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Dutch Disease in Aid-recipient Countries

Are there medicines to
avoid an outbreak?

Karel **Verbeke**



University
of Antwerp



INSTITUTE OF DEVELOPMENT
POLICY AND MANAGEMENT

Comments on this Discussion Paper are invited.
Please contact the author at <karel.verbeke@ua.ac.be>

Instituut voor Ontwikkelingsbeleid en -Beheer
Institute of Development Policy and Management
Institut de Politique et de Gestion du Développement
Instituto de Política y Gestión del Desarrollo

Postal address:
Prinsstraat 13
B-2000 Antwerpen
Belgium

Visiting address:
Lange Sint-Annastraat 7
B-2000 Antwerpen
Belgium

Tel: +32 (0)3 275 57 70
Fax: +32 (0)3 275 57 71
e-mail: dev@ua.ac.be
<http://www.ua.ac.be/dev>



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Karel **Verbeke***

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*Karel Verbeke is a research assistant at the Institute of Development Policy and Management (IOB), University of Antwerp.

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ABSTRACT

The idea of scaling up aid to developing countries has increased fears of “Dutch Disease” in the donor community and recipient countries. Through its impact on inflation and the exchange-rate, aid could slow down growth and human development, undermining the aims of donors and recipients. By using the basic model of Dutch Disease, adjusting it to the circumstance of developing countries and taking a medium-term view, we explain how it is possible to avoid Dutch Disease. Important factors determining the impact seem to be: the spending pattern of aid, the amount of imports financed with aid and the coordination between the fiscal and monetary authorities. As the IMF is one of the most important participants in the discussion around this topic, we also clarify the specific terms this institution uses to discuss this sort of topics. The paper ends with referring to the fact that understanding the problem is one thing, taking these economic decisions on a political level may in certain countries form another problem.

RÉSUMÉ

L'idée de l'extension de l'aide aux pays en voie de développement a renforcé auprès des bailleurs de fonds et des pays bénéficiaires la crainte du "Dutch Disease". Suite à son impact sur l'inflation et le taux de change, l'aide au développement pourrait ralentir la croissance et le développement humain, sapant ainsi les objectifs des bailleurs et des bénéficiaires. Dans ce cahier, nous utilisons le modèle de base de "Dutch Disease", l'adaptions aux circonstances des pays en voie de développement et prenons une durée de moyen terme pour expliquer comment il est possible d'éviter le "Dutch Disease". Les facteurs les plus importants qui déterminent l'impact, semblent être les dépenses financées par l'aide, l'importance des importations dans ces dépenses et la coordination entre les autorités fiscales et monétaires. Comme le FMI est un des participants les plus importants dans les discussions sur ce sujet, nous expliquons aussi la terminologie spécifique utilisée par cette institution. Nous terminons ce cahier en soulignant que si la compréhension du problème est un point, la prise de décisions nécessaires au niveau politique en est un autre.

1 INTRODUCTION

In macroeconomic theory, Dutch Disease is a well-known concept named after the economic development of the Netherlands in the 1970s¹. Initially, the country achieved successful economic growth rates during the late 1960s and early 1970, following the discovery of large natural gas reserves in the North Sea. In the middle of the 70s however, the situation changed and the exports of gas started to have an important adverse impact on the economy. The large gas-exports increased the demand for guilders significantly, making the currency appreciate against other currencies. This had a damaging impact on non-gas exporters whose products became relatively more expensive on the world market and who had to scale down or close production.

Although this phenomenon is generally associated with the discovery and export of natural resources, it can be caused by any economic change that provides a large increase in the availability of foreign exchange to the economy: a sharp increase in export prices, FDI or aid flows (Edwards and Van Wijnbergen, 1989; Adam, 2005). Consequently, very diverse situations were studied with this model, from the war reparations Germany had to pay after the first World War, to the adverse economic impact on the Spanish economy of natural resources discovered in its colonies in the 16th century. During the last years, research shifted to Dutch Disease caused by aid. The reason mostly cited for this increasing interest, is the new scaling up of aid. That recent evolutions in the way aid is administered might also increase the danger for Dutch Disease will be discussed in the third section.

To understand this increased risk, a clear understanding of the macroeconomic reality behind the concept is needed. In the second section, we will therefore give an economic background for the analysis of the macroeconomic effects of aid, the danger of Dutch Disease and its possible therapies. To make the analysis more concrete, we will end this section with a simulation of the short and medium term impact of aid. In section four we will go further into the monetary and exchange rate impact of aid and section five discusses the need for coordination between the monetary and fiscal policies.

Throughout the paper we will assume, unless otherwise stated, that aid flows constitute a long-term means of finance for the government. This is important as the handling of long term financial inflows differs from the way temporary shocks should be handled². For temporary shocks, economic reasoning suggests that the government spreads the benefits over time, a point we will discuss in section six. Secondly, we will assume that aid is spent by the recipient government, more and more reality today. When aid does not accrue to the government but to other economic actors, the story differs to the extent that the spending-pattern of these actors differs from that of

¹ The term was first used in an article published in *The Economist* in November 1977.

² We acknowledge that aid has often the problem of having temporary shocks and being unpredictable in the long term, but this is still different from the shocks that are meant in the economic theory here.

³ In this model all forms of aid are aggregated.

the government. The importance of the way aid is administered for the emergence of Dutch Disease is a related point. We will point to some of the differences between aid modalities in the margin of our discussion, suggesting that they affect the macroeconomic reasoning developed in this paper.

Finally we will explain the terms the IMF uses in these discussions in section seven of this paper and discuss in section eight the evidence that is found for Dutch Disease. Before concluding, we venture beyond economics and look into the way in which political economy can play a role in the explanation of Dutch Disease.

Before proceeding, we want to clarify a common misunderstanding between the terms resource curse and Dutch Disease.

