

Chowdhury, Anis; McKinley, Terry

**Working Paper**

## Gearing macroeconomic policies to manage large inflows of ODA: The implications for HIV/AIDS programmes

WIDER Research Paper, No. 2007/43

**Provided in Cooperation with:**

United Nations University (UNU), World Institute for Development Economics Research (WIDER)

*Suggested Citation:* Chowdhury, Anis; McKinley, Terry (2007) : Gearing macroeconomic policies to manage large inflows of ODA: The implications for HIV/AIDS programmes, WIDER Research Paper, No. 2007/43, ISBN 9291909866=978-92-9190-986-5, The United Nations University World Institute for Development Economics Research (UNU-WIDER), Helsinki

This Version is available at:

<https://hdl.handle.net/10419/63280>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



UNITED NATIONS  
UNIVERSITY

**UNU-WIDER**

World Institute for Development  
Economics Research

Research Paper No. 2007/43

## **Gearing Macroeconomic Policies to Manage Large Inflows of ODA**

The Implications for HIV/AIDS Programmes

Anis Chowdhury<sup>1</sup> and Terry McKinley<sup>2</sup>

July 2007

### **Abstract**

This paper examines how macroeconomic policies can be managed to accommodate a large inflow of foreign aid to combat the HIV/AIDS epidemic and still maintain macroeconomic stability. Because of the daunting scale of this epidemic, funds need to be disbursed urgently in order to contain its spread, yet some economists worry that rapidly scaling up foreign assistance for this purpose will cause inflation and appreciation of the real exchange rate.

If such effects occur, they could impair a country's international competitiveness and endanger its growth prospects. However, this paper maintains that such effects can be minimized if governments and central banks coordinate fiscal, monetary and exchange rate policies. If they do, they should be able to both 'spend' aid in order to finance larger government programmes and 'absorb' aid in order to import more real resources. Often, governments that receive foreign aid neither spend nor absorb it fully, defeating the basic purpose of development assistance. Because governments fear inflation, they are reluctant to finance a significant increase in spending on HIV/AIDS programmes even when the funding is available. Central banks are reluctant to sell the foreign currency they receive from HIV/AIDS related aid because they fear

.../.

Keywords: foreign aid, Dutch disease, HIV/AIDS, macroeconomic policies

JEL classification: F35, F41, F43, O11

Copyright © UNU-WIDER 2007

<sup>1</sup> University of Western Sydney, School of Economics and Finance, email: a.chowdhury@uws.edu.au;

<sup>2</sup> International Poverty Centre, Brasilia, email: terry.mckinley@undp-povertycentre.org

This study is a revised version of the paper presented at the 16-17 June 2006 WIDER development conference on 'Aid: Principles, Policies, and Performance', directed by George Mavrotas.

UNU-WIDER gratefully acknowledges the financial contribution to the conference by the Finnish Ministry for Foreign Affairs.

UNU-WIDER also acknowledges the financial contributions to the 2006-07 research programme by the governments of Australia (AusAID), Denmark (Royal Ministry of Foreign Affairs), Norway (Royal Ministry of Foreign Affairs), Sweden (Swedish International Development Cooperation Agency—Sida) and the United Kingdom (Department for International Development).

ISSN 1810-2611

ISBN 92-9190-986-6

ISBN 13 978-92-9190-986-5

that such an action might appreciate the domestic currency. However, if aid-induced spending on HIV/AIDS programmes minimizes the adverse impact of the epidemic on human capabilities, not only would it combat a grave human development crisis but also it could safeguard long-term economic growth.

Instead of adhering to restrictive macroeconomic policies, governments could target their increased spending on productivity-enhancing public investment and central banks could amplify the flow of low-cost credit to stimulate private investment. The central banks must accept some appreciation of real exchange rate, as only through appreciation are more imports possible. However, if the real exchange rate does appreciate *excessively* to the detriment of exports, the central bank can implement means to manage its fluctuations in order to maintain competitiveness. Moreover, if a significant proportion of HIV/AIDS funds is used to directly finance the import of drugs and medical equipment that are not produced domestically (which is often the case), there is likely to be even less impact on inflation or appreciation of the exchange rate.

### Acknowledgements

Support for this paper came from the HIV/AIDS Group and the Poverty Group of the United Nations Development Programme in New York. We are grateful for this support. We are also grateful to Mark McGillivray (UNU-WIDER), Malcolm Treadgold (University of New England, Australia), Raja Junankar (University of Western Sydney, Australia), Salim Rashid (University of Illinois, Urbana-Champaign) and Baker Siddiquee (University of Illinois, Springfield) for their helpful comments. Adrianus Mooy, former Governor of Bank Indonesia (1988-93), provided useful insights into the use and management of foreign aid in Indonesia. However, none of them is responsible for any shortcomings of this paper. An earlier version of this paper was presented at UNU-WIDER's conference on aid effectiveness, held in Helsinki, 16-17 June 2006.

*The World Institute for Development Economics Research (WIDER) was established by the United Nations University (UNU) as its first research and training centre and started work in Helsinki, Finland in 1985. The Institute undertakes applied research and policy analysis on structural changes affecting the developing and transitional economies, provides a forum for the advocacy of policies leading to robust, equitable and environmentally sustainable growth, and promotes capacity strengthening and training in the field of economic and social policy making. Work is carried out by staff researchers and visiting scholars in Helsinki and through networks of collaborating scholars and institutions around the world.*

[www.wider.unu.edu](http://www.wider.unu.edu)

[publications@wider.unu.edu](mailto:publications@wider.unu.edu)

UNU World Institute for Development Economics Research (UNU-WIDER)  
Katajanokanlaituri 6 B, 00160 Helsinki, Finland

Typescript prepared by Liisa Roponen at UNU-WIDER

The views expressed in this publication are those of the author(s). Publication does not imply endorsement by the Institute or the United Nations University, nor by the programme/project sponsors, of any of the views expressed.

## **1 Introduction: tackling HIV/AIDS as a human development disaster**

Globally, AIDS has killed more than 23 million people. In 2004 alone, more than three million people died, and nearly five million people became HIV-positive. An estimated 40 million people worldwide are now living with HIV and this number continues to grow, rising from 35 million in 2001 to 38 million in 2003. With an estimated 15,000 people contracting the virus each day, HIV has become a huge epidemic. At the rate of about 1.5 million infections a year, the number of HIV positive persons globally will be over 60 million by the Millennium Development Goals (MDGs) target year of 2015.<sup>1</sup> While this is frightening, what is more disturbing is its distribution—more than 65 per cent of the HIV-positive people live in Sub-Saharan Africa, and 95 per cent of new infections occur in the developing world.

The HIV/AIDS epidemic globally, and in countries of Sub-Saharan Africa in particular, is causing a large-scale human development crisis. Although AIDS is a slow killer, an estimated 4,000 people die of it every day, contributing to nearly 1.5 million deaths a year. Thus, the scale of this crisis requires nothing less than an emergency response of unprecedented proportions.

Impact of the epidemic can also be examined in economic terms. The full economic impact of HIV/AIDS in high prevalence countries will become apparent only in the long run. As large numbers of children and working age adults become HIV positive, this will directly reduce the supply of labour. It also seriously constrains the labourforce participation of other members of the household who have to care for sick relatives. Through the adverse impacts on educational attainment and the strains on government expenditures, the high HIV/AIDS prevalence will impair the long-term growth potential of a country. Hence, unless this epidemic is tackled now, the long-run growth of these countries will be grievously impaired (see Haacker 2004).

It is a vicious circle: HIV/AIDS and the human development crisis it precipitates adversely affect growth; faltering growth increases poverty, which then heightens the risk of infection. As the rate of infection rises, there is a self-reinforcing cumulative circular causation of poverty and HIV/AIDS.

Therefore, whichever perspective one takes—human development crisis or economic growth—there is an urgency in dealing with HIV/AIDS. The infection rate needs to be capped and then reversed. At the same time, 40 million HIV-positive people need to be treated. The task is daunting, involving complex socio-cultural and economic challenges.

On the economic front, one burning issue is financing—how much is needed, what are the sources, and how to spend it. The latest UNAIDS estimates show that the cost of a comprehensive response to HIV/AIDS in low- and middle-income countries will rise from US\$9.6–11.3 billion in 2005 to the magnitude of US\$14.1–18.8 billion by 2007 (UNAIDS 2005). In several countries, financing needs for HIV/AIDS programmes could rise to 10 per cent of GDP, putting enormous pressure on government budgets. Therefore, the financing of essential HIV/AIDS treatment and prevention programmes

---

<sup>1</sup> See report of the International AIDS Vaccine Initiative [www.iavi.org/AIDSandMDG\\_report](http://www.iavi.org/AIDSandMDG_report).

will require large aid inflows. The international community has already committed a large sum to support national efforts. For example, out of about US\$6 billion spent globally on HIV/AIDS related programmes in 2004, close to US\$3.7 billion came from international sources (OECD 2005). This represented a near doubling of international efforts between 2002 and 2004.<sup>2</sup>

