows, the Minister for Planning and Development gave a clear message that Mozambique remained very much open to all external aid.

(2005), external aid can reinforce patron-client relations and weaken the public accountability (legitimacy) of the government due to a reduced need to develop an effective and efficient tax administration system. A consequence can be increased fiscal indiscipline and disinterest in coherent developmental policies supportive of a more constructive state-citizen relationship. The analysis presented in section 3.4 supports the hypothesis that political attention to internal revenue generation probably has been undermined by the availability of external finance. Hodges and Tibana (2005) go further, arguing that the quality and public relevance of political processes such as the government budget have been weakened by the government's access to and reliance on external funding. Certainly one observes a split in political accountability to the public, via democratic institutions on the one hand, and the donors via extra-democratic processes on the other. This is exemplified in Mozambique by the existence of two parallel high-level medium-term planning documents – the government's performance is evaluated by Parliament according to the *Plano Quinquenal do Governo* (PQG - the government's five year plan) while the PRSP is used as the basis for donor evaluations.<sup>41</sup>

In this context a chronic problem facing Mozambique relates to domestic policy development and leadership. We have seen that external aid can debilitate effective planning and policy coordination due to the existence of multiple principals and high costs of and limited incentives towards coordination. Weakened domestic political accountability associated with external aid also dulls internal pressures for more coherent developmental policies. Moreover, we observe that common funding instruments, such as budget support, are associated with a deeper level of penetration of donors on government policy due to the movement from project-specific towards broader-levels of policy and programme evaluation as well as heightened risks for the government if donors decide to pull-out financing. Thus, given the historical factors involved and continued capacity deficiencies in Mozambique, the political challenge is how to strengthen incentives in support of genuine domestic policy leadership and a commitment to the learning-by-doing of developmental policy.

---

<sup>41</sup> It is worth noting that the current PRSP states explicitly that, for the next five year period running from 2010-2014, the contents of the PRSP will be merged into the PQG, leaving uniquely the PQG as the guiding planning document.

The point here is that the structure of incentives does not stimulate sufficient political demand for coherent domestic development policies nor does it provoke an *awareness* of the trade-offs and distortions associated with external aid. If we allow for path-dependent institutional change then over the long-run these effects can debilitate the technical and cultural development of both the civil service and political institutions, undermining marginal gains from additional aid flows and prejudicing future attempts aimed at institutional strengthening. As such, where aid is dominated by a shorter-term focus on tangible results and misunderstands the nature of its effect on institutional evolution, it can give way to diminishing and/or even negative returns over the long-run. The extent to which these factors can be captured in cross-country analyses probably is limited given time series and measurement problems. Clearly, analysis of the quality, credibility and political maturity of external aid in relation to the political landscape in recipient countries would be a useful step forward in understanding how returns to aid vary across time and place. Thus, we need to conceptualise equation (6) in dynamic terms with flexible interaction terms.

Finally, the last term of equation (6) describes structural features of the economy that may affect changes in long-run productivity both directly and in interaction with foreign aid. Numerous possible features have been described in the literature ranging from variables capturing the climate (e.g. Sachs, 2003), natural resources, the amount of land in the tropics (DHT) and colonial experiences (Acemoglu et al., 2001). From a country case-study perspective it is difficult to evaluate the relative influence of these ‘fixed’ factors due to the absence of a counter-factual. However, the argument here is that those factors that have shaped the historical development of local political and economic institutions play a critical role in explaining past and present aid performance. ‘Fixed’ historical experiences such as the interaction between local and colonial political practices as well as the impact of natural resources on political development would be relevant here.<sup>42</sup> It is these highly endogenous political economy variables that remain foundational to a ‘deep’ understanding of the variance and evolution in returns to aid in any given setting over time.

---

<sup>42</sup> Unsurprisingly the same argument has been used in the growth literature. See, for example, the ‘analytic narratives’ of country growth experiences presented in Rodrik (2003).

## 6.2. Looking ahead

In spite of the achievements since 1992 in Mozambique, in which aid has played a critical role, there is no room for complacency as regards the future. Mozambique remains one of the poorest countries in the world, and the economy is characterised by, at best, an incipient private business sector. The population is still mainly rural, depending on peasant agriculture and highly vulnerable to climatic vagaries. Aside from the contribution of the mega-projects, there is limited penetration into world markets and imports are heavily financed by external aid. Despite progress in the expansion of public infrastructure and social services, coverage of these public goods remains limited.

We would also argue that there is a need to be alert to the possibility that high rates of return to aid in the past do not provide a guarantee that aid will be productive in the future. Three areas of concern illustrate this. First, there is increasing evidence that absorptive constraints are starting to bind, especially in the social sectors where internal resources to cover recurrent expenditure may not expand in line with investment plans. Consequently, the management of expectations concerning what external aid can realistically achieve is critical. The strategic prioritisation and allocation of aid both across and within sectors will become a key challenge. For example, in the education sector it may well be the case in Mozambique that increased attention to technical and higher-levels of education will now yield higher returns.

Second, continued returns to aid depend on addressing the institutional effects of heavy aid inflows. Shifting domestic incentives towards critical assessment of aid and its impact with a view to informing genuine domestic policy formation stands out as a major issue. While government will obviously have to deal with the donor community, it is fundamental that accountability and transparency vis-à-vis the Mozambican public is deepened. Both government and the donor community should take a pro-active stance in this regard. This implies a need for new thinking about donor-recipient institutional relationships. It should be recognised that providing foreign aid involves implicit contracts and donors should be alert to the possibility of using this as a lever for increased government awareness and action. At the same

time, government should insist that domestic institutions and frameworks of internal control are used and further developed as the basis for aid evaluation and impact analysis.<sup>43</sup> The same goes for the internal planning and policy analysis where the donors must allow the government to increasingly assume the real substantive coordinating and ‘leading’ role rather than the somewhat empty formalism sometimes seen. While much can be said in favour of budget support, this has also led to a much deeper level of donor intrusiveness which is unlikely to lead to effective government leadership and institutional development over time. If budget support (and other forms of aid) is to be effective in the future, well functioning and capable domestic systems must be nurtured and seen as a key priority on both the government and donor side of the aid relationship. There is a plethora of ways in which foreign aid can further this objective, including the judicious use of experienced technical assistance on the side of government. It will in many cases demand that donors refrain from intervening in more detailed planning and implementation. This is not without risks but is also fundamental to ensure sustained real development. It would be detrimental if the government is left with the impression that the real hard choices and risks inherent in the development process are borne by the donors rather than themselves.

Third, as already alluded, part of the development of an effective development-oriented government will involve the deepening of its relationship with the Mozambican public. At present we have seen that accountability is often stronger vis-à-vis the donor community leaving parliamentary scrutiny as an ‘add-on’ with limited real content. Broad-based democracy requires concerted action that goes beyond the holding of elections once every five years. The nurturing of effective checks and balances on government activity will represent an important element in enhancing the credibility of democratic processes. Again, in this both government and donors should be pro-active.

Mozambique is a low income country but it does possess significant growth potential based on its own resources and geographic features – including, several thousand kilometres of coastline, plenty of agricultural land and some mineral resources. In

---

<sup>43</sup> Indeed this is a model widely used in the developed world for the regulation of complex industries where intrusive forms of evaluation are neither feasible nor effective in normal circumstances.

addition while its regional location close to South Africa represents a challenge, there are substantial opportunities such as access to investment capital and transport networks that might work in Mozambique's favour. In this context, it is meaningful to insist on formulating a forward-looking economic growth strategy, supported by foreign aid, as the basis for overcoming poverty and underdevelopment. This includes not only improvements in the general business environment, as aptly set out in recent government planning documents such as the second PRSP, but also strategic interventions geared towards infrastructure upgrading and the penetration of selected export markets. While short-run economic impacts from export trade are unlikely to be significant, the longer-term potential from successful integration into world markets is substantial.

We have no presumption of being able to predict in which markets Mozambique has dynamic comparative advantage. However, we reiterate that Mozambique is by no means a basket case. Important elements to a growth strategy include recognition of the potential gains from significantly improving both port and transport infrastructure and resource management, including a boost to agricultural research and productivity. A vital part of this would be to establish an integrated policy package that addresses the nexus between public revenue, trade, and industrial policy. What this implies for the future of aid is not that social sectors can be ignored; but it does highlight: (i) the potential importance of constructive engagement and partnerships with the government in these investment-demanding areas which are bound to be associated with an element of economic risk; and (ii) the strategic importance of strengthening domestic capacity for economic policy analysis and formulation.