Textbox 1: The link between the ‘resource curse’ and ‘Dutch Disease’

A concept that is often related to Dutch Disease, is the resource curse. In an economic context, this concept refers to the link that is observed between large natural resource revenues and bad economic performance. The economic literature identifies three channels that possibly cause this link:

1. The rents generated by the natural resources lead to rent seeking and corruption.
2. The volatility of the revenues generated by natural resources, driven by fluctuation in the commodity prices can have an adverse impact on the growth of those countries.
3. Finally, economic growth can also be reduced through Dutch Disease.

Based on Sala-i-Martin and Subramanian (2003)

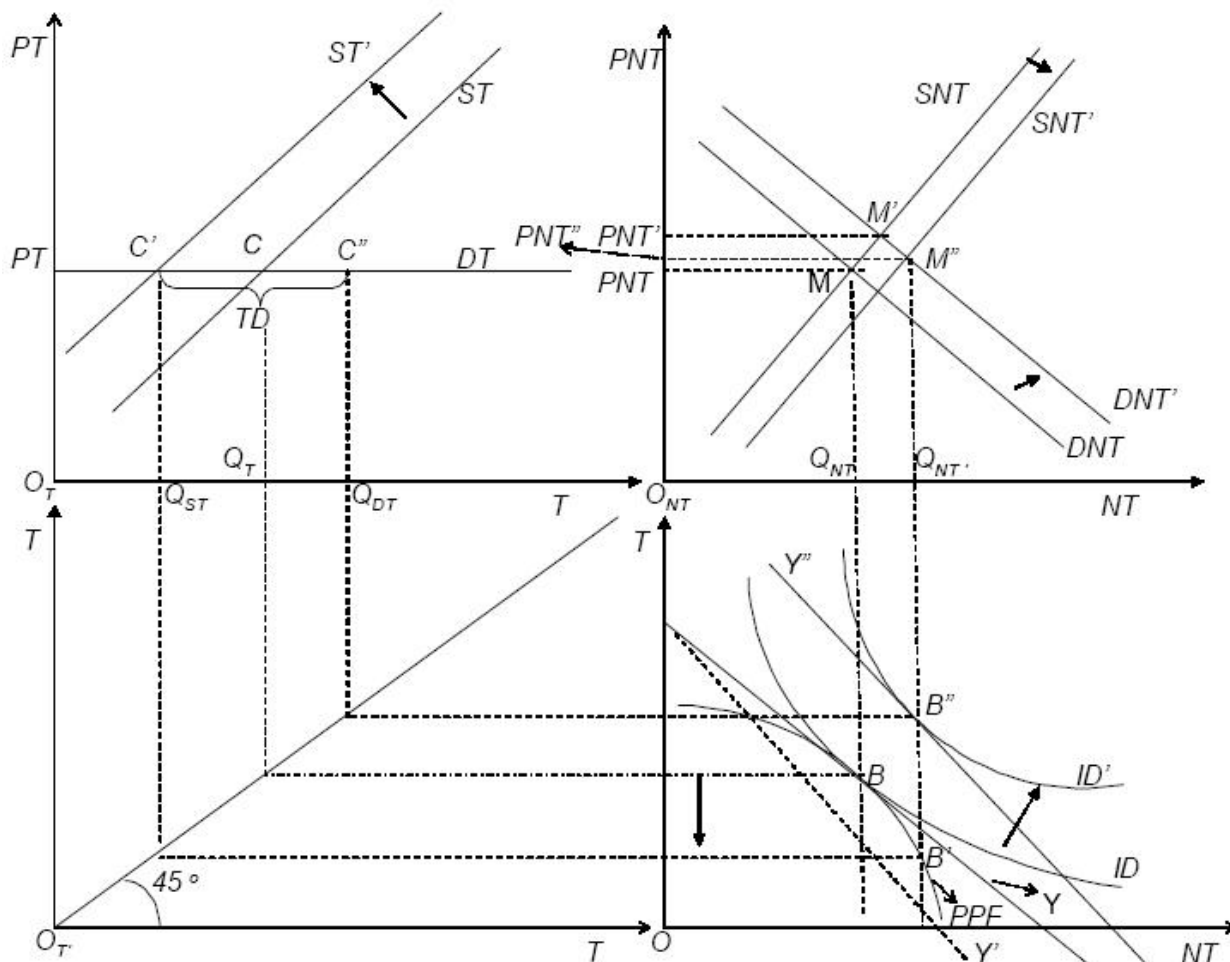
2 THE MODEL OF DUTCH DISEASE

2.1 The textbook-model of Dutch Disease.

To start this discussion about Dutch Disease, we present a framework that explains the macroeconomic reasoning behind the concept. The model is based on Nkusu (2004a) and uses the assumptions of the Dutch Disease model developed by Corden and Neary (1982): a small open economy producing two types of goods, i.e. tradables and nontradables. The goods are produced with one mobile production factor, labour, that is transferable between the two sectors. Finally, we assume that there is full and efficient employment, and an equilibrium in the balance of trade.

The inflow of aid has in the first instance a real rather than a monetary effect on the economy, since its main impact falls on the level of real income and on the intersectoral allocation of production factors. We will therefore initially make abstraction of the consequences for monetary policy in this model. In section four, we will explicitly address these consequences.

Figure 1: The textbook-model of Dutch Disease



Source: Nkusu, 2004a

Before the aid surge, we assume that the economy is using all its production factors to produce tradables and nontradables. The economy is producing and consuming at point B in the lower-right quadrant of figure 1, the intersection of the production possibility frontier (PPF) with the highest possible indifference curve (ID). When we reflect this point on the upper-left and –right quadrants, respectively the market for tradables and nontradables, we can see the initial equilibriums in these two separate markets. In the upper-left quadrant, the demand curve is perfectly elastic, following the small-country-assumption. At point C, demand for tradables equals supply of tradable goods in the country, giving an initial equilibrium in the balance of trade. For nontradables, the supply and demand curve have the normal shape and intersect at M.