Figure 1A  
External HIV/AIDS funding to selected African countries, 2000-04

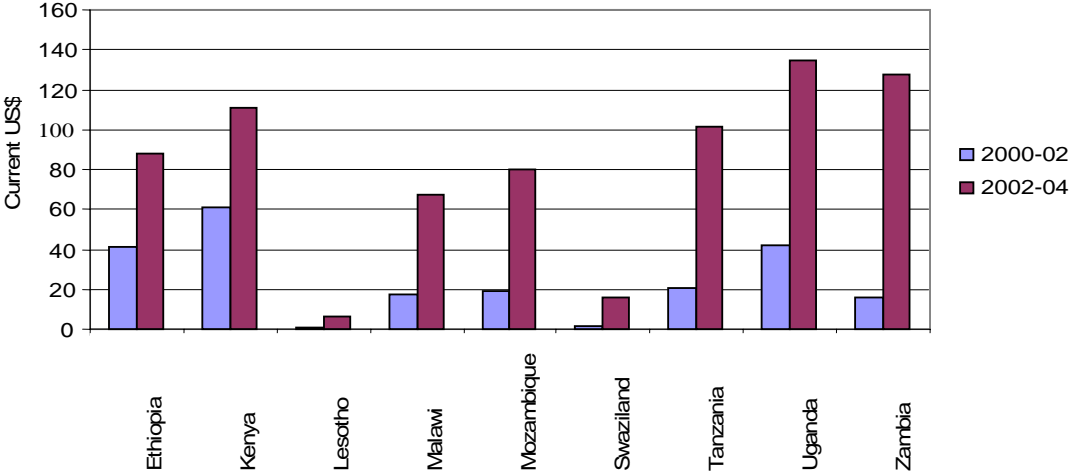
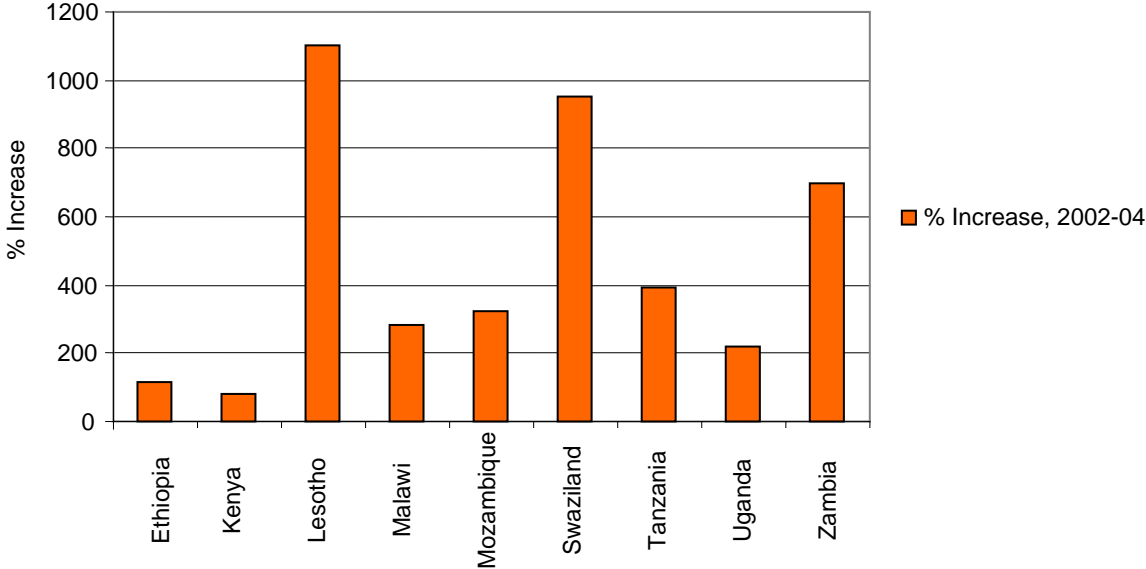


Figure 1B  
Percentage increase in external HIV/AIDS funding, 2002-04



Source: OECD (2005), as reported in Lewis (2005).

<sup>2</sup> Multilateral assistance comes from international agencies, such as the World Bank and UNDP’s Global Fund to Fight HIV/AIDS, Tuberculosis and Malaria (GFATM), which are financed by bilateral donors and private foundations, such as the Gates and Clinton Foundations. In addition to contributing to the GFATM, bilateral donors also fund HIV/AIDS programmes directly. One significant initiative is that of the United States. Under the President’s Emergency Plan for HIV/AIDS Relief (PEPFAR), the US has committed US\$15 billion for 15 countries over five years (2004-08).

For many Sub-Saharan African countries in which HIV/AIDS prevalence is very high, foreign aid has been the dominant source of funding. As can be seen from Figures 1A and 1B, HIV/AIDS related external funding increased significantly in these countries in just two years. In the case of Lesotho, for example, the increase was about 1,100 per cent.

Because of this scaling up, donors have expressed concerns about these countries' ability to absorb such a large surge in aid flows. For example, they cite such problems as institutional weakness and the lack of critical complementary inputs such as skilled manpower. There are also other major concerns, such as the possibility of disincentive effects on governments' resolve to mobilize domestic resources and the vulnerability of these countries to the uncertainty of aid flows. A major concern that has recently received increased attention is the possibility of large aid-induced macroeconomic instability, such as higher inflation and real appreciation of the domestic currency (UN Millennium Project 2005: 239-40).<sup>3</sup> One way of posing the question is, will the rise in inflation and real appreciation of the domestic currency be large enough to adversely affect long-term growth so that aid inflows become counter-productive?

This paper is a brief survey of the theories and the evidence related to the likelihood of aid-induced macroeconomic instability. In particular, the questions that it tries to address are:

- i) To what extent can the utilization of foreign assistance to combat HIV/AIDS cause macroeconomic instability to the detriment of long-term growth?
- ii) If there is a possibility of such instability, are there adequate policy instruments to mitigate it?
- iii) How to track *macroeconomically* whether countries receiving foreign assistance are spending and absorbing it?
- iv) What should be the overall macroeconomic policy framework to achieve HIV/AIDS objectives without causing macroeconomic instability?

In answering these questions, one should bear in mind that foreign aid is a transfer of resources to the recipient countries. In the standard foreign aid model, this transfer implies a widening of the trade gap, which could be accompanied by a real appreciation of the domestic currency. That is, foreign aid helps finance a larger trade gap caused by increased import demands, which are prompted by increased economic activity arising from aid-funded expenditures. Hence, some real appreciation is likely to be a by-product of the absorption of foreign aid. The real appreciation becomes problematic if it hinders export growth; that is, the trade gap widens also because of a significant reduction in exports. The key to prevent this syndrome from occurring is to offset the impact of real appreciation on international competitiveness by productivity-enhancing public policies. In the short run, the government can also respond to this problem with such policies as export subsidies and exchange rate controls.

One condition under which foreign aid can be absorbed without the likelihood of real appreciation is commodity aid, wherein resources are transferred directly, or the entire

---

<sup>3</sup> See Heller (2005) and Lewis (2005) for brief reviews of issues.

aid amount is used to buy *non-competitive* imports,<sup>4</sup> without bringing the foreign currency into the recipient country.<sup>5</sup> This is important to note since a large share of HIV/AIDS related foreign funding is likely to be used to buy essential drugs abroad, which will be transferred directly to HIV/AIDS affected countries. This is unlikely to have a significant adverse effect on the real exchange rate.

The rest of this paper elaborates on these points, and is organized as follows: section 2 describes the rationale for foreign aid inflows and the nature of transfer mechanisms under fixed and flexible exchange rate systems. Section 3 provides a survey of the theoretical possibilities and empirical evidence for aid induced ‘Dutch disease’; section 4 uses the analytical framework developed recently within the International Monetary Fund to examine policy options for aid receiving countries. Section 5 draws policy implications for HIV/AIDS related aid inflows and section 6 contains concluding remarks.

## 2 The rationale for foreign aid

As is well-known, the theoretical rationale for foreign aid (FA) is to fill the savings–investment and/or foreign exchange gaps: developing countries have a deficient level of domestic savings to finance the level of investment necessary to achieve their desired rates of economic growth, and/or a lack of foreign exchange reserves to acquire imported capital goods.<sup>6</sup> The role of FA within this traditional ‘two-gap’ model can be shown by using the national income identity.

The national income or gross domestic product (Y) is equal to gross national expenditures, or the sum of consumption (C), government expenditure (G), investment (I) and net exports (X – M) ex post. That is,

$$Y = C + I + G + X - M \quad (1)$$

GDP is also equal to the sum of consumption (C), savings (S) and taxes (T), so that

$$Y = C + S + T \quad (2)$$

From (1) and (2), we get

---

<sup>4</sup> Goods and services that are not domestically produced or goods and services that would have been imported even in the absence of foreign aid.

<sup>5</sup> Technical assistance is another form of ODA that is not likely to cause real appreciation if the money is used mainly for foreign consultants, who spend most of it in their home countries (which has, admittedly, its own drawbacks).

<sup>6</sup> The gaps produced by the savings or exports required for the planned investment or importation of capital goods to achieve a target growth rate are:

- i) savings–investment gap =  $s^*Y - sY$ , where  $s^*$  is the target savings rate and  $s$  is the actual savings rate;
- ii) foreign exchange gap =  $m^*Y - mY$ , where  $m^*$  is the target import rate and  $m$  is the actual import rate, permitted by export earnings. In the pre-take-off stage, a developing country would have a dominant savings–investment gap, followed by a dominant foreign exchange gap. See Chenery and Bruno (1962), Chenery and Strout (1966) and Thirlwall (2003).

$$S + T = I + G + X - M$$

$$\text{Or, } I - [S + (T - G)] = M - X = F - J \quad (3)$$

where  $T - G$  = government savings (fiscal surplus or deficit).

$F - J$  = the difference between net capital inflows (F) and net factor payments abroad (J).<sup>7</sup>

Equation (3) states that ex post the gap between investment (I) and total domestic savings ( $S + T - G$ ) must be equal to the imports-exports gap. That is, if there is any shortfall in domestic savings (compared to investment), this must be met by net foreign savings ( $F - J$ ) flowing into the country. Most low-income countries receive foreign aid (FA) as their main form of foreign savings.<sup>8</sup>

There is no reason for the two gaps to equal ex ante. Chenery and his associates argue that aid is more effective where the trade gap ( $M - X$ ) or the foreign exchange gap ( $F - J$ ) is larger ex ante. A binding or dominant trade gap (or foreign exchange gap) means that the country is unable to utilize its entire savings. That is, due to a shortage of critical imports, it cannot increase investment even when domestic savings are available. The country suffers from deficient demand (i.e., investment < savings) and has Keynesian type unemployment or underemployment.

Bacha (1990) extends the 2-gap model into a 3-gap model, wherein the fiscal gap ( $T-G$ ) constrains private sector investment at a level below what available national savings would permit.

This derives from an assumed relationship between private investment ( $I_p$ ) and public investment ( $I_G$ ) as follows:

$$I_p = k I_G \quad (4)$$

Where  $k > 0$

Equation (4) recognizes that in developing countries, government investment in social and economic infrastructure sets an upper limit for profitable private investment.<sup>9</sup> The low level (or lack of) of fiscal surplus ( $T - G$ ) in the recurrent budget (referred to as the

<sup>7</sup> From the balance of payments, the excess of imports over exports is equal to foreign transfers. Equation (3) assumes that the accumulation of foreign reserves is netted out of the capital account of the balance of payments to obtain the net value of capital inflows. For most low-income countries, there should be positive net capital inflows but, unfortunately, this is not always the case. Their net factor payments abroad are usually positive since they are making payment on inward foreign investment and have little outward investment of their own.

<sup>8</sup> Most developing countries receive minuscule amounts of private capital. Some, however, have substantial amount of remittance income.