Finally, one should consider the implications of substantial increases in foreign aid which are currently on the international agenda. These are particularly relevant for Mozambique which is correctly perceived as a 'good performer' where returns to aid have been high in the past. Scaling-up is, however, associated with both risks and opportunities, which must be evaluated with equal care. Concerns about 'Dutch Disease' would of course intensify with more aid. Does this mean that Mozambique should refrain from engaging in negotiation about scaling-up? We believe the answer is no; but the above reflections on the institutional effects of foreign aid become even more important. Consequently, a purely incremental approach to the allocation of

additional foreign aid is not prudent. Mozambique should instead prioritise programmes that are intensive in imports. In addition, scaling-up might consider initiatives such as: (i) an all-out attack on malaria with a view to its eradication; (ii) a significantly improved, high-quality north-south road; and (iii) specific regional development initiatives facilitating economic transformation and development.

## **7. Conclusion**

Mozambique is clearly a success story in terms of growth and poverty reduction since 1992. We have demonstrated that aid has played a determinant role in making this possible. Without sustained aid at a high level there is no way in which Mozambique would have been able to: (i) establish peace so smoothly; (ii) manage the challenge of post-war stabilisation; and (iii) carry out widespread reconstruction. As a result, Mozambique is now in a much stronger position than at Independence. Based on the growth accounting carried out in this paper, we conclude that aid-financed government investment in public goods, particularly public infrastructure, education and health, have been fundamental channels through which aid has contributed to development outcomes. Intended outcomes of aid have been largely achieved although its potential contribution to agricultural transformation and development is yet to materialise.

Common criticisms that aid generates ‘Dutch Disease’ and leads to structural distortions are unfounded in the Mozambique experience up until now. At the same time, aid has not been without problems. The historical tendency of channelling external funding directly towards sectors, bypassing central review and management, has contributed to poorly coordinated policy interventions and fiscal imbalances. We also find that the staggering number of donor-supported endeavours continues to generate uneven and often unmanageable institutional pressures.

A general lesson emerging from this study is that sustained aid can be a critical precondition for developmental success. Foreign aid has to adapt to the changing nature of the challenge at hand ranging from humanitarian relief, to the establishment of peace, to macroeconomic stabilisation and further-on to reconstruction and genuine development. The response to aid will differ in these circumstances but it is critical to maintain a consistent focus on the benefits accruing from virtuous as opposed to



vicious aid-growth circles. Two important caveats apply. First, aid cannot turn history but can indeed provide much needed resources for investment and capacity building. Second, aid is bound to have institutional effects which, if not carefully addressed, could eventually threaten to undermine the overall aid effort. From this perspective, aid and institutional development need to be addressed together, at least when aid flows are of a significant size. Moreover, careful attention to diminishing returns and absorptive capacity is critical.

Looking ahead, we have noted that the contribution of aid to TFP growth has been declining. This suggests that past success is no guarantee of future progress. In this context, a coherent nexus of efficient revenue, trade and industrial policies should be put in place within the framework of a dynamic and forward-looking growth strategy. Aid can help in this regard through technical assistance in strengthening domestic policy analysis and formulation. Moreover, the developmental perspective needs to shift from incremental to more strategic productivity-enhancing measures. This includes improvements in the general business environment and actions geared towards infrastructure upgrading and the penetration of selected export markets. This should be done without overstretching the necessary balance between the capacity and roles of the government and private sector.

A final dimension which, in our assessment, merits substantive attention refers to the desirability of shifting overall responsibility and coordination towards domestic institutions. The aid relationship should be perceived as a contract with mutual obligations. Donors should provide resources and focus on overall implementation and performance, as opposed to more detailed (and intrusive) aid management. In addition, they should when requested provide high quality technical support that simultaneously relieves current capacity constraints and enhances local capacity over time. To government falls the task of setting overall priorities, managing implementation and carrying out evaluation. Integral to this will be ensuring the effective use of technical support. The PRSP process just finished makes strides in this direction but represents only a first step. Ultimately, government needs to be primarily accountable to the Mozambican public. These institutional dimensions will determine the future success or failure of aid and development in Mozambique.

## Bibliography

- Abrahamson, H and A. Nilsson. 1995. *Mozambique, the troubled transition. From socialist construction to free market capitalism*. London: Zed Books.
- Abramovitz, Moses. 1956. Resources and Output Trends in the United States since 1870. *Occasional Paper No. 52*. New York: National Bureau of Research.
- Acemoglu, Daron, Simon Johnson and James A. Robinson. 2000. The Colonial Origins of Comparative Development: An Empirical Investigation. *NBER Working Paper 7771*. National Bureau of Economic Research, Inc. Cambridge, MA.
- Adam, Christopher and 2005. Exogenous Inflows and Real Exchange Rates: Theoretical Quirk or Empirical Reality? International Monetary Fund Seminar on Foreign Aid and Macroeconomic Management, Maputo March 14-15.
- Adam, Christopher and Stephen O'Connell. 1999. Aid, Taxation and Development in Sub-Saharan Africa. *Economics and Politics* 11(3): 225-253.
- Adam, Christopher. 2005. Exogenous Inflows and Real Exchange Rates: Theoretical Quirk or Empirical Reality? International Monetary Fund Seminar on Foreign Aid and Macroeconomic Management, Maputo March 14-15.
- APT Consult. 1999. Evaluation of the Rehabilitation Programme in Mozambique. London, UK.
- Arndt, Channing and Joel Muzima. 2004. Estimating Efficiency Trends in Education: a Minimum Cross Entropy Approach with Application to Mozambique. *National Directorate of Studies and Policy Analysis Discussion Papers*, No. 2E, Ministry of Planning and Development, Republic of Mozambique.
- Arndt, Channing; António Cruz, Henning Tarp Jensen, Sherman Robinson and Finn Tarp. 1998. Social Accounting Matrices for Mozambique: 1994-95. *Trade and Macroeconomics Division Discussion Paper*, No. 28. IFPRI Washington DC.
- Arndt, Channing; Henning Tarp Jensen and Finn Tarp. 2000a. Stabilization and structural adjustment in Mozambique: An appraisal. *Journal of International Development*, 12 (3): 299-323.
- Arndt, Channing; Henning Tarp Jensen and Finn Tarp. 2000b. Structural characteristics of the economy of Mozambique: a SAM based analysis. *Review of Development Economics* 4 (3): 292-306.
- Barro, R., and W. J. Lee. 1993. International Comparisons of Educational Attainment. *Journal of Monetary Economics* 32 (3): 363-394.
- Barro, Robert J. 1998. Notes on Growth Accounting. *NBER Working Paper*, number 6654.
- Benito-Spinetto, Maite and Peter Moll. 2005. Background Paper: Macroeconomic developments, economic growth and consequences for poverty, World Bank, Maputo: Mozambique.
- Berg, Elliot. 2002. Increasing the Effectiveness of Aid: A Critique of Some Current Views. Paper Prepared for Expert Group Meeting, Department of Economic and Social Affairs. United Nations.
- Bologaita, Emil. 2004. Controlling Corruption In Post-Conflict Countries. *Kroc Institute Occasional Paper No. 26:OP:2*. Joan B. Kroc Institute for International Peace Studies, University of Notre Dame.
- Boone, P. 1994. The impact of foreign aid on savings and growth. London School of Economics *CEP Working Paper 677*.