When the country now receives aid³, at least part of it will be used to buy nontradables, how much depending on the aid-modality that is used. In the upper-right quadrant, this increased demand is reflected in an upward shift of the demand to DNT', causing an increase in the price from PNT to PNT'. As the price of tradables remains at PT, following the small-country-hypothesis, and taking into account our assumption that the monetary authorities do not intervene in the nominal exchange rate, the real exchange rate⁴ (RER) appreciates and tradables from the recipient country become relatively more expensive on the world market⁵. Logically, this has an impact on the supply and demand of goods. On the one side, we see shifts of the supply curves in the tradable and nontradable sector. As the demand-shift towards nontradables makes the production of such goods relatively more profitable, resources are drawn away from the production of tradables towards the production of nontradables and equilibrium shifts from B to B' on the PPF. The reflection of B' in the upper quadrants shows this effect on the supply-curves of the two sectors. The supply in the tradable sector shrinks from ST to ST', in the nontradable sector the supply increases from SNT to SNT'. On the other side, consumption of tradables is higher as these goods become relatively cheaper⁶. To see this effect, we first rotate the budget line from Y to Y' as nontradables became relatively more expensive. Secondly, the budget line shifts to Y'' because of the increased real income brought about by the aid inflows, making it possible to reach a higher indifference curve, ID'. The impact on the demand for tradables can be seen by reflecting point B'' on the upper-left-quadrant. After the aid shock, tradables demand has increased relatively to the situation before the aid surge: from C to C''. As the production of tradables lowered after the inflow of aid, the country now has a deficit on the trade balance: C''-C', financed by the international purchasing power received, aid⁷. The reflection of B'' on the upper-right-quadrant shows the impact of aid on the demand for nontradables that was explained before.

⁴ For the RER, we adopt the definition that is usually used in trade theory. The real exchange rate of country J at time t, RER_{jt} , is then defined as the price of tradables in domestic currency at time t (P_{Tj}) relative to the price of nontradables in domestic currency at time t (P_{Nj}): $RER_{jt} = (P_{Tj}) / (P_{Nj})$. Confronted with the actual decision of composing a RER for a developing country, this definition is however not very useful. As the availability of data is very limited in most of these countries, the RER is mostly measured by: $RER_{jt} = (E_{it}(P_{it}^*) / (P_{jt}))$, where E_{it} is the nominal exchange rate of country J with respect to country i at time t, P_{it}^* is a price index of country i at time t and P_{jt} is a price index of country J at time t (Edwards, 1989; White and Wignaraja, 1992).

⁵This appreciation also makes imports cheaper.

⁶ We assume that the tradable good is not an inferior good.

⁷ This reasoning describes the microeconomic dynamics of the ex post trade gap. To that extent it is consistent with the two-gap model.

The direct welfare effect on the whole economy is thus generally positive. In the long run, the citizens of a country not receiving aid can normally only consume the products they produce. They consume their nontradables and use their exports to buy imports (trade deficit = 0). If a country receives aid, it can consume more than it produces as the aid gives the country extra purchasing power on the international market, allowing it to import without the need for producing exports to finance these imports. Production factors that are no longer used for the production of exports can be transferred to the production of nontradables, for consumption in the economy. In this way consumption of both tradables and nontradables increases and welfare in the economy is higher after the receipt of aid than before.

The real problem economists see in Dutch Disease is the shift of production from tradables to nontradables. The reason for this concern is the fact that in the economic development of a country, the performance of the export sector, mainly the non-traditional, is generally seen as an important engine for growth. Van Wijnbergen (1984) notes that all of the post-World-War II success stories promoted actively the development of their traded goods sector. Therefore, the promotion of a successful export sector has always been one of the main purposes of development aid (Van Wijnbergen, 1986)⁸. The reason for the importance of the tradable sector is technological progress, which is assumed to be faster in the traded non-sheltered sectors than in the non-traded sectors (Van Wijnbergen, 1984). To meet international standards and to compete in a global competitive world, exporters have to raise their standards and acquire new skills and competences that are assumed to spill over to domestic producers. When an appreciation of the real exchange rate cuts back the export sector, a sector that is already not very large in most developing countries, this process of positive spillovers is interrupted and the gains for the whole economy can be undercut. This gives rise to two problems. Firstly, it will impede the development of the export sector that is needed for the development of the country (Bevan, 2005; Adam, 2005). Secondly, as the most important exporting sector in developing countries is the agriculture sector, this sector will be hit most. Consequently, the many, often poor, families that are working in this sector will be affected, causing social and political problems (Benjamin et al., 1989; Migara and De Silva, 1994; Stevens, 2003a). The challenge is thus to use aid funds efficiently to make sure that this effect is only temporal, a point to which we will turn later. (DFID, 2002; Rajan and Subramanian, 2005; Adam and Bevan, 2005; Prati et al., 2003)

⁸ Although there is broad agreement that a positive relation exists between trade and growth, there is uncertainty about the precise channel through which this operates, the export sector or the import sector. Usually these two go hand in hand, exports are needed to pay imports, but the distinction matters in the case of Dutch Disease.

2.2 Broadening the textbook-model

To put the conclusions of our textbook-model in perspective, we want to adapt certain hypotheses made and formulate some important remarks with respect to its applicability to developing countries.

1. The first point that has to be noted is the fact that the model assumes that the economy is producing on its PPF and thus utilising efficiently all available productive resources (Nkusu, 2004a, 2004b). In developing countries, this assumption is highly questionable. By relaxing it, we allow that the economy's production (point B in figure 1) lies within its PPF, so that the production of one good can be increased without decreasing the production of the other good.