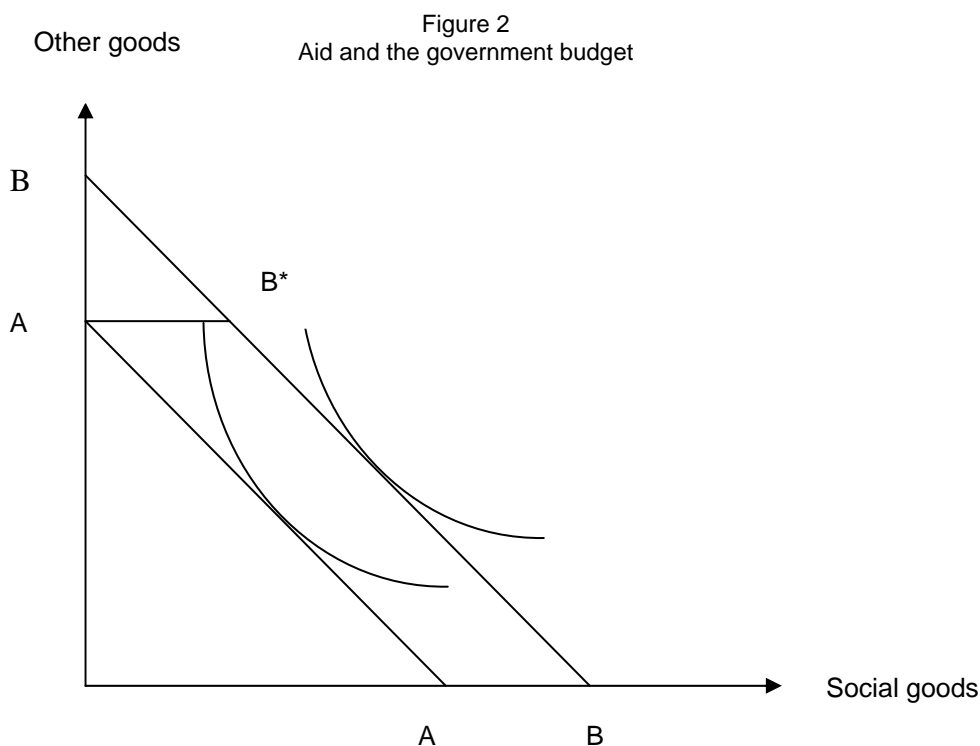
<sup>9</sup> Equation (4) implies that public investment 'crowds-in' private investment. The crowding-in hypothesis is rooted in Gerschenkron's analysis of European history and has empirical support in the successful economies of East Asia, Brazil and Mexico. Based on econometric analysis of 72 countries, Barro (1989: 29) concludes, 'an extra unit of public investment induces about a one-for-one *increase* in private investment' (emphasis original).



primary surplus) limits public investment ( $I_G$ ) and, according to equation (4), therefore limits private investment ( $I_P$ ).

The government can finance its deficit by borrowing from the central bank. Government borrowing from the private sector is limited since the domestic capital market is very thin in most developing countries. Borrowing from the central bank (printing money) yields seigniorage (an inflation tax), through which unutilized private savings can be transferred to the government for public investment, which can, in turn, stimulate private investment.<sup>10</sup> However, this method of financing public investment has its own limits because *excessive* inflation may become debilitating for private investment.

In such circumstances, according to the 3-gap model, foreign aid can relax the financing constraint by supporting the budget. From the development or planning (*ex ante*) perspective, the government of a developing country can estimate the fiscal gap, and place the foreign exchange needs to the donors, who can then fill the gap.<sup>11</sup> In other words, FA shifts the government budget constraint outward and allows the government to spend more to meet its development needs without having to resort to inflationary financing. See an illustration of this effect in Figure 2.



<sup>10</sup> This process is known as ‘forced savings’; see Kalecki (1976).

<sup>11</sup> There is considerable debate about whether a fiscal deficit causes FA (demand-driven FA) or FA causes a fiscal deficit (supply-driven FA). Most critics believe that aid is supply driven. For example, according to Easterly (2003), Judith Tendler’s observation dating back to 1975 that: ‘a donor organization’s sense of mission ... relates not necessarily to economic development but to the commitment of resources, the moving of money’ remains valid even today. That is, donors are judged by the amount of money spent; hence, they are driven by the desire to ‘move money’.

The horizontal axis of Figure 2 represents social goods, such as education, health and other programmes that *directly* enhance human development. The vertical axis represents government expenditures, such as on the military, the civil service and other activities that do not *directly* contribute to human development. Figure 2 shows that when the government's budget constraint shifts from AA to BB, it can achieve higher welfare. However, donors and development practitioners have raised concerns about the fungibility of aid, in particular the use of aid to expand unproductive activities of the public sector (included in 'other goods' in Figure 2). If donors want to restrict the use of aid to social goods (e.g., water, health and education), the budget constraint will shift with a kink at B\* (i.e., AB\*B will be the new budget constraint).

Development practitioners have also pointed out the possibility of lax revenue efforts by a government as a result of large FA inflows. In that case, the government budget constraint will shift to a position somewhere between AA and BB. (In the extreme case of a full offset, the budget constraint will remain at AA). Because of additional problems related to poor governance and the possibility of corruption, donors are now increasingly using aid conditionality to obligate governments to undertake tax reform and other public-sector reforms in order to overcome these problems.

The effectiveness and welfare implications of such aid conditionality remain debatable. (See McGillivray [2000] for a survey of issues surrounding aid fungibility and fiscal behaviour and Easterly [2003] for a critical appraisal of the effectiveness of aid conditionality and aid selectivity.)

## 2.1 The mechanism of resource transfer

Since foreign aid (FA) is mainly a source of capital inflows, it should have macroeconomic effects similar to those of other forms of capital. However, since FA comes largely through public channels, the government can influence its effects by carefully choosing its expenditures.<sup>12</sup>

As highlighted earlier, the transfer of resources due to foreign aid is often associated with real appreciation of the domestic currency. However, the mechanism through which real appreciation occurs depends on the exchange rate regime of the recipient country. To illustrate this process, we begin by examining the monetary balance sheet of an open economy, as presented in Table 1.

Items in the foreign sector are recorded in the capital account of the balance of payments. For most developing countries, liabilities to the foreign sector (capital inflows) are larger than their assets (outflows). Hence, their capital account shows a surplus, which is matched by the current account deficit, and adjustments in the central bank's net foreign reserves under a fixed exchange rate system, or the entire banking sector's foreign currency holdings under a flexible exchange rate system. That is, inflows of capital must finance the current account deficit and the addition to foreign reserves.

---

<sup>12</sup> A small portion of FA is channelled through non-governmental organizations. Some donor agencies, e.g., USAID, spend aid money directly on projects and their aid does not support the government budget.

Table 1  
Monetary balance sheet for a developing open economy

Account	Assets	Liabilities
GOVERNMENT	Deposits with central & commercial banks (GD + BD)	Outstanding debts
CENTRAL BANK	1) Net foreign reserve (NFR) 2) Credit to government (CRG)	1) Currency (C) 2) Reserves for deposits (R) 3) Government deposits (GD)
COMMERCIAL BANKS	1) Reserves for deposits (R) 2) Lending to private sector (CRP) 3) Lending to government (BRG)	1) Deposits (D) - Private (PD) - Public (BD)
PRIVATE SECTOR	1) Currency (C) 2) Deposits (D) 3) Lending to government (PRG)	1) Loans from commercial banks (CRP)
FOREIGN SECTOR	1) Lending overseas 2) Deposits in foreign banks 3) Outward foreign direct investment	1) Foreign aid (FA) (loans) 2) Commercial lending to the government/public sector 3) Commercial lending to the private sector/banks 4) Foreign direct investment

On the domestic side, each account (except that of the government) is balanced, with assets equalling liabilities.<sup>13</sup> Outstanding government debts (liabilities) imply that the government has been running budget deficits. The government has been financing these by a combination of borrowing from the central bank (CRG), from the commercial banks (BRG) and from the non-bank private sector (PRG). In an open economy, the government can also borrow from overseas (or receive grants). Each source of borrowing has different implications for the money supply (MS). The domestic capital markets in most developing countries are not developed enough to allow large-scale government borrowing from the non-bank private sector; also, governments do not have easy access to the international capital market. Thus, they have to resort to borrowing from the banking sector, mostly from the central bank, and attempt to fill the remaining gap with FA. How does this affect a country's money supply? This can be explained as follows:

Money supply (MS) is defined as:

$$MS = C + D \tag{4}$$

---

<sup>13</sup> Strictly speaking, none of the accounts will necessarily balance because of the value of physical assets and the resultant net worth, which are ignored here. However, physical assets are likely to be particularly important for the government and the private sector. Moreover, their inclusion draws attention to the links between the monetary and real sectors of the economy.

Central bank's monetary liabilities (B) are:

$$B = C + R + GD \quad (5)$$

Dividing equation (4) by equation (5), we obtain:

$$MS/B = (C + D)/(C + R + GD) \quad (6)$$

That is,

$$MS = [(C + D)/(C + R + GD)] B \quad (7)$$

Dividing both denominator and numerator of the right hand side of equation (7) by D, we obtain:

$$MS = [(c + 1)/(c + q + g)] B$$

Or  $MS = m B \quad (8)$

Where  $c = C/D$ , the currency-deposit ratio

$q = R/D$ , the reserve-deposit ratio

$g = GD/D$ , the ratio of government deposits with the central bank to deposits

$m = (c + 1)/(c + q + g)$ , the money multiplier

Since the central bank's monetary liabilities must equal its monetary assets ( $H = NFR + CRG$ ), equation (8) can be expressed in terms of the central bank's monetary assets (H) as:

$$MS = m H \quad (8a)$$

Equation (8) implies that the money supply is linked to the central bank's liabilities through the money multiplier (m). Because the central bank's total monetary liability is the source of the money supply (according to equation 8), it is called *base money* or *high-powered money*.

In the standard textbook version, the money multiplier (m) is assumed constant, at least in the short run. Thus, the link between B (or H) and MS is assumed to be a rigid one. For example, an increase in the net foreign reserves (NFR) of the central bank, due to an increase in net aid inflows, should lead to an increase in the money supply by means of the money multiplier (m). However, whether an increase in foreign aid leads to an increase in the central bank's net foreign reserves, and hence a multiple increase in the money supply, depends on the exchange rate regime of the country.

## 2.2 A fixed exchange rate regime

Spending foreign aid *domestically* requires exchanging aid denominated in foreign currency into local currency. In order to spend aid, the government sells the foreign currency to the central bank at the fixed exchange rate, so the foreign exchange holdings (NFR) of the central bank go up.