- Brück, Tilman. 1997. Macroeconomic Effects of the War in Mozambique. *QEH Working Paper Series*, Number 11. University of Oxford, Queen Elizabeth's House.
- Buendía Gómez, Miguel. 1999. *Educação Moçambicana. História de um processo: 1962-1984*, Livraria Universitária – UEM, Maputo.
- Burnside, C. and Dollar, D. 1997. Aid, policies, and growth. *Policy Research Working Paper 1777*, World Bank, Washington, DC.
- Burnside, C. and Dollar, D. 2000. Aid, policies, and growth, *American Economic Review* 90, 847–68.
- Byiers, Bruce. 2005. Tax Reforms & Revenue Performance in Mozambique Since Independence. *DNEAP Working Paper 12E*. Direcção Nacional de Estudos e Análise de Políticas, Ministério de Planificação e Desenvolvimento, República de Moçambique.
- Caldwell, J. and Caldwell P. 1985. Education and literacy as factors in health. in Halstead SB, Walsh J and Warren KS (eds). *Good health at low cost*. New York: Rockefeller Foundation, pp.181-5.
- Cassen, R. and Associates. 1994. *Does aid work?* Clarendon Press, Oxford.
- Castel-Branco, Carlos Nuno. 2002. Economic Linkages between South Africa and Mozambique. mimeo.
- Castel-Branco, Carlos Nuno. 2003. Indústria e Industrialização em Moçambique: Análise da Situação Actual e Linhas Estratégicas de Desenvolvimento. mimeo
- Chao, Shiyang and Kees Kostermans. 2002. Improving Health for the Poor in Mozambique: The Fight Continues. *Africa Region Human Development Working Paper Series*. World Bank Washington DC.
- Clemens, M., Radelet, S. and Bhavnani, R. 2004. Counting chickens when they hatch: the short-term effect of aid on growth. *Working Paper 44*, Center for Global Development, Washington, DC.
- Collier, P. and Dollar, D. 2001. Can the world cut poverty in half? How policy reform and effective aid can meet the international development goals, *World Development* 29: 1787–802.
- Collier, P. and Dollar, D. 2002. Aid allocation and poverty reduction. *European Economic Review* 46: 1475–500.
- Collier, Paul and Anke Hoeffler. 2002. Aid, Policy and Growth in Post-Conflict Societies. *World Bank Policy Research Working Paper 2902*. Washington D.C.
- Cooper, Tom. 2003. Mozambique, 1962-1992. ACIG Central, Eastern, & Southern Africa Database. mimeo: [http://www.acig.org/artman/publish/article\\_185.shtml](http://www.acig.org/artman/publish/article_185.shtml).
- Cruz e Silva, Teresa. 1998. Educação, identidades e consciência política: A Missão suíça no Sul de Moçambique. 1930-1975. *Lusotopie* 1998: 397-405.
- Dalgaard, C.-J. and Hansen, H. 2001. On aid, growth and good policies *Journal of Development Studies* 37: 17–41.
- Dalgaard, C.-J. and Hansen, H. 2005. The return to foreign aid, *Discussion Paper 05-04*, University of Copenhagen, <http://www.econ.ku.dk/wpa/pink/2005/0504.pdf>.
- Dalgaard, C.-J., Hansen, H. and Tarp, F. 2004. On the empirics of foreign aid and growth. *Economic Journal* 114: F191–216.
- de Renzio, Paolo with David Booth, Andrew Rogerson and Zaza Curran. 2005. Incentives for harmonisation and alignment in aid agencies. *ODI Working Paper 248*. London.

- Devarajan, S., Dollar, D. and Holmgren, T. (eds.). 2001. *Aid and reform in Africa*, Oxford University Press for the World Bank, Oxford.
- Devarajan, Shanta and Vinaya Swaroop. 1998. *The Implications of Foreign Aid Fungibility for Development Assistance*. Development Research Group, World Bank, Washington, DC.
- Easterly, W. 2006. *The white man's burden: why the West's efforts to aid the rest have done so much ill and so little good*. Penguin Press, New York.
- Easterly, William. 2005. *How to Assess the Need for Aid: The Answer: Don't Ask*. New York University, Department of Economics.
- Eicher, C. 2004. Mozambique: Building African models of agricultural extension. In: W. Riveira and G. Alex (eds.). *National Strategy and Reform Process: Case Studies of International Initiatives*, vol. 5 of *Extension Reform for Rural Development*, Discussion Paper 12, Agriculture and Rural Development Department, World Bank, Washington, D.C.
- Ernst & Young Mozambique. 2006. *Review of the PAPs' Performance in 2005 and PAPs' PAF matrix Targets for 2006*. mimeo.
- Fox, Louise, Elena Bardasi and Katleen Van den Broeck. 2005. *Poverty in Mozambique: Unraveling Changes and Determinants*. *Africa Region Working Paper Series No. 87*. World Bank: Washington DC.
- Frente de Libertação de Moçambique (FRELIMO). 1962. *Primeiro Congresso: Estatutos e Programa*.
- Gemo, H.; Eicher, C.; and Teclermanian, S. 2005. *Mozambique's Experience in Building a National Extension System*. East Lansing: Michigan State University Press.
- Governo da República de Moçambique (GRM) e Parceiros para Apoio Programático (PAPs). 2004. *Memorando de Entendimento*. Maputo: Moçambique.
- Governo da República de Moçambique (GRM). 2006. *Segundo Plano de Acção para a Redução da Pobreza Absoluta (PARPA II)*. Second draft. Maputo: Moçambique.
- Hall, Margaret and Tom Young. 1997. *Confronting Leviathan; Mozambique since independence*. London: Hurst & Company.
- Hanlon, Joseph. 1991. *Mozambique: Who calls the shots*. James Currey: London
- Hanlon, Joseph. 1997. Success story?: Bretton Woods backlash in Mozambique. *Southern Africa Report* 13(1): 26 – 30, November.
- Hanlon, Joseph. 2001. *Matando a galinha dos ovos de ouro, Metical n° 1073-1084*. Maputo: Moçambique.
- Hanlon, Joseph. 2002. Are donors to Mozambique promoting corruption? Paper submitted to the conference 'Towards a New Political Economy of Development', Sheffield 3-4 July.
- Hanlon, Joseph. 2006. Donor concern over IMF cap on aid increases. *Mozambique Newsletter* 93. Open University: UK.
- Harmon, Colm, Hessel Oosterbeek and Ian Walker. 2000. *The Returns to Education: A review of evidence, issues and deficiencies in the literature*. Centre for the Economics of Education, London School of Economics.
- Heltberg, Rasmus, Kenneth Simler and Finn Tarp. 2001. *Public Spending and Poverty in Mozambique, WIDER Discussion Paper No. 2001/63*.

- Herman, Larry. 2003. Mozambique PER: Background Paper on Roads. World Bank, Maputo Mozambique.
- Hodges, T. and R. Tibana. 2005. *The political economy of the budget process in Mozambique*. Oxford Policy Management. Lisbon: Principia.
- Ibraimo, Maimuna. 2005. Evolução das Disparidades no Bem-Estar dos Agregados Familiares e o Acesso a Bens e Serviços, 1997 e 2003. *DNEAP Working Paper* 14P. Direcção Nacional de Estudos e Análise de Políticas, Ministério de Planificação e Desenvolvimento, República de Moçambique.
- Instituto Nacional de Estatística (INE). 2005. *30 Anos de Independência Nacional: Um Retrato Estatístico*, Maputo: Moçambique.
- Instituto Nacional de Estatística (INE). various. *Anuário Estatístico*, Maputo: Moçambique.
- International Monetary Fund (IMF). 2005a. Republic of Mozambique: Selected Issues and Statistical Appendix. *IMF Country Report*, No. 05/311.
- International Monetary Fund (IMF). 2005b. The Macroeconomics of Managing Increased Aid Inflows: Experiences of Low-Income Countries and Policy Implications. Policy Development and Review Department. Washington DC.
- James, Robert, Channing Arndt and Kenneth Simler. 2005. Has economic growth in Mozambique been pro-poor? *DNEAP Working Paper* 8E. Direcção Nacional de Estudos e Análise de Políticas, Ministério de Planificação e Desenvolvimento, República de Moçambique.
- Jones, Sam. 2006. Growth Accounting for Mozambique (1980-2004). *DNEAP Working Paper* 22E. Direcção Nacional de Estudos e Análise de Políticas, Ministério de Planificação e Desenvolvimento, República de Moçambique.
- Kamps, Cristophe. 2004. New estimates of net government capital stocks for 22 OECD countries. *IMF Working Paper*, WP/04/67.
- Kanbur, Ravi. 2001. Economic policy, distribution and poverty: the nature of disagreements, *World Development* 29: 1083–94.
- Kanbur, Ravi. 2003. The economics of international aid. *Working Paper* 39. Department of Applied Economics and Management, Cornell University, New York.
- Llavador, H.G. and Roemer, J.E. 2001. An equal opportunity approach to the allocation of international aid. *Journal of Development Economics* 99: 928–56.
- MADER. 2004. *Strategy Document: PROAGRI II*. Maputo: MADER.
- Mate, Alexandre, Joel das Neves Tembe, Carlos Arnaldo, Johane Zonjo, José Adalima and Emídio Gune. 2005 Estudo Qualitativo Sobre A Pobreza: Casos das províncias de Inhambane e Sofala. *DNEAP Working Paper* 23P. Direcção Nacional de Estudos e Análise de Políticas, Ministério de Planificação e Desenvolvimento, República de Moçambique.
- Mathiassen, Astrid and Geir Øvensen. 2006. Mission Report from a short-term mission on a model for predicting poverty. Unpublished preliminary report. INE and Statistics Norway.
- Mauro, P. 1995. Corruption and growth. *Quarterly Journal of Economics* 110: 681–712.
- Maximiano, Nelson, Channing Arndt and Kenneth R Simler. 2005. Qual foi a dinâmica dos determinantes da pobreza em Moçambique? *Directorate of Studies and Policy Analysis Discussion Papers* No.11P. Ministério de Planificação e Desenvolvimento, República de Moçambique.