A first reason why developing countries might not be producing on their PPF, is the fact that large amounts of production capacity are unused, for example high unemployment or large areas of unused land. By using this spare capacity, the supply of nontradables can be increased without driving up prices or decreasing the production of tradables, reducing the possibility of Dutch Disease. In support of this idea, Nkusu (2004b) gives the example of Uganda, where available land has been used for the increased production of food crops without decreasing the cultivation of cash crops⁹. Although these unemployed production factors can be important to avoid Dutch Disease effects, they can only be relevant to the extent that they can be used for the production of the nontradables that are demanded (Adam, 2005; Migara and De Silva, 1994). An illustration of this problem can be found in the post-tsunami reconstruction efforts of Sri Lanka. Unless the fact that unemployment rose from 9.2% up to more than 20% in the affected provinces, the costs for reconstruction increased because of a lack of skilled construction workers such as carpenters, whose skills cannot easily be acquired by others (Jayasuriya et al., 2005; ILO, 2005). Scaling up to achieve the MDGs may run into similar difficulties. The expansion in basic social services that is needed to achieve the goals requires trained personnel, like teachers, nurses and medical doctors. As these are in the short run only available in limited amounts, increased demand will push up wages and reduce the amount of skilled personnel available to other sectors.

The inefficiency with which production factors are already used in the production of goods, might be a second reason for not reaching the PPF.

2. A second point concerns the aggregation of exportables and importables into one tradable sector. In developing countries this assumption, typically used in trade theory, may be far from reality as many domestically-produced importables, mainly domestic manufac-

⁹ Brownbridge and Tumusiime-Mutebile (2007) point to the limits of this reasoning. After two decades of Ugandan economic growth, it can be that Uganda has reached its production possibility frontier.

¹⁰ Of course, the macroeconomic impact of these

tures, are imperfect substitutes for the imported goods. As the prices of these importables are not determined by world markets but by domestic markets, there is some room left for the producers of these importables to increase their prices and quantities in response to the changing conditions in the domestic market (Nkusu, 2004a,b; Stevens, 2003a). In figure 1, this adaptation will make the demand-curve for tradables (DT) downward sloping, so that the price for tradables can change.

Evidence of this difference between importables and exportables was e.g. found in Cameroon by Benjamin et al. (1989). In reaction to an appreciation of the RER caused by an oil-boom, the agricultural sector suffered badly facing stiff competition from other primary exporters. The industrial sector, producing products that are imperfect substitutes for imported goods, expanded its production. Another example is given by Migara and De Silva (1994) who found that the manufacturing sectors in Nigeria and Indonesia grew at an even larger rate than the growth rate of the nontraded sector during the petroleum boom of 1970-1981.

That macroeconomic problems are significantly lessened when these first two remarks are integrated in the model, is shown in Nkusu (2004a).

3. Another simplification in the model, was the assumption of one mobile production factor, labour. In reality, different production factors will be sector-specific and unable to move easily from one sector to another, for example farmers growing certain crops. This adaptation will make the supply curves in figure 1 shift less easily.

By adding these sector-specific production factors, we can show that the general welfare improvement will not be felt by every individual as the structure of the economy changes. Providers of labour will normally benefit. Following the higher demand for nontradables, the wages for labourers increase to incite them to work in this sector. In a competitive market where labour is assumed to be transferable between the two sectors, the wage in the tradable sector will increase with the same amount. A sector-specific production factor may however witness a different situation. Those specific to the production of tradables will loose as the increased input price of labour decreases profit margins and the purchasing power of incomes declines because of the increasing price level. Producers of nontradables stand to gain as their purchasing power will increase. Rural households that mainly produce cash crops for exports may thus suffer a loss in income while farmers producing mainly nontradable food crops can see an increase in their income.

4. Further, the model showed that the amount of money spent on nontradables is a determining factor for the degree of appreciation, as it determines the upward shift of DNT in figure 1. Aid can however be spent in other ways that affect the real exchange rate less. One such possibility that is generally believed to cause the least appreciation, is the use of aid to buy imports (DFID, 2002; UNDP, 2005c; Heller and Gupta, 2002, Bourguignon and Sundberg, 2006). The reasoning is that the foreign currency received from aid, leaks back out of the economy instead of stimulating demand for domestic goods and services. In figure 1, spending a larger proportion of the aid on imports, will lead to a smaller shift of the DNT curve.

A suggestion of this sort was made by Walter Mahler, representative of the IMF in a discussion about the possible adverse impact of large aid-inflows on the Ugandan economy. He stressed that if more aid were to be delivered in forms such as medical supplies instead of local purchasing power, the economy would not be destabilized (Phillips, 2002). Behind this reasoning is the assumption that when these medical supplies are handed out to people, there will be no effect on the demand for nontradables or on the amount of money supply in the economy¹⁰.

Heller (2005a) and Foster and Killick (2006) point to second-round effects that should not be overlooked. If imports that are bought with aid would have been imported otherwise or produced locally, the money that is freed can still produce exchange rate appreciations in the economy. To avoid this effect, the imports need to be non-competitive to the local economy and not otherwise imported or produced locally. Medical supplies are generally a good example of this.

Knowing the importance of how the aid is spent, governments will have to take into consideration these sorts of spending opportunities that have less impact on their macroeconomy. Donors will have to take into account how and to whom they deliver their aid as different economic actors have different propensities to spend on nontradables, affecting the spending pattern of aid. So are projects generally assumed to be spending large amounts of money on imports, while budget support through the government will more likely follow the spending pattern of the government and be spent mainly on nontradables.

5. Although we assumed in our model that trade was liberalised, this is not always reality in many developing countries. With trade liberalisation, the effect of Dutch Disease will be weakened as consumers can switch more easily between domestic and imported goods in response to a relative price change (Gupta et al., 2005; Roberts, 2005).

medical supplies would also depend on the availability of medical staff and infrastructure. When aid is needed to release these bottlenecks, Dutch Disease effects might still occur.

2.3 The medium-term impact of aid

The economic reasoning developed in the previous sections, seems to give serious reasons for doubting the positive welfare effect of aid. It tells however not the whole story as it considers only the short-run impact of aid on the demand-side. To evaluate the full effect of aid, we have to complete the story and look at the medium-term impact of aid when the supply-side has time to come into play (Heller, 2005a; Bourguignon and Sundberg, 2006). This effect will be determined by the way aid is spent and the reaction of the supply side. As we will show, once the supply-side is taken into account, it remains an open question whether the real exchange rate appreciates or not.