This increase in the central bank's assets is balanced by an increase in its liabilities when the central bank issues equivalent domestic currency to the government for domestic spending. That is, there is an immediate increase in the supply of money equivalent to the local currency value of disbursed foreign aid. There will be further increases in the money supply through the private sector's portfolio choice of currency or deposits and through domestic credit creation when banks receive deposits as a result of the government's aid-induced expenditures. Thus, money supply goes up by a multiple of the initial increase in base money, depending on the size of  $c$ ,  $q$  and  $g$  (defined above), which in turn depend on the behaviour of both the banking and the non-banking private sectors.

The increased money supply is likely to lead to some degree of inflation. Thus, an increased inflow of FA might lead to the real appreciation of the domestic currency through a relative price effect. Since the nominal exchange rate is fixed, this can harm the competitiveness of a country's exports. The central bank can offset (sterilize) the aid induced increase in its assets (NFR) in various ways. First, it can sell government bonds (CRG) to the non-bank private sector. Second, it can raise the reserve requirement for commercial bank deposits and thereby reduce their ability to create credit. Third, it can ask the government to shift its deposits from commercial banks to the central bank. This, too, will reduce commercial banks' ability to extend credit.

Often the preferred option is for the central bank to sell the foreign exchange, which it received from the government, to the private sector in order to mop up the initial injection of liquidity. This facilitates payments for increased imports induced by the increase in economic activity, caused, in turn, by aid-financed government expenditures (through the multiplier effect). This is how the central bank can facilitate the absorption of foreign aid.<sup>14</sup>

### **2.3 A flexible exchange rate regime**

Under a flexible exchange rate system, the central bank does not intervene in the foreign exchange market, and therefore FA inflows should not affect the money supply. In a flexible exchange rate system, the government sells the foreign currency in the open market (i.e., exchanges the aid denominated in foreign currency) for local currency. The increase in the supply of foreign currency reduces its price relative to the local currency. In other words, the local currency strengthens vis-à-vis the foreign currency.<sup>15</sup> Thus, in a flexible exchange rate system, real appreciation of the local currency happens via nominal appreciation.

In reality, the government does not sell the entire amount of foreign currency in the open market, but deposits some foreign exchange either at the central bank or at commercial banks. When it is deposited at the central bank, NFR initially increases, but

---

<sup>14</sup> Absorption, here, is used differently from the traditional usage of the term, such as in 'absorptive capacity', which is related to microeconomic issues such as the availability of counter funds, project readiness, project management, and institutional factors such as governance.

<sup>15</sup> The exchange rate ( $e$ ) is defined as the price of one unit of foreign currency in terms of the local currency (e.g., 1 USD = Rs 60). Therefore, when the exchange rate ( $e$ ) falls, it means the appreciation of the local currency.

this is offset by the decrease in government debt to the central bank, leaving the total money base unchanged. But as soon as the government draws on its deposits to finance expenditure, net domestic assets and base money increase.

When the government deposits the aid-supplied foreign currency at commercial banks rather than at the central bank, FA inflows do not automatically increase base money. But this option increases commercial banks' ability to create credit. As commercial banks sell foreign currencies in the market in response to increased import demand induced by increased economic activity, there will be a nominal and real appreciation of the domestic currency. In other words, the resultant demand for domestic currency will drive up its relative price.

Thus, regardless of the exchange rate regime, there is a possibility that large foreign aid inflows can cause real appreciation of the domestic currency. As noted earlier, this should be regarded, in fact, as a predictable effect of the transfer of real resources to developing countries. The real appreciation accompanies the widening of the trade gap, which is financed by the increase in aid flows. *The assumption here is that the trade gap widens mainly due to increased imports.* That is, the counterpart of increased aid inflows is the additional imports of goods and services.

However, a real appreciation that is too large might adversely affect the tradable sector—a condition referred to as the 'Dutch disease'.<sup>16</sup> This implies, paradoxically, that foreign aid could be harmful in the long run if it leads to shrinkage of the tradable sector. In other words, real appreciation leads to a reduction in exports (as well as an increase in imports). If that happens, then there would be an ever-widening trade gap that needs continuous aid financing. The following section reviews the theory and evidence on the Dutch disease phenomenon.

### 3 Dutch disease—the theory

The first formal treatment of real exchange rate misalignment due to large FA inflows that cause stagnating exports and deteriorating external balance (a Dutch disease like syndrome) is by van Wijnbergen (1986). Van Wijnbergen disaggregates the economy into tradable (T) and non-tradable (NT) sectors and examines the impact of foreign aid on the relative prices of the two (PT/PN).<sup>17</sup>

In the two-sector, traded/non-traded model, it is assumed that PN is determined by domestic demand and PT is determined in the world market (hence it is exogenous for a small open economy). When FA is spent domestically, according to van Wijnbergen, a large portion falls on the NT sector since government services and infrastructures are largely non-tradable. This causes a rise in PN and hence a real appreciation (PT/PN falls). As a result, resources shift from tradables to non-tradables, and the tradable-

---

<sup>16</sup> The term Dutch disease was used to describe the adverse impact of the discovery of natural gas on the Dutch manufacturing sector. A sudden surge in export earnings from natural resources caused a real appreciation of the local currency that put manufacturing exports at a disadvantage.

<sup>17</sup> The relative price (PT/PN) between the traded and non-traded sectors can also be regarded as the real exchange rate (if the nominal exchange rate is fixed). PT is a proxy for the world price (in local currency) while PN represents the domestic price level.

sector shrinks. To the extent that part of the spending induced by foreign aid is directed at the tradable-sector, the availability of exportables declines. Furthermore, the increased expenditure due to the multiplier effect of the initial government expenditure causes imports to rise. The net effect of a decline in exportables and a rise in imports is a deterioration of the external balance. This adverse effect is exacerbated if the export sector is characterized by ‘learning-by-doing’ (LBD) externalities, and hence has higher productivity than the NT sector. It is assumed that the shrinking of the export sector leads to falling productivity in the whole economy.

In the words of van Wijnbergen (1986: 130), ‘This point may be worth stressing: *substantial amounts of aid will put upward pressure on the real exchange rate and will in that way counteract the export promotion schemes often recommended by the aid donors*’ (original emphasis). In such a circumstance, according to van Wijnbergen, the export sector (especially if it is characterized by LBD infant industries) should be supported with increased production subsidies.

### **3.1 The optimum aid level and the Laffer curve analogy**

The Dutch disease model implies that there is an optimal level of aid beyond which the effectiveness of aid declines. A sudden surge in FA flows may even reduce real income and create a vicious circle of aid leading to greater aid dependence. Such a problem could also arise from the lack of aid absorption capacity, public mismanagement or poor governance.

Researchers who have empirically examined the hypothesis of diminishing returns to aid have customarily used an aid-squared term in their models. The coefficient of this term has been consistently negative and significant—validating the hypothesis of diminishing returns. However, the threshold level for the diminishing returns to set in varies considerably, ranging from 15 per cent to 45 per cent of GDP.

Gomanee, Girma and Morrissey (2003) are critical of the earlier aid threshold (or Laffer curve based) empirical studies. They point out that these studies imposed a particular form of non-linearity, specifically a relationship between aid and growth that has an inverted U-shape—first positive and then negative. This also implies that there is only one threshold. Instead, they argue, there could be more than one turning point. Thus, Gomanee, Girma and Morrissey use a technique that allows data to determine the number of thresholds (i.e., there is no prior imposition of the type of non-linearity). Since the technique is based on asymptotic theory, it is possible to test the statistical significance of the estimates. To quote these authors, ‘results show that there is a threshold beyond which aid becomes effective, but no evidence of a second threshold in aid beyond which aid becomes less effective’ (Gomanee, Girma and Morrissey 2003: 16). That is, while too little aid is ineffective (and can even be costly in terms of the need for expenditures on managing it, for example), there is no evidence that too much aid is harmful.

In contrast, some researchers maintain that there is a ‘transfer paradox’, namely, that an increase in aid will lead to less growth and development. Box 1 discusses one such model.

Box 1  
Discussions of the aid 'transfer paradox'

Yano and Nugent (1999) introduce an interesting twist to the Dutch disease debate. In their model of 2-factors and 3-goods (exports, imports and non-tradables—NT) including an import tax (tariff), foreign aid (FA) inflows can paradoxically reduce the overall welfare of the recipient country. However, in contrast to the Dutch disease model, the immiserizing effect of FA happens, in the Yano-Nugent model, due to a *decline* in the price of NT. While in the Dutch disease model, excess demand for NT goods causes the relative price of NT—PN—to rise (implying sluggish or inelastic supply of NT), in the Yano-Nugent model, aid-funded projects cause an expansion of NT goods (infrastructure, education, health), and hence a supply-induced reduction in PN. This result, however, depends on the presence of import tariffs since they allow the expansion of the import-competing sector and the corresponding contraction of the export sector. Import barriers or tariffs make the import-competing sector essentially non-tradable. Thus, the Yano-Nugent model shows that if aid finances *excessive* expansion of import-substituting activities (protected by tariffs), the real income of a small country might decline. Note that this result depends on an excessive expansion of the NT sector. No transfer paradox arises when the NT sector expands to keep the demand-supply balance at the existing price level.

Choi (2004), in a theoretical model also involving 2-factors and 3-goods, shows that the possibility of a reduction in PN is remote. According to Choi (2004: 250), 'As long as the entire amount of foreign aid is *not* used for capital formation in the import-competing sector, or some development aid is used in the export sector, the transfer paradox cannot occur' (original emphasis). In their own empirical work, Yano and Nugent (1999) themselves do not find much evidence to support their theoretical arguments. Only in four countries out of 44 in their sample did they find some evidence of a transfer paradox.

In support of his argument against the Yano-Nugent transfer paradox, Choi cites the example of the Marshall Plan after the Second World War—one of the most historically successful aid programmes. Between 1948 and 1952, 15 European countries received more than US\$13 billion from the US under this plan (equivalent to US\$100 billion in 2005). The majority of these countries were small, and the aid money went to rebuild both non-tradable and tradable sectors. Within the non-tradable sector, aid money went to both export and import competing activities. Interestingly, none of these countries is known to have suffered from a transfer paradox.