- Michalopoulos, C. and Sukhatme. 1989. The impact of development assistance: a review of the quantitative evidence, in A.O. Krueger (ed.) *Aid and development*. Johns Hopkins, Baltimore.
- Ministério do Plano e Finanças (MPF) e Ministério da Educação (MINED). 2003. *A despesa pública com a educação em Moçambique*, Maputo: Moçambique.
- Ministério do Plano e Finanças (MPF), Universidade Eduardo Mondlane e Instituto Internacional de Pesquisa em Políticas Alimentares. 1998. *Pobreza e Bem-Estar em Moçambique: Primeira Avaliação Nacional (1996-97)*. Maputo: Moçambique.
- Ministério do Plano e Finanças (MPF), Universidade Eduardo Mondlane, Instituto Internacional de Pesquisa em Políticas Alimentares e Universidade de Purdue. 2004. *Pobreza e Bem-Estar em Moçambique: Segunda Avaliação Nacional*. Maputo: Moçambique.
- MISAU. 2003. Inquérito sobre os fundos externos. Ministério de Saúde, Direcção de Planificação e Cooperação, Moçambique: Maputo.
- MISAU. 2005. Plano Operacional 2005. Ministério de Saúde, Moçambique: Maputo.
- MISAU. 2006. Plano Operacional 2006. Ministério de Saúde, Moçambique: Maputo.
- Mosley, Paul, John Toye and Jane Harrigan. 1991. *Aid and Power: The World Bank and Policy-Based Lending Analysis and Policy Proposals*. Routledge: London.
- Mosley, Paul. 1987. *Overseas aid: its defence and reform*. Wheatsheaf Books, Brighton.
- Moss, Todd, Gunilla Pettersson, and Nicolas van de Walle. 2006. An Aid-Institutions Paradox? A Review Essay on Aid Dependency and State Building in Sub-Saharan Africa. *Working Paper* Number 74. Center for Global Development, Washington D.C.
- Mosse, Marcelo. 2004. *Corrupção em Moçambique: Alguns elementos para debate*. Mimeo.
- Nehru, Vikram and Ashok Dhareshwar. 1994. New Estimates of Total Factor Productivity Growth for Developing and Industrial Countries. *World Bank Policy Research Working Paper*, 1313.
- Nehru, Vikram, E. Swanson, and A. Dubey. 1995. A New Database on Human Capital Stock in Developing and Industrial Countries: Sources, Methodology and Results. *Journal of Development Economics* 46 (2): 379-401.
- Nhate, Virgulino and Kenneth Simler. 2002. Mapeamento da Pobreza em Moçambique: Desagregação das Estimativas da Pobreza e Desigualdade aos Níveis de Distrito e Posto Administrativo. Ministério do Plano e Finanças, Direcção Nacional do Plano e Orçamento, Maputo: Moçambique.
- O'Meara, Dan. 1991. The collapse of Mozambican socialism. *Transformation* 14: 82-103.
- Obstfeld, M. 1999. Foreign resource inflows, saving and growth, in K. Schmidt-Hebbel and L. Servén (eds.) *The economics of savings and growth*, Cambridge University Press, Cambridge.
- PAPs Secretariat. 2006. *Aide-Mémoire of the Joint Review of 2005*. Governo da República de Moçambique (GRM) e Parceiros para Apoio Programático (PAPs), Maputo: Mozambique.
- Pavignani, Enrico and Volker Hauck. 2002. Pooling of Technical assistance in the Context of Aid Management Reform: The Mozambique Case Study. *ECDPM Discussion Paper*, 39. Maastricht: ECDPM.

- Pitcher, M. Anne. 2003. *Transforming Mozambique: The Politics of Privatization, 1975–2000*. Cambridge University Press.
- Pomerantz, Phyllis. 2005. A Little Luck and a Lot of Trust Aid Relationships and Reform in Southern Africa. in Indermit S. Gill and Todd Pugatch (eds). 2005. *At the Frontlines of Development: Reflections from the World Bank*. World Bank, Washington D.C.
- Rajan, Raghuram and Arvind Subramanian. 2005. What Undermines Aid's Impact On Growth? *NBER Working Paper* 11657. National Bureau of Economic Research. Cambridge, MA.
- Rajan, Raghuram G.. 2004. Failed States, Vicious Cycles, and a Proposal. mimeo.
- Ravallion, Martin. 1992. Poverty Comparisons. *Living Standard Measurement Study Working Paper* No. 88. World Bank, Washington, DC.
- Ravallion, Martin. 2001. Growth, inequality and poverty: looking beyond the averages. *World Development* 29: 1803–15.
- República de Moçambique. 2005a. *Documento de Fundamentação da Política Orçamental para 2005*, Orçamento do Estado 2005.
- República de Moçambique. 2005b. *Plano de Acção para a Redução da Pobreza Absoluta, 2006-2009. PARPA II*. First Draft (November).
- Rodrik, Dani (ed.). 2003. *In Search of Prosperity: Analytic Narratives on Economic Growth*. Princeton University Press.
- Roodman, D. 2004. The anarchy of numbers: aid, development, and cross-country empirics. *Working Paper* 32, Center for Global Development, Washington, DC.
- Rupiya, Martin. 1998. Historical context: War and peace in Mozambique. in Jeremy Armon, Dylan Hendrickson and Alex Vines (eds.). *The Mozambican peace process in perspective*. Accord. <http://www.c-r.org/accord/moz/accord3/rupiya.shtml>.
- Sachs, J. 2005. *The end of poverty: economic possibilities for our time*. Penguin Press, New York.
- Sachs, Jeffrey. 2003. Institutions don't rule: direct effects of geography on per capita income. *NBER Working Paper* 9490. National Bureau of Economic Research. Cambridge, MA.
- Saul, John S. 1991. Mozambique: The failure of Socialism? *Transformation* 14: 104-110.
- Scanteam. 2003. World Bank and IMF Follow-Up to PRSP: The Case of Mozambique. Study commissioned by the Embassies of the Nordic Countries in Mozambique.
- Schwerdt, Guido and Jarkko Turunen. 2006. Growth in Euro Area Labour Quality. *European Central Bank Working Paper Series* No. 575.
- Sianesi, Barbara and John Van Reenen. 2000. The Returns to Education: A Review of the Macro-Economic Literature. Centre for the Economics of Education, London School of Economics and Political Science (mimeo).
- Solow, Robert. 1957. Technical Change and the Aggregate Production Function. *Review of Economics and Statistics*, 39: 312-320.
- Sulemane, José and Steve Kayizzi-Mugerwa. 2001. The Mozambican Civil Service Incentives, Reforms and Performance. *WIDER Discussion Paper* No. 2001/85.
- Sulemane, José. 2001. Economic Decline: A study with reference to Mozambique. Unpublished PhD Dissertation, University of Notre Dame: Indiana.

- Svensson, Jakob. 2005. Absorption Capacity and Disbursement Constraints. Paper prepared for the 2005 AFD-EUDN Conference. mimeo.
- Tahari Amor Dhaneshwar Ghura, Bernardin Akitoby, and Emmanuel Brou Aka. 2004. Sources of Growth in Sub-Saharan Africa. *IMF Working Paper*, WP/04/176, Washington DC.
- Tarp, Finn (ed.). 2000. *Foreign Aid and Development: Lessons Learnt and Guidelines for the Future*. Routledge: London and New York.
- Tarp, Finn and Morten Igel Lau. 1996. Mozambique: Macroeconomic Performance and Critical Development Issues. *Development Economics Research Group Working Paper*, no. 2, University of Copenhagen.
- Tarp, Finn. 1984. Agrarian transformation in Mozambique. *Land Reform, Land Settlement and Cooperatives*, No. 1/2.
- Tarp, Finn; Channing Arndt, Henning Tarp Jensen, Sherman Robinson and Rasmus Heltberg. 2002. Facing the development challenge in Mozambique. *IFPRI Research Report*, 126, Washington.
- UNESCO. 2000. *Education for All: The Year 2000 Assessment Report of Mozambique*, at [www2.unesco.org/wef/countryreports/mozambique/contents.html](http://www2.unesco.org/wef/countryreports/mozambique/contents.html).
- UNESCO. 2005. *Global Education Digest 2005: Comparing Education Statistics Across the World*. UNESCO Institute for Statistics, Montreal.
- United Nations Development Program (UNDP). 2000. *National Human Development Report: Mozambique*, Maputo: Mozambique.
- United Nations Development Program (UNDP). 2001. *National Human Development Report: Mozambique*, Maputo: Mozambique.
- United States Agency for International Development (USAID). 1990. *Mozambique Country Program Strategic Plan FY1990-92*. Washington D.C.
- United States Agency for International Development (USAID). 2004. General Budget Support: An Alternative Assistance Approach: Mozambique Country Case Study. *PPC Evaluation Working Paper* No.18. USAID Bureau for Policy and Program Coordination.
- Van Dunem, João E. 2005. A few preliminary findings in the analysis of Customs Tax Revenue (2002-2004). Unpublished internal document. Ministry of Planning and Development Directorate of Studies and Policy Analysis. Mozambique.
- Van Dunem, João E. 2006. Confronting the Issue of the Elasticity of Customs Evasion in Mozambique: An Empirical Study.
- Vines, Alex. 1998. The Business of peace: 'Tiny' Rowland, financial incentives and the Mozambican settlement. in Jeremy Armon, Dylan Hendrickson and Alex Vines (eds.). *The Mozambican peace process in perspective*. Accord.
- Walker, T., D. Tschirley, J. Low, M. Pequenino Tanque, D. Boughton, E. Payongayong and M. Weber. 2004. Determinants of Rural Income in Mozambique in 2001-2002. mimeo.
- World Bank. 1998a. *Rebuilding the Mozambique Economy: Assessment of a Development Partnership*. Washington, D.C.
- World Bank. 1998b. *Assessing Aid: What Works, What Doesn't and Why*. Oxford University Press.