Logically, a government can spend aid in several ways:

1. In developing countries where the tax burden on the private sector is often too high, a reduction of tax rates might be considered (Adam and Bevan, 2001a; Chen and Reinikka, 1999). Using aid to lower tax rates in these circumstances would not only boost domestic investment but also lower the incentives for tax avoidance, keeping the question open whether revenues from taxes will decrease or not (DFID, 2002; Adam and Bevan, 2001a).

2. Aid flows may also be used to reduce domestic government debt. This reduces the future cost of domestic debt service to the government, freeing up money for other purposes. Secondly, it will reduce the pressure on domestic interest rates and lower the cost of capital to the private sector as it can be assumed that domestic interest rates in developing countries are mainly influenced by domestic saving and borrowing. In this way the private banking sector can reorganize its portfolio and increase borrowing to the private sector, stimulating investment and growth (DFID, 2002).

Although the two previous options enable in principle an increase in the productive capacity and productivity of the economy, their effect depends on the reaction of the private sector. Because of the underprovision of public and collective goods, such as secure property rights, transport, energy, education, health care... in many aid-dependent developing countries, the marginal impact of aid is expected to be highest when it finances public expenditure programmes. These programs can then help the economy move closer to its production possibility frontier by removing different bottlenecks that hinder the development of the economy, or help in expanding the production possibilities of the country. This use of the funds for strengthening the public sector must thus certainly not be seen as a way of crowding out the private sector. Public expenditure may on the contrary have an important enabling effect on private investment (UNDP, 2005c; DFID,

2002, Nkusu, 2004b). Foster and Killick (2006) even argue that these bottlenecks might be a larger problem to the export sector than the appreciation of the RER.

3. The best way to use aid may thus be an increase in public expenditure. In this way, an increase in the supply potential of the economy, needed to reverse Dutch Disease, is more likely to occur. The possible expenditure items that can be financed with aid are (DFID, 2002; Barder, 2006):

i. Transfer payments or government wages are the first items aid can finance in the budget of a government. Although increasing consumption of very poor people may be a laudable policy, this method has the least chance of increasing the supply-potential of the economy. On top of this, it makes the long-term financing of government budget harder for the recipient country as external financing will not eternally finance wages or social services. The payment of arrears in wages may however be seen as a possible option for spending aid as it might make government's budget healthy again.

ii. Spending on social services, improving the effectiveness of government institutions, reducing corruption, increasing accountability, improving the effectiveness of legal administration,... might be important as they do increase growth and productivity in the long term (for evidence, see for example Krueger and Lindahl, 2001, finding a positive impact of education on economic growth).

iii. The best way of increasing productivity and growth in the economy are however investments in infrastructure (transport, communications, power generation and distribution), fertilizer, irrigation, alleviation of administrative bottlenecks,... Compared to the previous expenditure items, their impact on Dutch Disease might be faster as they have a more direct impact on the supply side to counteract the effect of the demand side (for evidence, see for example Calderon and Servon, 2003, on the positive impact of infrastructure on economic growth)

The precise medium-term outcome of aid-financed public expenditure will depend on the division of the funds between those three expenditure items. Too much spending on the transfer payments and wages may not help to stop Dutch Disease. Following this idea, Corden (1984) argues that the true reason for the Dutch Disease in the Netherlands was not the adverse impact of the RER appreciation on the manufacturing sector, but rather the use of the money to finance an unsustainable level of transfer payments and wages. Between 1964 and 1979, the share of central and local government and social security expenditures in national income rose from 34 to 50%, mainly because of transfer payments, an unsustainable level, taken into account its financing, and politically difficult to reduce. A reaction of the sup-

ply side is also not directly induced by this sort of spending. To avoid similar problems in the future, Bevan (2005) even suggested that the massive use of aid for social sectors in developing countries may need to be reviewed. The success of investment in infrastructure is reported by the independent evaluation office of the IMF. They refer to research, by for example Clemens, Radelet and Bhavani (2004), showing that aid is more likely to be growth enhancing when it finances infrastructure rather than social-sector programmes. The reason is the fact that the positive effects on productivity and exports will materialize faster when aid finances infrastructure than when it finances education and health programs. Secondly they point to the fact that the import content tends to be higher for investments so that an adverse macroeconomic impact will more likely be avoided (IMF-IEO, 2005). This does not however mean that all aid must be directed towards infrastructural investments. Helping poor people survive through social spending might certainly be needed in those countries. Everything depends on country-specific circumstances, and great attention must thus be paid to a well thought-out use of aid. As the simulations in section 2.4 illustrate, rather modest productivity benefits from aid would be sufficient. In the Human Development Report of 2005, the balanced allocation of available funds to infrastructure, agricultural production and investment in human capital is seen as the reason why countries like Ethiopia, Mozambique and Tanzania were able to avoid Dutch Disease while receiving large amounts of aid (UNDP, 2005b).

Finally, we want to point to two aspects that must be taken into account with respect to the expenditures financed:

1. Whether programs for the nontradable or tradable sector will have to be scaled up first depends on certain country-specific characteristics (DFID, 2002; Gupta et al., 2005; Adam and Bevan, 2005). As the tradable sector is directly hit by the RER appreciation, it is logical to direct aid mainly towards this sector. The adverse effects of the real exchange rate appreciation on this sector can then be reduced or compensated by the productivity gains induced by aid. The problem with this sort of productivity gains might however be that they can induce a shift of resources from the nontradable to the tradable sector, making the real exchange rate appreciate further. As productivity in the tradable sector rises at the same time, this appreciation does not need to have a second adverse impact on the amount of exports (Bevan, 2005; Heller, 2005a).

When aid flows are used to improve the supply potential and the productivity of the nontradable sector, the increase in supply may be large enough to limit the pressure on nontradable prices and offset the real exchange rate appreciation. The simulation of Adam and Bevan (2005), that we will refer to in section 2.4, suggests that

aid may have the highest return when it enhances a supply response of the nontradable sector.