### 3.2 Limitations of the Dutch disease model

The logic of the Dutch disease model is not compelling. First, the original Dutch disease model does not consider the possibility of using sterilizing monetary policy in response to an *excessive* over-valuation of domestic currency. As noted earlier, the central bank can sterilize the monetary impact of FA in a number of ways, such as selling its holdings of government bonds, raising the reserve requirements for commercial banks or transferring government deposits from commercial banks to the central bank. One could object by pointing to the supposedly limited scope for sterilization because of the underdeveloped nature of capital markets in low-income countries. However, according to a recent study at the IMF (Prati, Sahay and Tressel 2005), the practice of sterilization is widespread among aid-receiving countries. Over the period 1960-98, the study found 704 episodes—out of 1,935 episodes of foreign aid inflows that were greater than two per cent of GDP—during which net domestic monetary assets of the central bank fell. The study also reports on the more recent experiences of Ghana, Ethiopia, Mozambique, Tanzania and Uganda that also have reduced net domestic monetary assets in response to surges in aid flows.

The central bank can also neutralize the impact of increased inflows of FA by reducing the size of the money multiplier ( $m$ ) through (i) influencing reserves ( $R$ ) and/or (ii) influencing private sector behaviour with regard to currency holdings and deposits



(C/D). For example, by lowering the interest rate, the central bank could encourage commercial banks to keep excess reserves and individuals to hold more cash and fewer deposits. This outcome will simultaneously increase the reserve-deposit ratio ( $q$ ) and the currency-deposit ratio ( $c$ ), which, in turn, will reduce the size of the money multiplier. The government can also influence the money multiplier by shifting its deposits from the central bank to commercial banks or vice-versa to influence  $g$  (i.e.,  $GD/D$ ).

Thus, the central bank and the government can minimize the harmful effects of increased aid flows on the money supply, and hence on inflation and the real exchange rate. However, as will be explained later, a full sterilization that leaves the real exchange rate unchanged is not desirable. The central banks of the aid recipient countries have to accept some real appreciation in order to carry out a transfer of real resources. Sterilization policy should be pursued only when there are signs of *excessive* over-valuation of the domestic currency.

The government can choose to keep FA in an overseas account—instead of depositing it in the central bank—in order to use it directly to finance imports. Under this arrangement, private importers buy foreign currencies from the government, which then settles the transactions on behalf of the importers from its overseas account. If the private importers borrow from their banks to pay the government, the banks simply credit that to the government accounts that they hold. This leaves the banks' balance sheets unchanged. Hence, there will be no impact on the domestic money supply.

Thus, this arrangement is similar to the direct transfer of resources via commodity aid, which can be absorbed without real appreciation. However, the government has to ensure that the aid money is used to import *non-competitive* imports. That is, aid-financed imports must not substitute for goods and services that would otherwise have been imported or produced locally. This will ensure that real resources are transferred without real appreciation.

An added advantage of this arrangement is that the government can effectively follow a managed float exchange rate system in order to avoid *excessive* real appreciation of the domestic currency. That is, it can choose at what nominal exchange rate it wants to sell foreign currencies to private importers, keeping an eye on the movement of the real exchange rate.

One of the glaring omissions of the Dutch disease model is a lack of recognition of the supply-side effect of increased FA. It implicitly assumes that the supply in the NT sector is sluggish so that the price of NT is driven up in response to increased demand. The model also assumes, in effect, that the economy is characterized by full employment, which would require resources to be transferred from the tradable sector to the non-tradable sector. It is not possible in this model for both sectors to grow together. The model also ignores the productivity-enhancing role of infrastructure, education and health (which are part of the NT sector). It also assumes that 'learning-by-doing' (LBD) occurs only in the tradable sector.

These assumptions are at odds with the experience of most developing countries, where a vast army of underemployed and unemployed do not find jobs even when they are ready to work at a lower real wage (see Nkusu 2004). A large number of empirical studies find a positive impact of public infrastructure, education and health on

productivity growth.<sup>18</sup> Furthermore, there is no reason why LBD or other kinds of externalities cannot occur in the non-tradable sector.

In addition to the impact of foreign aid on the supply of money, one needs to consider the impact on money demand. The inflationary impact of increased FA flows depends on a growth rate of money supply that exceeds the growth rate of real GDP. As the economy grows, so does the demand for money needed to facilitate the increased transactions. As noted by Little et al. (1993), the typical developing country has a rapidly growing demand for money, as the economy becomes more monetized and as households and firms increasingly hold assets in financial forms such as currency, demand deposits or time accounts. This means that the income elasticity of the demand for money is likely to be greater than unity in low-income countries. Therefore, if one allows for the growth enhancing effects of aid-financed public investment, then the economy can accommodate an increase in money supply without generating significant inflationary pressure.

Thus, the alleged impact on inflation and real appreciation of increased FA, which would supposedly cause a Dutch disease, is not inevitable. It depends on how the monetary authority manages its assets and liabilities and uses interest rate policy, and on how the supply side responds to fiscal expansion. In a recent IMF Working Paper, Gupta, Powell and Yang (2005: 13), conclude:

*The macroeconomic impact of aid is likely to depend on how the aid is used. If aid is used to boost supply capacity, its macroeconomic consequences are likely to be mitigated... Once appropriate consideration is taken of the supply-side impact of aid flows, there is no clear presumption as to whether, over the medium term, there will be a real exchange rate appreciation or depreciation or whether the tradable sector will contract or expand. This is essentially an empirical issue, on which individual country circumstances are likely to differ (original emphasis).*

### 3.3 Evidence of Dutch disease

Unfortunately, ‘there are remarkably few empirical studies of Dutch disease in aid-receiving countries’ (Prati, Sahay and Tresselt 2005: 32). Figures 3A and 3B present scatter plots of average *net aid*/GDP ratios vis-à-vis inflation and real exchange rates of 42 aid dependent countries for the period 1970-2003. The range of *net aid* dependence varies from 4 per cent to 49 per cent of GDP.<sup>19</sup> To calculate the real exchange rate, we have used the nominal US-dollar exchange rate of domestic currency and taken the US consumer price index as a proxy for foreign prices. Thus, the real exchange rate is defined as  $RER = eUS\text{ CPI}/\text{domestic CPI}$ , where  $e$  is the local currency value of one

---

<sup>18</sup> See Adam and Bevan (2004), Calderon and Servén (2003), Gupta et al. (2004), Barro and Sala-I-Martin (1995) and Krueger and Lindahl (2004).

<sup>19</sup> One can use alternative measures of aid dependence, such as aid/government revenue or aid/government expenditure. Net aid is a capital flow concept and is net of principal payments. However, a better indicator is the net aid transfers (NAT), which is net of both principal and interest, and excludes debt cancellations. Recently the Center for Global Development has produced a dataset of NAT. See [www.cgdev.org/doc/data%20sets/roodman05/NAT.xls](http://www.cgdev.org/doc/data%20sets/roodman05/NAT.xls).

Figure 3A  
Aid/GDP ratios, inflation and real exchange rates (average 1970-2003)

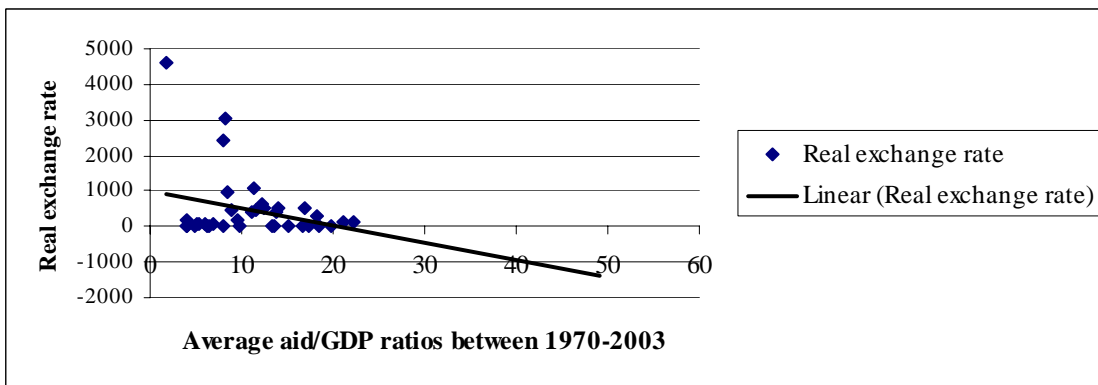
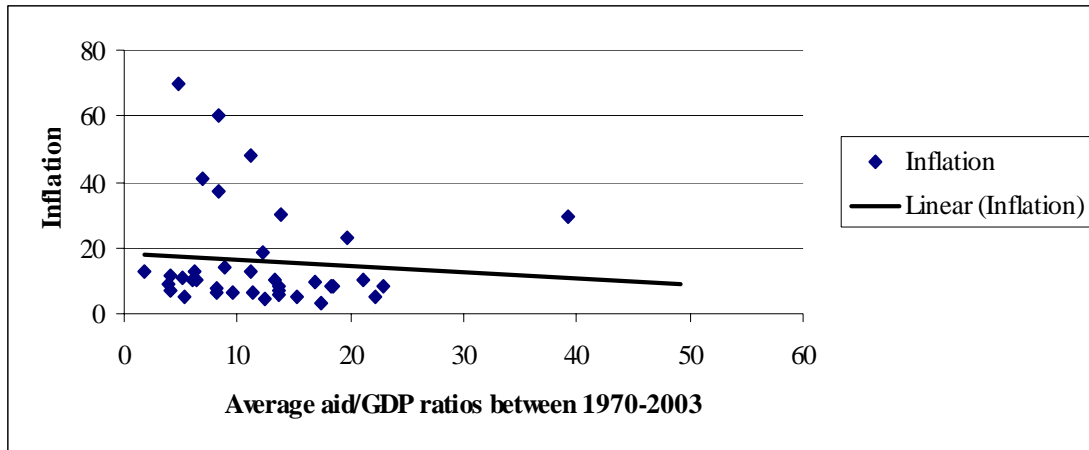
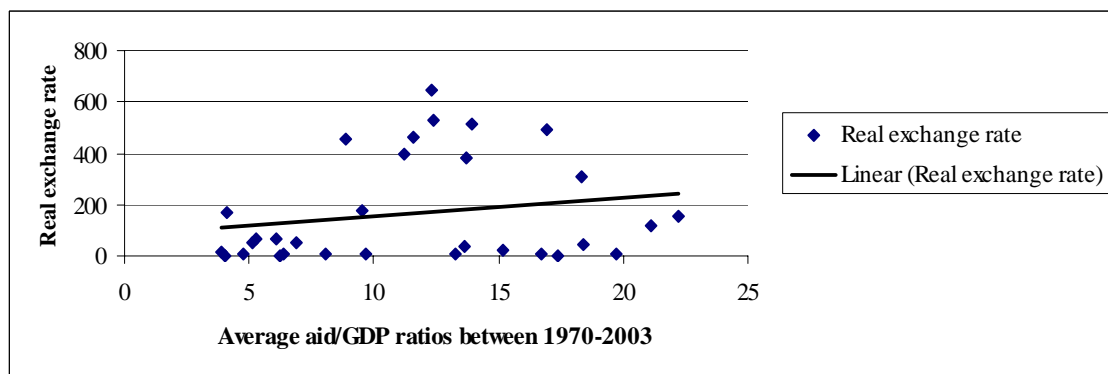
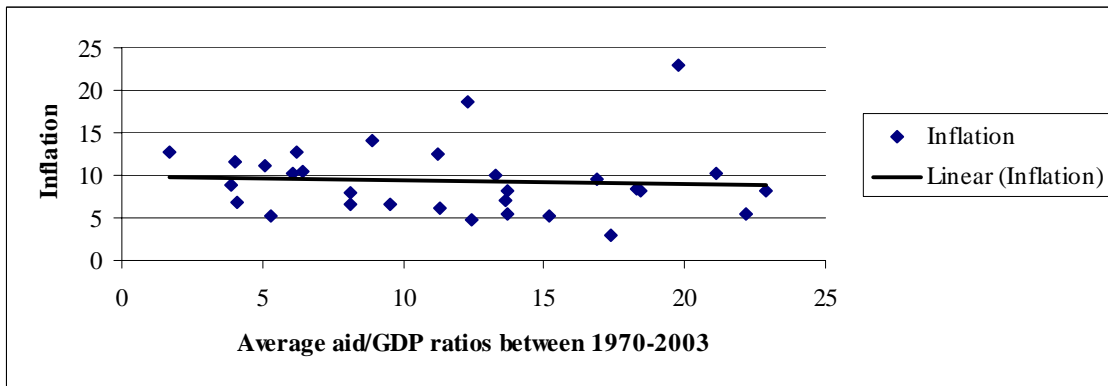