- World Bank. 2001a. Mozambique Public Expenditure Management Review. Report No. 22985-MOZ. Maputo Mozambique. Maputo Mozambique.
- World Bank. 2001b. Mozambique Country Economic Memorandum: Growth Prospects and Reform Agenda. Report No. 20601-MZ.
- World Bank. 2003a. Cost and Financing of Education Opportunities and Obstacles for Expanding and Improving Education in Mozambique. *Africa Region Human Development Working Paper Series*. Washington D.C.
- World Bank. 2003b. Mozambique Public Expenditure Review, Phase 2: Sectoral Expenditures. Report No. 25969-MZ. Maputo Mozambique.
- World Bank. 2005a. Sustaining growth and reducing poverty. Mozambique Country Economic Memorandum, Report No. 32615-MZ. Maputo Mozambique.
- World Bank. 2005b. Impacts of Extension Services in Rural Mozambique. Environment, Rural and Social Development Department. World Bank. Washington DC.
- Young, Alwyn. 1994. The tyranny of numbers: confronting statistical realities of the East Asia growth experience. *NBER Working Paper* number 4680. mimeo.

## Annex A: Tables

*Note: unless otherwise stated, the data derives from a database of economic and social indicators constructed for this paper from a variety of official sources including INE, IMF and World Bank. Growth accounting results are taken from Jones (2006).*

Table A.1: Sectoral composition of value-added at constant 1996 prices (1991-2004)

	Changes in real GDP 1991-2004		Contribution to real GDP growth (%)		
	Absolute Growth (%)	Average annual growth rate*	1991-97	1998-04	1991-04
Agriculture	108.6	6.3	33.1	20.4	23.6
Fisheries	-1.2	-0.1	0.6	-0.3	0.0
Mining	774.9	19.8	0.1	2.5	1.9
Manufactures	287.9	12.0	11.2	24.9	21.5
Construction	307.4	12.4	16.7	6.0	8.7
Transport & comms.	360.4	13.6	21.9	10.0	13.0
Government	71.8	4.6	-1.2	4.6	3.2
Commerce	54.5	3.7	0.6	16.6	12.6
Tourism & restaurants	297.0	12.2	2.6	0.6	1.1
Other services	-	-	14.4	14.6	14.6
Total	130.9	7.2	100.0	100.0	100.0

Source: INE (1996 GDP series)

Notes: \* estimated in log form

Table A.2: Regression results and derived log, nominal and consumption ratios for six categories of education and location; based on IAF 2002/03

	Regression results			Consumption		
	Household	Individual	Mean	Log	Nominal	Ratio*
R squared	37.7%	33.9%	-	-	-	-
None (rural)**	1.1	2.2	1.7	1.7	5.3	1.0
None (urban)	0.1	0.3	0.2	1.9	6.5	1.2
EP (urban)	0.8	0.9	0.8	2.5	12.0	2.2
EP (rural)	0.2	0.2	0.2	1.9	6.6	1.2
ES (urban)	1.6	1.6	1.6	3.3	26.2	4.9
ES (rural)	0.8	0.7	0.8	2.5	11.6	2.2

Notes:

\* "Ratio" is based on nominal consumption with "None (rural)" as the base category.

\*\* Regression results here represent the intercept, all other results give the increment.

Table A.3: Summary of principal results, % of average annual growth in GDP explained by each variable

Specification	Period	TFP	Capital	Labour	Education
A. Unadjusted	1993-2004	43.0	47.1	9.9	-
	1999-2004	37.9	53.1	9.0	-
	1981-2004	26.0	48.7	25.3	-
B. Quality adjusted	1993-2004	34.6	47.1	9.9	8.4
	1999-2004	24.0	53.1	9.0	13.9
	1981-2004	10.6	48.7	25.3	15.5

Note: Specification A excludes quality (education) adjustments to labour inputs; for specification B 'Education' is equivalent to the change (fall) in TFP once a quality-adjusted human capital index is included in addition to the pure stock of labour,  $L$ .

Table A.4: Disaggregated growth accounting results, annual average log. growth in %

	Real GDP	TFP	Fixed Capital		Human Capital	
	Y	A	Govmt.	Private	Unskilled	Skilled
1993-2004	7.5	2.6	1.0	2.5	0.0	1.3
% Y	100.0	34.6	13.5	33.6	0.6	17.8
1993-1998	7.6	3.4	1.0	2.1	0.4	0.7
% Y	100.0	44.8	12.9	28.3	5.1	8.9
1999-2004	7.4	1.8	1.0	2.9	-0.3	2.0
% Y	100.0	24.0	14.1	39.1	-4.1	27.0
1981-2004	2.6	0.3	0.5	0.7	0.1	0.9
% Y	100.0	10.6	20.4	28.3	5.8	35.0

Table A.5: Growth accounting results for skilled labour inputs, annual average growth in %

	Real GDP	Skilled Labour Stock (S)				
	Y	Rural ES	Rural EP	Urban ES	Urban EP	Total
1993-1998	7.6	0.0	0.2	0.2	0.3	0.7
% S	-	3.2	22.8	35.3	38.6	100.0
% Y	100.0	0.3	2.0	3.1	3.4	8.9
1999-2004	7.4	0.1	0.4	0.9	0.7	2.0
% S	-	3.9	17.8	44.2	34.0	100.0
% Y	100.0	1.1	4.8	11.9	9.2	27.0
1981-2004	2.6	0.0	0.2	0.3	0.4	0.9
% S	-	3.1	21.4	33.6	41.9	100.0
% Y	100.0	0.8	4.6	9.1	8.6	23.0

Table A.6: Comparison of results from IAF and TIA surveys

	IAF poverty headcount			TIA agricultural income index		
	1996/97	2002/03	Var. (%)	1996	2002	Var. (%)
Niassa	70.6	52.1	-26.2	0.88	1.66	88.6
Cabo Delgado	57.4	63.2	10.1	1.26	1.12	-11.1
Nampula	68.9	52.6	-23.7	1.63	1.61	-1.2
Zambezia	68.1	44.6	-34.5	0.75	1.38	84.0
Tete	82.3	59.8	-27.3	0.52	1.21	132.7
Manica	62.6	43.6	-30.4	0.82	0.86	4.9
Sofala	87.9	36.1	-58.9	0.82	1.07	30.5
Inhambane	82.6	80.7	-2.3	0.94	1.28	36.2
Gaza	64.6	60.1	-7.0	0.82	0.63	-23.2
Maputo	65.6	69.3	5.6	0.20	0.59	195.0
<b>National</b>	<b>69.4</b>	<b>54.1</b>	<b>-22.0</b>	<b>1.00</b>	<b>1.27</b>	<b>27.0</b>

Source: reproduced from MPF (2004), tables 7 and 14

Note: (a) results from both surveys are calculated according to the flexible bundle approach;

(b) "Maputo" is not equivalent for the two surveys

Table A.7: Summary of socio-economic indicators, % population unless otherwise stated

	1992	1997	2003
<b>Health</b>			
Infant mortality rate (per 1000 births)	.	147.0	124.0
Child mortality rate (per 1000 1-5 year olds)	.	219.0	178.0
Vaccine coverage (% 1-2 year olds)	.	47.3	63.3
Acute malnutrition (% children betw. 12-24 months)	.	12.8	6.9
Deliveries by trained staff (% total) *	26.0	35.0	45.0
No. of consultations per habitant *	0.36	0.57	0.90
<b>Education</b>			
Gross schooling rate, EP1 (%)	.	74.7	98.3
Net schooling rate, EP1 (%)	.	43.0	60.5
Gross schooling rate, EP2 (%)	.	19.3	43.5
Net schooling rate, EP2 (%)	.	5.6	7.2
% adults with EP1 or EP2 completed	18.2	20.3	26.5
% adults with ES1 or above completed	2.0	2.6	4.8
Working population without schooling (millions)	5.5	5.9	5.7
<b>Various</b>			
Access to collective transport (% rural population)	.	22.3	41.7
Access to a market (% rural population)	.	25.7	42.5
Access to protected water source	.	23.2	39.2
Radio ownership	.	28.9	45.5