2. A second aspect that must always be held in mind in those countries, is the impact these policies might have on the overall goal of poverty-reduction. By financing infrastructure investments, the direct beneficiaries are generally not the poor (often working in the informal rural sectors), but the non-poor working in services and manufacturing (Adam and Bevan, 2005). White and Wignaraja (1992) report that the main beneficiaries of the aid boom in Sri Lanka, at the end of the 70s, were the colonists working in large-scale irrigation and power programs, the main losers were the farmers who saw a decrease in their incomes from tree crops caused by higher taxes and an appreciation of the RER.

2.4 A simulation to illustrate the effects of aid

To illustrate Dutch Disease, the effect of the inflow of aid on the demand side and the reaction of the supply side to different public expenditure programmes, we reproduce the results of a simulation done by Christopher Adam and David Bevan (Adam and Bevan, 2005). The model they developed is based on the characteristics of a typical 'post-stabilization' African country¹¹ that is already receiving aid equal to 11 percent of GDP. The public infrastructure capital stock is assumed to be only half of its 'optimal' value and public infrastructure investment augments the capital stock after one year. In such an economy, they test the macroeconomic impact of permanently scaling up aid by 12.5%¹². In all cases aid is used exclusively to finance an increase in public infrastructure investment, but the cases differ in the spillovers which public investment generates on private sector productivity. Five scenarios are tested:

1. In the first simulation, infrastructure investment has no effect on the productivity of the private sector, reflecting the effect of aid on the demand side alone.
2. In a second simulation, the supply side comes into play. The investment enhances private sector productivity equally between tradables and nontradables.
3. In simulation three, the productivity impact is only felt in the export sector.
4. The fourth simulation assumes that the public investment is totally biased towards the nontradable-sector.
5. The last simulation is the same as the fourth, it only takes the extra assumption that the income elasticity of demand for food falls below one.

The simulated effect of the aid flow on the export weighted real exchange rate¹³, total exports, total real household disposable

¹¹The country is assumed to produce basic food crops, export cash crops, manufactured goods and services. The government undertakes its regular tasks of taxing households, offering government services and providing public infrastructure that can boost the productivity of the private sector. The households consume and save and are divided into three groups: rural households that mainly produce and sell cash- and food-crops, urban skilled households and urban unskilled households (Adam, 2005).

¹² This increase equals just under 2% of GDP and can be compared to the surges recently experienced by Tanzania, Uganda and Mozambique.

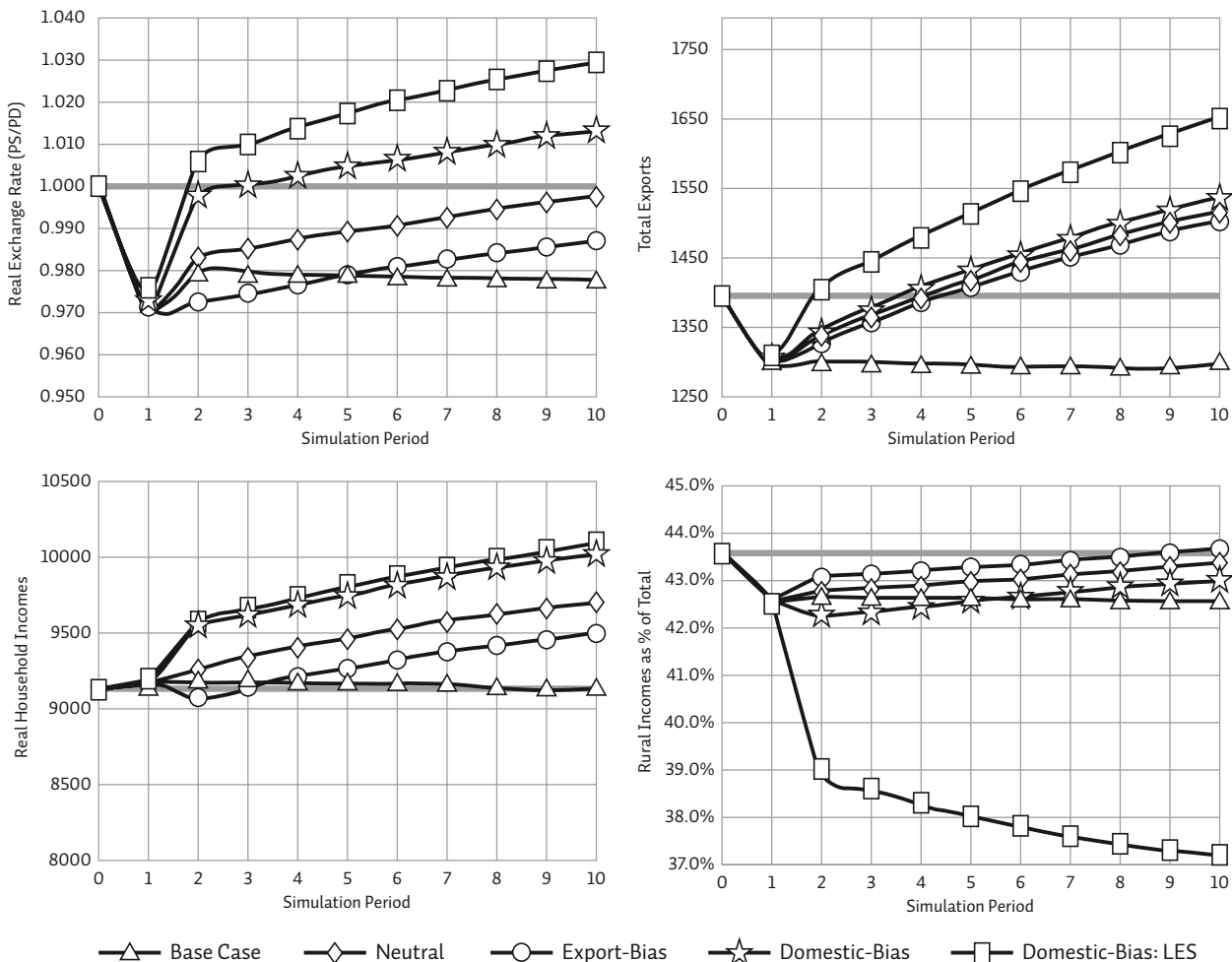
¹³ The export weighted real exchange rate is one of the possible variants of the multilateral exchange rate. This multilateral exchange rate, MER_{jt} , for country J at time t is composed of summing up all the bilateral real exchange rates, RER_{jkt} of country J at time t with its K trading partners and weighting them by their importance in the trade of the country,

$$\alpha_j: MER_{jt} = \sum_{k=1}^K \alpha_k RER_{jkt} \text{ or } MER_{jt} = \frac{\sum_{k=1}^K \alpha_k E_{it} P_{it}^*}{P_{jt}}$$