Figure 3B  
Aid/GDP ratios, inflation and real exchange rates (average 1970-2003)  
without outliers (inflation >30%, real exchange rate >700)



Source: IDS (OECD) and IFS (IMF) online databases.

US dollar, so that a rise in the real exchange rate indicates a real depreciation of the domestic currency.

Contrary to the Dutch disease hypothesis, the relationship between inflation and net aid is clearly negative, even without outliers (i.e., inflation rates >30 per cent and net aid/GDP >30 per cent). Although the relationship between net aid and real exchange rates is negative, implying that a rise in net aid inflows leads to real appreciation, when outliers (real exchange rates >700 and net aid/GDP >30 per cent) are omitted, it becomes mildly positive. That is, in the absence of exceptionally high inflows of net aid, the real exchange rate is likely to depreciate. In sum, the cross-country evidence on the Dutch disease is, at best, mixed with any evidence in its favour heavily influenced by outliers.

Table 2 presents correlation coefficients of net aid/GDP ratios with inflation rates and real exchange rates for 13 African countries, including nine countries that recently experienced a surge in HIV/AIDS related aid inflows. In eight countries, the association between net aid inflows and real exchange rates is positive, implying a real depreciation. In the remaining five countries there is weak evidence of real appreciation. The correlation between net aid inflows and inflation rates is in most cases found to be positive (in contrast to the results for the larger sample just mentioned). Hence, because of the mixed evidence, it is not possible to say *a priori* whether a rise in net aid inflows would lead to real appreciation or higher inflation. As will be shown later, the macroeconomic impact of aid inflows depends on the way the government and the central bank respond with public investment, credit allocation and reserve management policies.

Table 2  
Correlation coefficients of net aid/GDP ratio with inflation and real exchange rates  
in highly aid dependent African countries

Countries		Real exchange rate	Inflation
Ghana	(1970-97)	0.79	-0.32
Chad	(1983-2002)	-0.48	-0.07
Burundi	(1970-2003)	0.76	0.13
Rwanda	(1970-2003)	0.13	-0.01
Uganda	(1980-2003)	0.69	-0.51
Ethiopia	(1970-2002)	0.36	-0.13
Kenya	(1970-2003)	0.45	0.68
Lesotho	(1973-2003)	-0.30	0.28
Malawi	(1980-2003)	0.42	0.39
Mozambique	(1986-2003)	-0.09	0.66
Swaziland	(1970-2003)	-0.48	0.55
Tanzania	(1970-2003)	0.72	0.45
Zambia	(1970-2003)	-0.08	-0.05

Notes: The real exchange rate is estimated as ((nominal exchange rate \* US CPI)/domestic prices).  
The US CPI is a proxy for foreign prices in each country.  
The nominal exchange rate is expressed as the price of one US\$ in domestic currency.  
So, a rise in the real exchange rate means a real depreciation.

Sources: IDS (OECD) and IFS (IMF) online databases.

Our evidence cited above is roughly in line with the observation of Lewis (2005: 9), ‘the available evidence on the macroeconomic effects of large aid flows is somewhat ambiguous. The evidence base is modest, and country circumstances appear to play a major role in determining the impacts’.

The recent IMF survey of empirical findings on Dutch disease in Africa, by Gupta, Powell and Yang (2005) concurs. Following are their findings:

this evidence is not overwhelmingly significant. Econometric estimates often show the impact of aid on the exchange rate to be small and statistically insignificant. ... Time series models tend to reveal that the real exchange rate responds less to aid variations than to other exogenous factors, such as terms of trade variations. Moreover, some studies of African countries find that aid inflows appear to be associated with a real depreciation, reflecting increased productivity (supply-side response) as a result of aid (ibid. 14).

*To the extent that higher aid flows alleviate supply bottlenecks, they can offset the effect of an exchange rate appreciation on export growth (ibid. 15, original emphasis).*

*When aid flows build up public infrastructure and thus augment the productivity of private factors, it is possible to realize significant medium-term welfare gains from aid, even in the presence of some short-term Dutch disease (ibid. 16, original emphasis).*

In sum, the theoretical literature on Dutch disease ignores the important condition that foreign aid is channelled mainly through the government of the recipient country, in support of its budgetary position. In many developing countries, investment needs are high, but private savings are low. Hence, governments are forced to run deficits because their revenue base is narrow and their tax administration weak. However, low private savings limit governments’ ability to borrow domestically. At the same time, developing countries cannot borrow internationally at reasonable interest rates due to their poor credit ratings.

Thus, foreign aid remains the only source of deficit financing available to maintain public investment high enough to generate the economic growth necessary for poverty reduction. For example, during Indonesia’s early phase of transformation, aid inflows financed 80-90 per cent of development expenditures. In the absence of foreign aid, the governments of developing countries would have no other option but to borrow from their central banks (namely, print money) to finance their investment needs.<sup>20</sup> In other words, foreign aid allows the recipient government to pursue an expansionary fiscal policy without causing significant inflationary pressures through monetary expansion.

---

<sup>20</sup> A typical developing country finances approximately 50 per cent of budget deficits through the banking system (Little et al. 1993). Easterly and Schmidt-Hebbel (1993: 221) estimate a seigniorage effect of about 2 per cent of GNP for a sample of 35 developing countries, as opposed to 1 per cent for a sample of 15 developed countries. Thus, in developing countries, monetary policy can serve as an instrument for fiscal authorities. Taylor (1979: 27) puts it succinctly: ‘The Bank has to “print” money by absorbing government obligations if the Finance Minister orders it to do so’. For more details on the link between budget deficits and money supply in developing countries, see Hossain and Chowdhury (1996).

Even when developing countries are able to raise domestic savings, they can find themselves in a quandary, wherein they cannot use the savings for investment due to shortages of critical imports because of a lack of foreign exchange. As a result, they suffer from Keynesian type unemployment (or underemployment) despite the fact that real wages in most cases are very low, and are often below the poverty line. The unemployment/underemployment problems in these countries cannot be attributed to the downward inflexibility of real wages. Further cuts in real wages would simply swell the pool of the working poor. In such circumstances, foreign aid facilitates imports that support the increased investment needed to create productive employment.

#### **4 A macroeconomic framework for analysing aid utilization**

Experience shows that the macroeconomic impact of aid depends critically on the policy response of the government. If the aid is used to expand the productive capacity of the economy or to remove critical supply bottlenecks, then there is likely to be little adverse impact associated with Dutch disease-like problems.

The macroeconomic impact of aid also depends on central bank behaviour. For example, it could use the aid-induced increase in reserves to expand low-cost credit to the private sector so that the latter could take advantage of the government's supply-enhancing fiscal programmes. For instance, Indonesia used the increased flows of foreign exchange (whether due to oil booms or increased aid inflows) to expand low-cost credit schemes for rural and small-scale industries.<sup>21</sup> Its experience also demonstrates that the central bank can successfully manage the exchange rate to offset any appreciating effect of reserve accumulation.<sup>22</sup>

In short, the effectiveness of aid flows depends on a coordinated fiscal, monetary and exchange rate policy response of the government and the central bank.

A recent IMF working paper (IMF 2005) provides a useful macroeconomic framework for analysing the use of foreign aid.<sup>23</sup> It defines two aid-related concepts—absorption and spending. Absorption captures both direct and indirect increases in imports financed by aid, and shows how much in additional imports is possible due to the availability of aid. Similarly, spending refers to additional government spending that is aid-financed. In other words, these two terms capture the way that aid helps finance a widening foreign exchange (trade) gap and an increasing savings gap (specifically, a larger government deficit).

Absorption and spending can be defined as:

$$\text{Absorption} = \Delta(\text{current account deficit without aid})/\Delta\text{Aid}$$

---

<sup>21</sup> Before the crisis, Indonesian banks were required to lend 20 per cent of their loans to SMEs. The main financial institution for financing SMEs and the rural sector has been the Bank Rakyat Indonesia (BRI).

<sup>22</sup> See Chowdhury and Sugema (2005).

<sup>23</sup> For a summary and evaluation of the framework, see McKinley (2005).

$$\text{Spending} = \Delta(\text{budget deficit without aid})/\Delta\text{Aid}$$

where  $\Delta$  denotes change.