Sources: IDS 1997, 2003; IAF 1996/97, 2002/03; INE (2005); Jones (2006); Ibraimo (2005)

Notes: \* first data point is 1993

Table A.8: External aid estimates, annual averages for each period, in US\$ millions

	1980-84	1985-89	1990-94	1995-99	2000-04	1980-04
Gross aid, incl. debt relief						
DAC actuals	199.3	643.7	1,266.3	1,189.0	1,360.1	931.7
US\$ per capita	16.0	48.0	87.5	74.8	79.2	61.1
as % GNI per capita	5.8	27.0	64.6	39.8	36.6	34.8
Gross aid, excl. debt relief						
DAC commitments	170.8	623.4	837.3	655.7	1,078.1	673.1
DAC actuals	199.3	635.7	1,178.5	899.6	1,054.6	793.5
BoP	600.0	549.5	710.8	591.4	696.2	629.6
Net aid, before debt service						
DAC actuals	198.1	617.8	1,095.0	817.4	950.5	735.8
BoP	512.8	789.8	940.1	794.1	921.7	791.7
Net aid, after debt service						
BoP	458.5	651.2	787.6	646.2	825.3	673.8
as % GDP	9.2	18.6	33.0	21.4	19.0	20.2
Government budget *	233.2	326.1	392.3	420.7	621.9	398.8
as % total government invest.	66.9	114.5	112.7	117.6	119.2	106.2
Net debt stock	1,208.0	3,014.6	4,105.4	4,641.5	2,984.0	3,190.7
as % GDP	24.1	86.9	172.6	152.3	70.3	101.2

\* Net total of external funds in the government's execution accounts estimated from INE (2005)

Table A.9: ODA DAC commitments by sector, annual average weight per period in %

	1980-84	1985-89	1990-94	1995-99	2000-04	Change %
Humanitarian relief *	37.7	33.3	15.5	12.7	9.3	-75
Early impact funding	42.3	53.0	45.1	40.9	46.7	10
Infrastructure	15.3	21.3	20.4	16.2	17.6	15
Agriculture	23.6	15.0	9.0	9.2	4.3	-82
Private sector	3.4	10.2	5.8	2.4	6.1	79
General Budget Support	0.1	6.5	10.0	13.0	18.7	36,718
Later impact funding	20.0	13.7	39.4	46.5	43.9	120
Social sectors	8.7	7.0	19.2	27.7	25.9	199
Government and civil society	0.0	0.0	4.7	8.6	11.3	-
Others	11.3	6.7	15.6	10.1	6.7	-41
	100.0	100.0	100.0	100.0	100.0	-

\* Includes disaster relief, food security assistance and commodity assistance

Table A.10: External funding stated in the 2005 government budget by modality

	Number of donors	US\$ million *	% total
<b>TOTAL</b>	<b>107</b>	<b>877.6</b>	<b>100.0</b>
<b>Grants</b>	<b>89</b>	<b>500.7</b>	<b>57.1</b>
Budget support	16	172.2	19.6
Common Funds (SWAPs) **	8	87.9	10.0
Project aid	65	240.6	27.4
<b>Credits</b>	<b>18</b>	<b>376.9</b>	<b>42.9</b>
Budget support	1	57.7	6.6
Lending to parastatals	5	73.7	8.4
Project aid	12	245.5	28.0

\* using exchange rate of 23,061 MZM / USD

\*\* Number of donors refers to the number of different funds only

Table A.11: Summary of education indicators, 1992 and 2004

	Pupils	Schools	Teachers	% trained	Pupils / Teachers	Adj. Pupils / Teachers *	Pupils / Schools
EP 1992	1,296,136	3,556	24,323	66.5	53.3	80.1	364.5
EP 2004	3,556,356	9,489	60,020	58.6	59.3	101.1	374.8
% change	174	167	147	-11.9	11.2	26.3	2.8
ES 1992	45,514	48	2,881	92.5	15.8	17.1	948.2
ES 2004	290,030	170	9,729	61.8	29.8	48.2	1,706.1
% change	537	254	238	-33.2	88.7	182.4	79.9
All 1992	1,341,650	3,604	27,204	69.3	49.3	71.2	372.3
All 2004	3,846,386	9,659	69,749	59.0	55.1	93.4	398.2
% change	187	168	156	-14.8	11.8	31.2	7.0

Source: Ministry of Education

Note: \* given by the unadjusted pupil/teacher ratio divided by the % teachers without training

Table A.12: Summary of road sector indicators, 1993 - 2002

	1993	1996	1999	2002
% roads in good condition /a	-	13.0	25.0	26.0
% roads in reasonable condition /a	-	15.0	26.0	30.0
Total	-	28.0	51.0	56.0
Cargo road transport /b				
million ton-kilometers	42.6	128.7	193.0	327.0
Passenger road transport /b				
million passenger-kilometers	10,661.4	17,575.7	26,890.0	22,370.5

a. Source: INE, 2005

b. Source: 1993-2002 IMF, various; 2004 Ministério de Transport e Comunicações

Table A.13: Classification of each year according to levels of the growth rate and developmental aid ratio, 1980-2004.

		Developmental aid ratio ( $d$ )		Total
		Below $\bar{d}$	Above $\bar{d}$	
Growth rate ( $g$ )	Below $\bar{g}$	10	2	12
	Above $\bar{g}$	2	11	13
Total		12	13	25

[Chi squared statistic = 11.5 ( $p = 0.00068$ ) ]

## Annex B: Figures

*Note: unless otherwise stated, these figures are derived from a database of economic and social indicators constructed for this paper from a variety of official sources including INE, IMF and World Bank.*

Figure B.1: Mozambique real GDP 1970-2004, in billions of Metical at constant 1980 prices (source: author's calculations and INE, 1991-2004 GDP series)

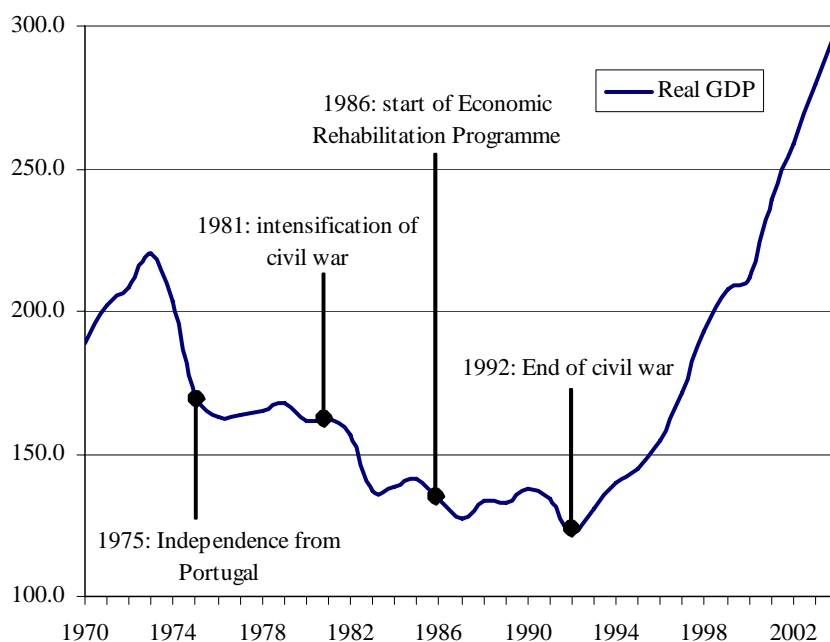
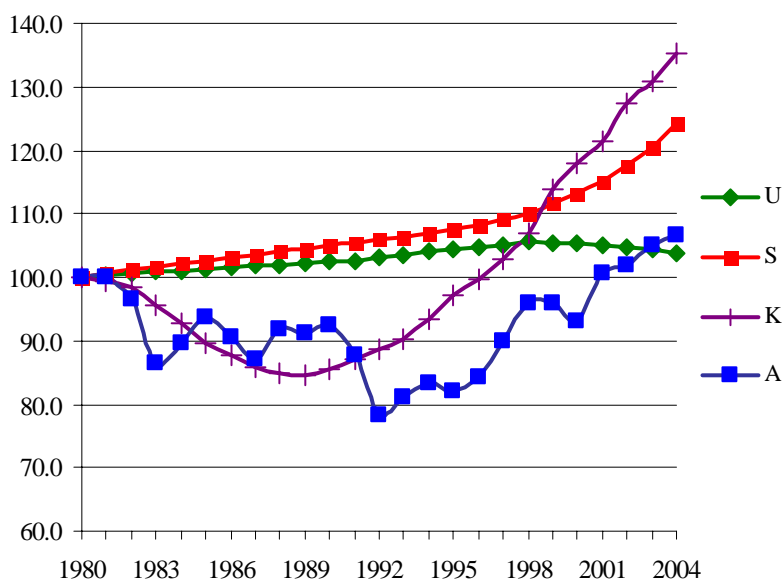