When the bilateral exports are used as weights, one gets the export weighted real exchange rate used here.

income and the rural share in this total real income, in these 5 scenarios is shown in figure 2. All results are reported relative to a baseline case where there was no increase in aid.

Figure 2: Response of 4 macroeconomic variables to the increase in aid-financed public investment.



Source: Adam and Bevan, 2005

A first view on the graphs learns us that all simulations have the same effects in the first year¹⁴. This illustrates the plausible assumption that it takes time to augment the capital stock of the economy and shows thus the effect on the demand side explained in section 2.1. As theory predicted, the export weighted real exchange rate appreciates, exports decrease and total real household disposable income is higher because of the aid flows. The income share of the rural households decreases as their income is assumed to depend on exported cash crops.

When we look further in time, we see that in the first simulation the economic situation progressively deteriorates over time. The main reason is that the appreciated real exchange rate increases the cost of producing capital goods, as capital formation is assumed

¹⁴ The fifth simulation has some differences but these are very small and caused by the lower income elasticity of demand for food.

to be intensive in nontradable services. Together with the natural deterioration of the capital stock and the lack of spillovers from public infrastructure to private investment, these effects dominate the potential impact of the weakening real exchange rate appreciation in year two, lowering the capital stock of the economy. Because of bad economic performance, the improved situation of households in the first year does not persist. Real income of households remains only slightly above the baseline after 10 years, but the situation differs between rural and urban families. An explanation for this is found in the fact that infrastructure investments employ mainly urban labour and use intermediate goods from the manufacturing and service sector, two sectors in which the rural labour force is typically assumed not to be active. This simulation reflects the classic fear for Dutch Disease, but, as assumed, looks only at the demand side effect. The following simulations show that reality will be different when aid is used in a 'good way', allowing the supply side to come into play.

When public investment is assumed to have equal productivity spillovers to the two sectors, the effect is totally different. The economy revives, the initial exchange rate appreciation nearly totally reverses and, although there remains a small appreciation, the export sector recovers. Also for the households the situation is much better than in the first simulation. Not only does their real disposable income increase, the rise in total income is nearly the same for rural households as for urban households.

With productivity effects that are biased towards the tradable-sector, the real exchange rate remains substantially lower than when spillovers are neutral. The impact on exports of these two opposing forces, public investment supporting exports and a lower real exchange rate that makes exports less profitable, are lower exports than in the second scenario, illustrating the importance of spillovers towards the nontradable sector. The most positive effect of this policy is the impact on disposable income. Although total real household disposable income is at the end lower than in the second simulation, it is the only simulation where rural households, that are supposed to be producing exported cashcrops, are better off than urban household.

The last two experiments test the macroeconomic consequences of aid-financed public investment biased towards the nontradable sector. In both scenarios, the appreciation of the real exchange rate is reversed faster than with any of the other policy-measures. The most interesting conclusion can be made by looking at the upper-right quadrant. Exports are predicted to recover faster in these two scenarios than in the one where public investment was oriented directly towards this sector. This illustrates the importance of spillovers towards the nontradable sector. The main differences between the last two simulations can be seen when we compare their effects on the household incomes. Although in both situations total dispos-

able income increases significantly, the division of the increased income differs. In the fourth simulation, the division is more or less equal between rural and urban households. With a lower income elasticity of demand for food, the rural households see their income decrease, while urban households experience a significant increase.

3 WHY CONCERNS FOR DUTCH DISEASE ARE ON THE INCREASE

Over the last years, concerns have been increasing that aid might cause Dutch Disease in recipient countries. Now that the basics of the model have been explained, some of the reasons for these concerns can be advanced:

1. The reason most often cited in the literature is the substantial increase in aid levels (Heller, 2005a; Adam and Bevan, 2005). In 2006 scaling up seems a more plausible scenario than it was ten years ago, following several new initiatives that aim to increase aid to developing countries such as the UN Millennium Project, the G8 summit in Gleneagles, the Millennium Challenge Account of the United States of America, the UK Commission on Africa, the new EU strategy for Africa,... Many countries have accordingly set themselves targets to scale up aid¹⁵ (Heller and Gupta, 2002; Gupta et al., 2006a).

When all these promises are really turned into disbursements, the aid received by the developing world will substantially increase in the future. At the plenary meeting of the SPA in January 2006, deputy director Richard Carey of the OECD DAC presented figures on the impact scaling up might have on the ODA received by different countries (table 1).

¹⁵ Several OECD members have publicly announced targets for ODA/GNI. Belgium and Finland want to reach 0.7% by 2010, France and Spain aim at 0.7% by 2012, UK announced a timetable to reach 0.7% by 2013 (OECD, 2005). Also the European Council agreed in June 2005 to double aid between 2004 and 2010.

Table 1: Aid dependency rises: results of aid scaling-up on individual countries.

Country (Volume ranking)	2004 ODA/GNI	2010 ODA/GNI
Tanzania (1)	14%	27 %
Ethiopia (4)	17%	33%
Mozambique (6)	24%	47%
Malawi (27)	23%	44%
Rwanda (27)	21%	42%
Sierra Leone (39)	25%	48%

Source: Carey, 2006

The figures indicate that aid to these recipients might nearly double in six years, showing the importance of good macroeconomic management. Even for countries like Tanzania, Ethiopia and Mozambique, some of the 'donor darlings' of the last years, this in-

crease in aid is many times larger than the ‘large financial inflows’ they received in the previous years.