‘Without aid’ signifies the size of the respective deficits before aid financing is taken into account. Thus, the current account deficit excludes official grants and interest on external public debt while the budget deficit equals total government expenditure *minus* domestic revenue when no aid is registered.<sup>24</sup>

From the balance-of-payments side, an *increase* in aid can be utilized (absorbed) in some combination of (i) an increase in the rate of reserve accumulation, (ii) an increase in capital outflows (which may include foreign debt servicing) and (iii) an increase in the trade account deficit. However, not all of these options will allow effective absorption of aid. For example, option (ii) amounts to no real transfer of resources—foreign exchange comes and goes without adding any new capacity to the economy. Similarly, if the central bank decides to use the entire additional aid flows to boost its reserves of foreign currencies, then none of the extra aid gets absorbed. The central bank can do this by shedding other components of its financial assets—in this case selling its holding of government bonds—so that the bank’s overall financial assets remain unchanged. However, the selling of government bonds pushes up the interest rate on government bonds and with it the overall interest rates. Thus, such a response is tantamount to following a restrictive monetary policy regime in response to increased aid flows.

*Therefore, for the effective absorption of additional aid, the central bank should respond with an expansionary policy stance and maintain a lower policy interest rate (equivalent to option (iii)) above). Since the lower interest rate should increase domestic demand, the trade deficit should widen. The central bank then uses its foreign exchange reserves to finance the increase in the trade gap.*

From the fiscal side (i.e., the savings-investment gap), an *increase* in aid can be utilized in some combination of (i) an increase in government expenditures, (ii) a reduction in tax revenue and (iii) a retiring of existing government debt. Option (ii) is not, however, a viable option. The rationale for providing aid is to allow the government to spend more than is possible with its own resources. The substitution of aid revenue for tax revenue leaves the government budget deficit unchanged. Hence, no new spending takes place. Moreover, when aid substitutes for domestic revenue, fiscal sustainability becomes vulnerable to aid volatility. Also, option (iii) is not desirable. If new aid money finances an activity (or is used to service debt), which was supposed to be financed from domestic sources, then overall government spending remains unchanged.

Therefore, the government should not use an increase in aid flows to reduce its tax efforts; nor should it use the additional aid money to finance expenditures (or to service debts) that are supposed to be financed from domestic resources. *Instead, the government should use the aid money for purposes such as increasing the economy’s productive capacity, removing bottlenecks in the economy or enhancing the public sector’s absorptive capacity.*

---

<sup>24</sup> In the absence of aid, current account and fiscal deficits could be financed by borrowing externally at market rates.

Table 3  
Correlation coefficients of net aid/GDP ratio with budget deficit, trade deficit and reserves  
in highly aid dependent African countries

Countries		Budget deficit/GDP	Trade deficit/GDP	Reserves/GDP
Ghana	(1970-97)	0.73	-0.71	0.69
Chad	(1983-2002)	-0.23	–	0.35
Burundi	(1970-2003)	-0.46	-0.77	0.42
Rwanda	(1970-2003)	0.04	-0.81	0.07
Uganda	(1980-2003)	-0.32	-0.54	0.27
Ethiopia	(1970-2002)	-0.28	-0.55	0.17
Kenya	(1970-2003)	-0.27	0.28	-0.59
Lesotho	(1973-2003)	-0.30	-0.84	-0.80
Malawi	(1980-2003)	–	-0.41	-0.04
Mozambique	(1986-2003)	–	-0.42	0.12
Swaziland	(1970-2003)	-0.14	-0.17	0.23
Tanzania	(1970-2003)	0.30	-0.84	-0.05
Zambia	(1970-2003)	0.36	-0.17	-0.12

Notes: Since budget and trade deficits are negative numbers, a negative correlation implies a widening of deficits with increases in net aid/GDP.

Sources: IDS (OECD) and IFS (IMF) online databases.

Table 3 presents the correlation coefficients of net aid/GDP ratios with budget balance and trade balance in highly aid dependent African countries that have in recent times experienced surges in aid flows. Ideally, the correlation coefficients of aid flows with budget and trade deficits should be close to one, and that with reserves should be close to zero. As can be seen from Table 3, in seven countries out of thirteen, the correlation coefficients between budget deficits and net aid flows are negative. Although the correlations are not very high, they imply larger budget deficits in the presence of aid. That is, in these countries, aid was at least partially spent. In the remaining six countries, aid substituted domestic sources of finance and hence there was narrowing of budget deficits in the presence of aid. On the other hand, in all countries (except Kenya), the correlations between net aid and trade deficit are negative, and larger than those with budget deficits. That is, in these countries a large part of aid was absorbed. This is likely due to the fact that they receive large commodity aid and technical assistance, which are direct resource transfers. Finally, except in Kenya, Malawi and Zambia, part of aid went to boost foreign exchange reserves. In sum, none of these countries, some of which experienced large HIV/AIDS related aid flows in recent times, responded optimally to aid flows.

Similarly, the 2005 IMF study of five African countries (Ethiopia, Ghana, Mozambique, Tanzania and Uganda) finds that an optimal policy response did not occur in any of these countries. In Ethiopia and Ghana, both absorption and spending were very low. While Ethiopia accumulated reserves to bolster its exchange rate peg against the dollar, Ghana built a buffer of reserves against extremely volatile aid inflows. In the other three countries, spending exceeded absorption, indicating that there was a lack of coordination between fiscal and monetary policies. Foster and Killick (2006) also report similar findings.

Ideally, an increased inflow of foreign aid should enable a country to adopt more expansionary fiscal policies. However, central bank must accommodate the absorption



of aid through its decision about the rate of reserve accumulation, as well as through its interest rate policy, which influences private spending decisions and hence the demand for imports. The central bank and the government should accept some real appreciation of the domestic currency, if necessary, in order to accommodate increased imports. However, the exchange rate still needs to be judiciously managed to prevent the possibility of *excessive* real appreciation. That is, in order to effectively utilize additional foreign aid without causing macroeconomic instability, there should be well coordinated expansionary fiscal and monetary policies coupled with a managed exchange rate policy.

Why do central banks and governments deviate from an optimal policy response to increased aid flows? There are two primary reasons. First, they are concerned with the uncertainty of aid commitments and disbursements. They do not want to incur obligations with projects and expenditures that cannot be sustained if aid flows drop. Second, they fear inflation and real exchange rate appreciation. While the concerns with aid volatility are genuine, there is little basis for the inordinate fear of Dutch disease. A large body of empirical studies finds no adverse effect of moderate inflation (in the range of 10-15 per cent) on economic growth.<sup>25</sup> Also, countries that increase government spending do not necessarily slip into unsustainable fiscal deficits; many countries (such as Malaysia, Republic of Korea and Thailand) prospered with a fiscal deficit of around 5-6 per cent of GDP for long periods and successfully used fiscal deficits to maintain domestic demand during declines in external demand.<sup>26</sup>

Donors also have the responsibility of ensuring sufficient predictability in the flow of aid. At the same time, they must adopt a more flexible attitude towards inflation and budget deficits and work with recipient countries to ensure that resources are allocated within the framework of a long-term development strategy so that the threat of Dutch disease is less likely to arise. The challenge in a scaled-up aid environment is to ensure that increased availability of resources is used to increase productivity and enhance human wellbeing.

Finally, both donors and recipient countries should have a clear exit strategy from reliance on aid. Recipient countries must use the breathing space and growth momentum due to increased aid flows to broaden their revenue base and strengthen their governance and absorptive capacity.

## **5 Policy options with regard to HIV/AIDS related foreign aid**

As the preceding discussion has shown, the option of neither spending nor absorbing aid is not viable, especially when dealing with a daunting human development disaster such as the HIV/AIDS epidemic. This option defeats the purpose of scaling up aid, which is urgently needed for tackling HIV/AIDS head-on. Given the need for an emergency response and the scarcity of domestic resources, the ideal policy option would be to

---

<sup>25</sup> For a survey see Chowdhury (2005).

<sup>26</sup> More importantly, fear should not dominate public policy decisions. It would be pertinent at this juncture to paraphrase Bob Hawke, the former Australian Prime Minister, that policymakers cannot be too scared to put a foot forward for fear of putting the wrong foot.

both ‘spend and absorb’ aid. That is, the recipients of GFATM and other aid related international assistance (such as PEPFAR) should adopt more expansionary fiscal and monetary policies in order to effectively support HIV/AIDS programmes. The possibility of *excessive* real appreciation due to such expansionary policies can be minimized by coordinating fiscal and monetary policies and carefully managing the exchange rate. Moreover, the effect of real appreciation on exports could be mitigated by export subsidies targeted to the tradable sector and linked to productivity-enhancing public investment.

Hence, the general principle that should guide the use of HIV/AIDS related foreign aid is to adopt an expansionary fiscal and monetary policy stance, coupled with a managed exchange rate regime. Specifically, the funds from the international community for HIV/AIDS can be used:

- i) to fund direct imports of drugs and equipment, which either are not domestically produced or would not have been imported anyway, and
- ii) to finance effective national programmes of treatment, care and prevention.

If aid funding is used to directly import equipment and medicines, it will be simultaneously spent and absorbed. Such measures should not have any monetary implication, since the central bank does not issue equivalent domestic currency to the government for increased spending. However, the government still needs to incur expenditures to enhance domestic capacity, such as for health clinics and trained healthcare personnel. In the absence of adequate capacity, the country cannot effectively use aid-funded equipment imports. In most cases, building capacity would require financing from the central bank, at least in the short- to medium-term when the revenue base is low. If the government borrows from the central bank to finance its ensuing deficit, this will inject liquidity into the economy. Hence, there will likely be some inflationary impact because of a lag in the response of supply to increased demand.

When external funding comes as budget support, it should not replace existing government programmes financed from domestic sources or be used to reduce taxation. Nor should the government use foreign aid to retire its debt. Therefore, whether foreign assistance for HIV/AIDS programmes comes as a direct transfer of resources or as budget support, the recipient governments must be allowed to increase their spending. The increased aid-supported spending on HIV/AIDS programmes must not be matched by cuts in other social sectors, such as education, basic health and human security, especially since these sectors have important complementarities with HIV/AIDS prevention and control.

Monetary policy needs to support the government’s expenditure programme. First, the central bank should *not*, as a general rule, sterilize the increase in its foreign exchange reserves (due to aid) by selling government bonds to the public. If it sterilizes, then the overall expenditure level in the economy will not rise—only the private-public mix of expenditures will change. Hence, aid does not get spent in a genuine sense. In contrast, the central bank could use its additional reserves, for example, to develop specialized low-cost credit programmes for HIV prone regions in order to stimulate employment and income generation, and thus increase the supply of factors of production.

Second, the additional aid money should not be used to boost the central bank’s foreign exchange reserves. Instead, the central bank should sell foreign exchange to the private

sector in order to facilitate an increase in import demand due to the multiplier effects of government expenditure. *After all, aid is meant to facilitate the financing of larger trade deficits.* Additionally, while such a policy will facilitate the absorption of aid, it will partly neutralize the initial increase in liquidity and dampen any potential inflationary impact.