Figure B.2: Trends in translog indices incl. estimated residual (1980 = 100)



U - unskilled labour; S - skilled labour; K - fixed capital stock;  
A - TFP term



Figure B.3: Net external assistance to Mozambique 1980-2004

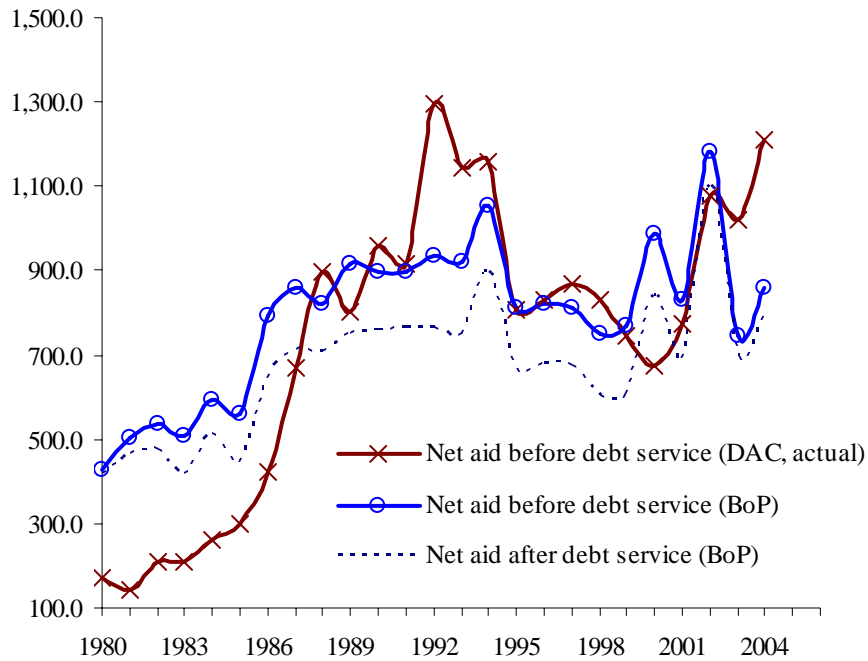


Figure B.4: Net aid (BoP) and imports of goods to Mozambique in US\$ millions, 1980-2004

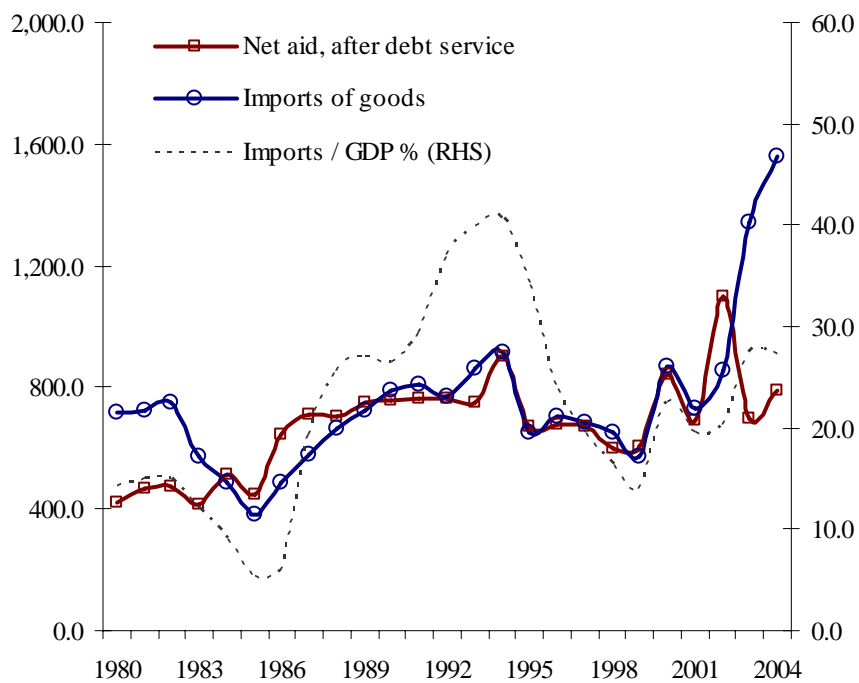


Figure B.5: Indices of real GDP and internal government revenue at constant 1980 prices 1980-2004 (1992=100)

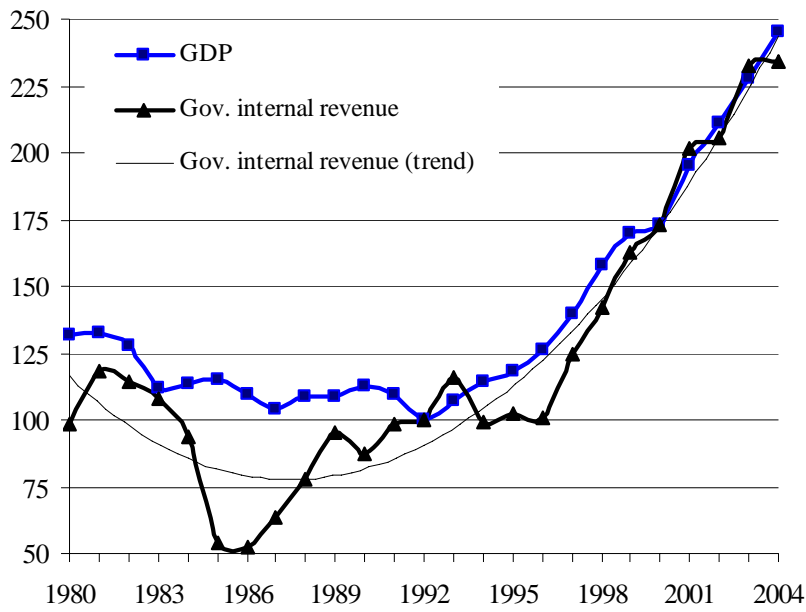


Figure B.6: Trends in nominal indices for macroeconomic variables, log. scale. 1980=ln(1)

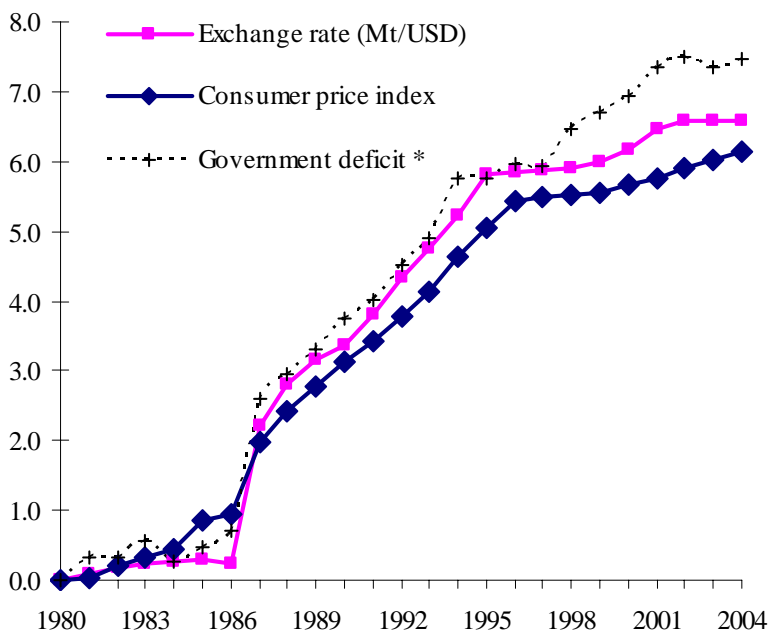


Figure B.7: Net debt stock in US\$ millions (LHS) and debt / exports ratio (RHS)

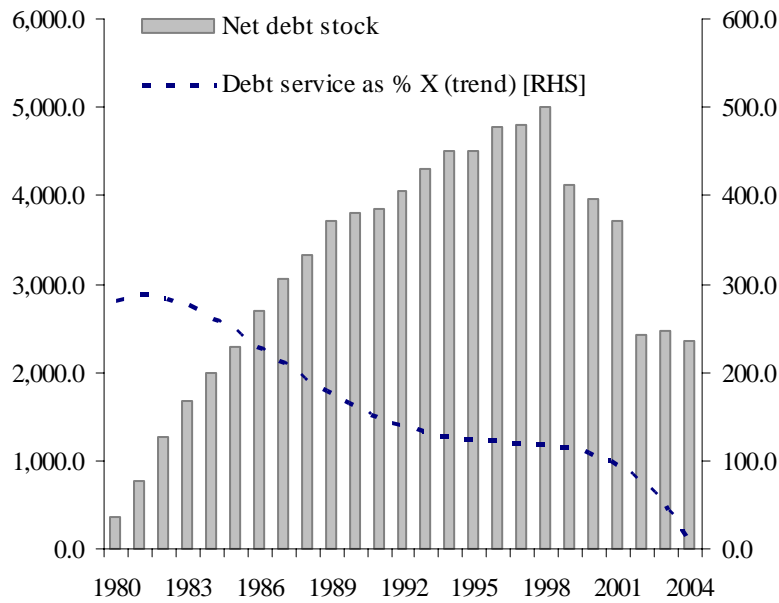


Figure B.8: Estimated spending on education, 1990-2004 (US\$ millions)

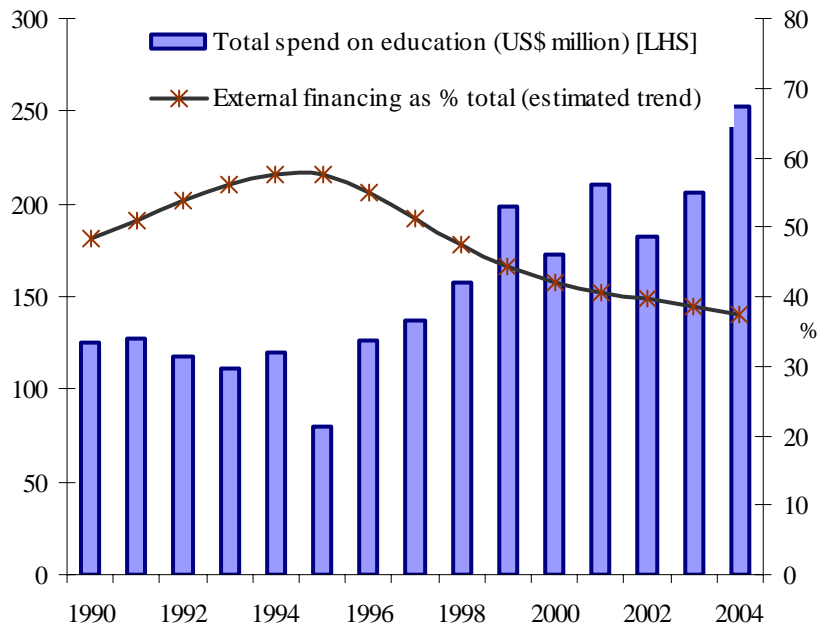


Figure B.9: Real exchange rate and net aid (lagged one period) indices, 1980-2004

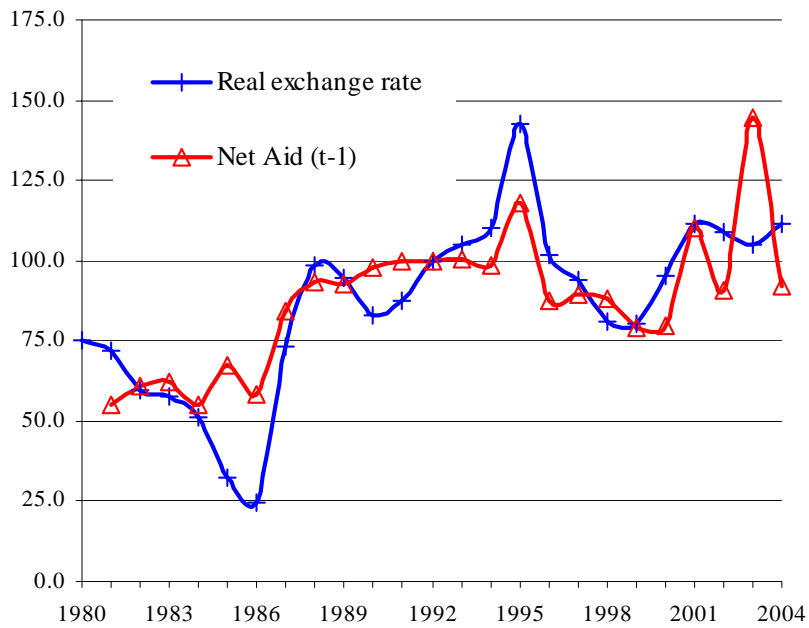


Figure B.10: Current account deficit, net aid and government deficit before aid (US\$ millions), 1980-2004

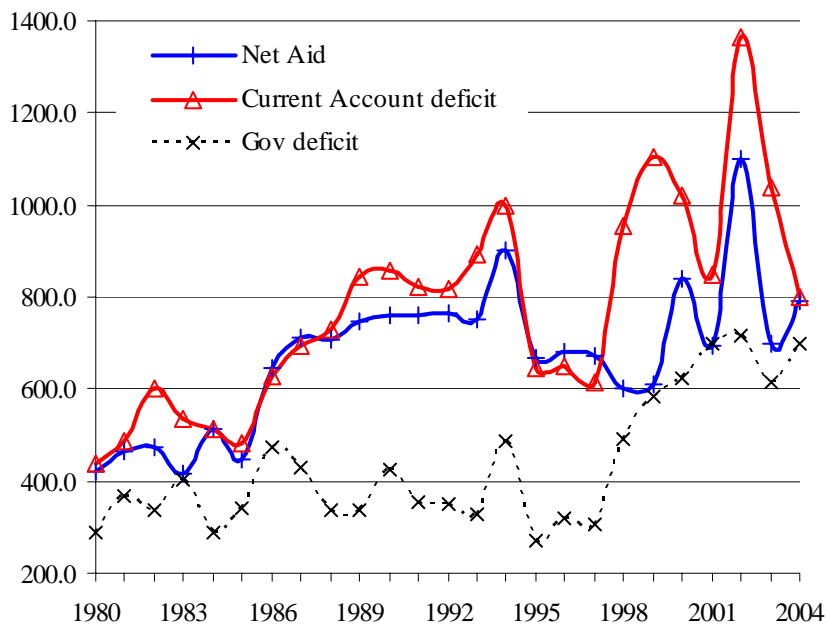


Figure B.11: Indices of estimated stocks of economically active people with primary and or secondary as minimum qualifications (LHS) versus real GDP (RHS), 1980-2004, (1980=100)

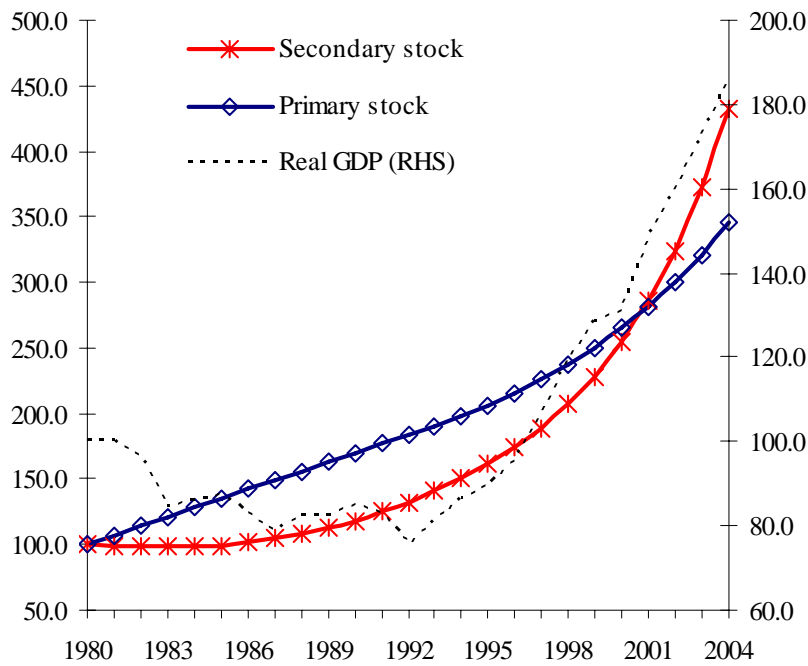


Figure B.12: Plots of annual real GDP growth (%) [LHS] versus percentage of total net aid classified as developmental [RHS] (see section 6)