Governments and central banks can be persuaded to follow coordinated expansionary fiscal and monetary policies if they can be assured that aid flows will be steady and predictable. Governments also need to be convinced that when aid flows do slow, they can sustain the programmes from domestic financing sources. For this purpose, there should be sustained efforts to mobilize domestic revenue. Countries might need, for instance, to slow down the liberalization of trade since tariffs contribute significantly to government revenue, especially in low-income countries.

In order to enable the central bank to manage the exchange rate without piling up foreign exchange reserves (as a precautionary measure against speculative attacks on the domestic currency), there should be some controls on capital outflows. For most of the high AIDS prevalence countries, capital inflows are not significant. Instead, they face the problem of capital outflows (including unrecorded capital flight). The central bank needs to take measures to prevent the outflows of foreign currencies that are due to over-invoicing and other unauthorized means of capital transfers.

Only when a country has a high inflation rate (say in excess of 20 per cent) and/or high government debt, can it choose to ‘absorb but not spend’ aid—namely, as a short-term measure to contain further demand pressure or counteract the prospects that debt will not be sustainable. Likewise, when a country has very low foreign exchange reserves and/or fears a sudden drop in aid flows, it can temporarily choose to ‘spend but not absorb’ aid in order to build up its reserves.

While the above are general principles to follow, policies in each country will vary according to local circumstances. For instance, each country will need to determine:

- i) the threshold levels of inflation and fiscal sustainability that set the limits of an expansionary policy stance;
- ii) the process of inflation—e.g., demand pull or cost push—in order to avoid inflationary spirals and ill-advised policy responses;
- iii) the income elasticity of the demand for money in order to determine the limits of a non-inflationary increase in the money supply; and
- iv) factors that can enhance international competitiveness as a counterbalance to adverse exchange rate effects; and
- v) sectoral employment elasticities and productivities, which can be used for directing public investment.

## **6 Concluding remarks**

This paper has surveyed the likelihood of macroeconomic instability due to large HIV/AIDS related foreign aid inflows. If the surge in aid flows causes high inflation and/or *excessive* real appreciation of the domestic currency, which can adversely affect

international competitiveness and growth prospects, then aid could be, paradoxically, counter-productive. This is particularly important for the countries facing both a human development crisis and a bleak economic prospect due to high HIV/AIDS prevalence. If the large aid inflows intended for HIV/AIDS prevention and treatment programmes do, indeed, lead to immiserization by causing macroeconomic instability, then it would appear, at first sight, that these countries face a ‘no-win’ situation—criticized if they accept and spend large amounts of aid; criticized if they don’t.

However, as is becoming increasingly apparent, the evidence of aid induced high inflation and/or *excessive* real appreciation among developing countries is slim. Moreover, governments and central banks have the means to mitigate the harmful effects of large aid flows. They can carefully manage and coordinate fiscal, monetary and exchange rate policies. Furthermore, they can strategically direct public investment and credits to productive sectors, such as tradable-goods industries.

Since a significant proportion of HIV/AIDS related aid will be spent abroad to buy drugs or medical equipment that are not produced domestically or would not be imported without aid, it is not likely that there would be significant inflationary pressure or *excessive* real appreciation from such spending.

More importantly, increased spending for the prevention and treatment of HIV/AIDS will not only stem a tragic human development crisis but also will likely have favourable impacts on economic growth through safeguarding human capabilities. Effective universal programmes of treatment and prevention of HIV/AIDS can reduce, for example, the adverse effects of premature mortality, allowing a longer period of productive employment and freeing household labour from caring for sick family members. A major conclusion is that the human development gains from reducing human suffering can, indeed, be achieved without sacrificing macroeconomic stability and economic growth. There need be no trade-off. National policymakers have the policy means at their disposal to maintain stability while dramatically scaling up foreign assistance to stem and reverse the HIV/AIDS epidemic.

It is the responsibility of donors to ensure certainty in aid flows so that recipient governments can adequately plan their programmes. This implies that government fiscal positions do not become vulnerable to aid volatility. At the same time, recipient governments must not become complacent about domestic resource mobilization because of a greater availability of aid. In general, they should have a clearly formulated and effective strategic plan to enable them to eventually exit from aid dependence.

### **Acronyms**

FA	foreign aid
GFATM	Global Fund to Fight HIV/AIDS, Tuberculosis and Malaria (of the World Bank and the IMF)
LBD	learning-by-doing
MDGs	Millennium Development Goals
PEPFAR	The President’s Emergency Plan for HIV/AIDS Relief (USA)

## References

- Adam, C., and D. Bevan (2004). 'Aid and the Supply Side: Public Investment, Export Performance and Dutch Disease in Low Income Countries'. Economics Series Working Papers 201. Oxford: Department of Economics, University of Oxford.
- Bacha, I. (1990). 'A Three-Gap Model of Foreign Transfers and the GDP Growth Rate in Developing Countries'. *Journal of Development Economics*, 32 (2): 279–96.
- Barro, R. (1989). 'A Cross-country Study of Growth, Saving and Government'. NBER Working Paper 2855. Cambridge, MA: National Bureau of Economic Research.
- Barro, R., and X. Sala-I-Martin (1995). *Economic Growth*. New York: McGraw-Hill.
- Calderon, C., and L. Serven (2003). 'The Effects of Infrastructure Development on Growth and Income Distribution'. WB Policy Research Working Paper 3400. Washington, DC: World Bank.
- Chenery, H., and M. Bruno (1962). 'Development Alternatives in an Open Economy'. *Economic Journal*, 72 (1): 79–103.
- Chenery, H., and A. Strout (1966). 'Foreign Assistance and Economic Development'. *American Economic Review*, 56 (4): 679–733.
- Choi, E. K. (2004). 'Aid Allocation and the Transfer Paradox in Small Open Economies'. *International Review of Economics and Finance*, 13 (3): 245–51.
- Chowdhury, A. (2005). 'Poverty Reduction and the "Stabilization Trap": The Role of Monetary Policy'. Thematic paper prepared for UNDP's Regional Workshop on the Macroeconomics of Poverty Reduction in the Asia-Pacific.
- Chowdhury, A., and I. Sugema (2005). 'How Significant and Effective Has Foreign Aid to Indonesia Been?'. *ASEAN Economic Bulletin*, 22 (2): 186–216.
- Easterly, W. (2003). 'Can Foreign Aid Buy Growth?'. *Journal of Economic Perspectives*, 17 (3): 23–48.
- Easterly, W., and K. Schmidt-Hebbel (1993). 'Fiscal Deficits and Macroeconomic Performance in Developing Countries'. *World Bank Research Observer*, 8 (2): 211–39.
- Foster, N., and T. Killick (2006). 'What Would Doubling Aid Do for Macroeconomic Management in Africa'. ODI Working Paper 264. London: Overseas Development Institute.
- Gomanee, K., S. Grima and O. Morrissey (2003). 'Searching for Aid Threshold Effects'. CREDIT Research Paper. Nottingham: University of Nottingham.
- Gupta, S., B. Clements, E. Baldacci, and C. Mulas-Granados (2004). 'Fiscal Policy, Expenditure Composition, and Growth in Low Income Countries'. In S. Gupta et al. (eds), *Helping Countries Develop: The Role of Fiscal Policy*. Washington, DC: IMF.
- Gupta, S., R. Powell, and Y. Yang (2005). 'Macroeconomic Challenges of Scaling Up Aid to Africa'. IMF Working Paper WP/05/179. Washington, DC: IMF.
- Haacker, M. (2004). *The Macroeconomics of HIV/AIDS*. Washington, DC: IMF.
- Heller, P. (2005). '“Pity the Finance Minister”: Issues in Managing a Substantial Scaling up of Aid Flows'. IMF Working Paper WP/05/180. Washington, DC: IMF.

- Hossain, A., and A. Chowdhury (1996). *Monetary and Financial Policies in Developing Countries: Growth and Stabilization*. London and New York: Routledge.
- IMF (International Monetary Fund) (2005). 'The Macroeconomics of Managing Increased Aid Inflows: Experiences of Low-income Countries and Policy Implications'. Policy Development & Review Department. Washington, DC: IMF.
- Kalecki, M. (1976). *Essays on Development Economics*. Brighton: Harvester Press.
- Krueger, A., and M. Lindahl (2004). 'Education for Growth: Why and for Whom?'. *Journal of Economic Literature*, 39 (December): 1101–36.
- Little, I., R. Cooper, W. M. Corden, and S. Rajapatirana (1993). *Boom, Crisis and Adjustment: The Macroeconomic Experience of Developing Countries*. New York: Oxford University Press for the World Bank.
- Lewis, M. (2005). 'Addressing the Challenges of HIV/AIDS: Macroeconomic, Fiscal and Institutional Issues'. Working Paper 58. Washington, DC: Center for Global Development.
- McGillivray, M. (2000). 'Aid and Public Sector Fiscal Behaviour in Developing Countries'. *Review of Development Economics*, 4 (2): 156–63.
- Nkusu, M. (2004). 'Aid and the Dutch Disease in Low Income Countries: Informed Diagnosis for Prudent Prognosis'. IMF Working Paper WP/04/49. Washington, DC: IMF.
- Prati, A., R. Sahay, and T. Tressel (2005). 'Can Monetary Policy Make Foreign Aid More Effective?'. Washington, DC: IMF.
- Taylor, L. (1979). *Macro-Models for Developing Countries*. New York: McGraw-Hill.
- Tendler, J. (1975). *Inside Aid*. Baltimore: Johns Hopkins University Press.
- Thirlwall, A. P. (2003). *Trade, the Balance of Payments and Exchange Rate Policy in Developing Countries*. Cheltenham: Edward Elgar.
- UN Millennium Project (2005). *Investing in Development: A Practical Plan to Achieve the Millennium Development Goals*. New York: UN Millennium Project.
- UNAIDS (2005). 'Resource Needs for an Expanded Response to HIV/AIDS in Low- and Middle-Income Countries'. Geneva: UNAIDS.
- van Wijnbergen, S. (1986). 'Macroeconomic Aspects of the Effectiveness of Foreign Aid: On the Two-Gap Model, Home Goods Disequilibrium and Real Exchange Rate Misalignment'. *Journal of International Economics*, 21 (August): 123–36.
- Yano, M., and J. Nugent (1999). 'Aid, Nontraded Goods, and the Transfer Paradox in Small Countries'. *American Economic Review*, 89 (3): 431–49.