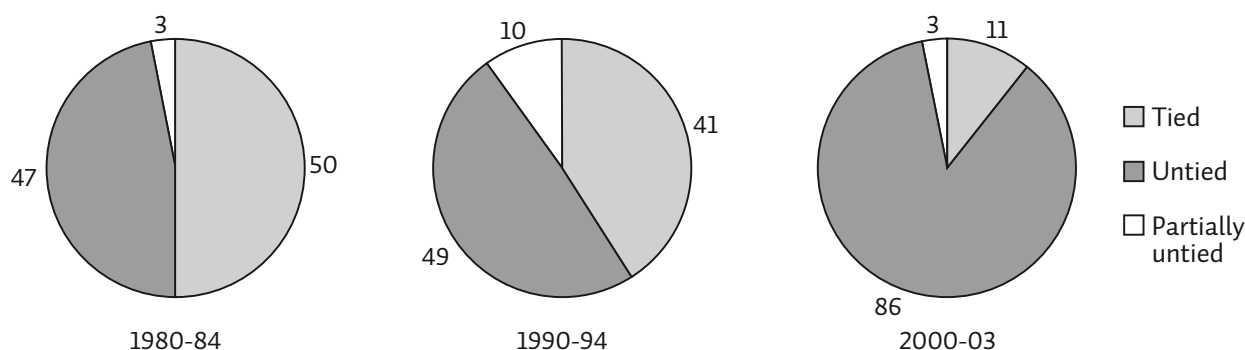
Although this aid aims to bring a better future to millions of people, and will hopefully succeed, such positive effects might be undermined if large inflows are not spent efficiently, and thus induce Dutch Disease.

2. A second reason is the increasing use of budget support by a growing number of donors. Information of the SPA shows that GBS, as a percentage of total aid, increased from 25.7% in 2004 to 27.8% in 2005¹⁶. As it are mainly the large donors that use budget support, the average per donor per year increased from 16.5% in 2004 to 18% in 2005 (SPA 2006). Although this way of providing aid has many advantages compared to other aid modalities, and is certainly a positive evolution, it can make macroeconomic management of aid more difficult. In the project rationale of the previous decades, funds were mostly linked to the import of goods from the donor country. With budget support, aid is now spent by the government, who is typically assumed to have a greater propensity to spend the funds on nontradables (Adam, 2005; Heller and Gupta, 2002). Without orienting their spending towards expenditure categories that have less chance of causing Dutch Disease, the danger of macroeconomic distortions will increase.

¹⁶ The information from SPA only reflects information from a self-selected group of donors (Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Portugal, Sweden, Switzerland, United Kingdom, IMF, the World Bank, the African Development Bank and the European Commission) and recipients (Benin, Burkina Faso, Cape Verde, Ethiopia, Ghana, Madagascar, Malawi, Mali, Mozambique, Niger, Rwanda, Senegal, Sierra Leone, Tanzania, Uganda, Zambia)

3. The increasing use of untied aid, as seen in figure 3, can also be a reason. Although this evolution is certainly welcomed, it raises the likelihood that recipient countries will spend aid resources on nontradables, increasing the possibility of Dutch Disease.

Figure 3: Tied status of bilateral commitments (in percentage of bilateral commitments)

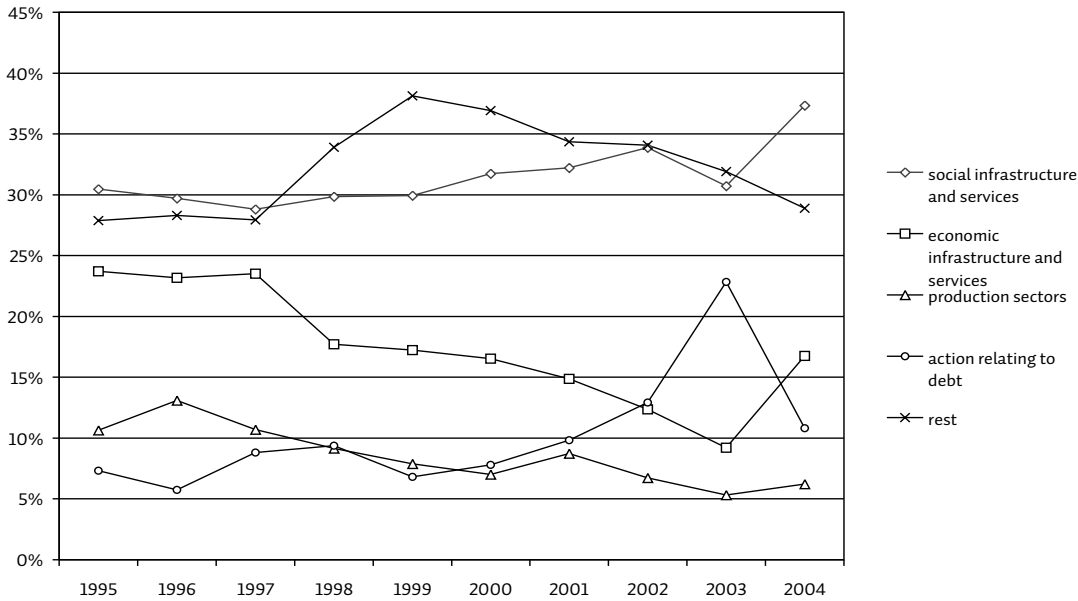


Source: Gupta et al., 2006a

4. A last reason for the increasing danger is the growing proportion of aid directed toward social spending. For Britian, Killick (2005) calculated that the proportion of aid devoted to directly

productive activities (economic and rural livelihoods), expressed as a percentage of social spending (education, health, 'social' categories and governance) declined from 371% in 1988/89-1989/90 to 208% in 1993/94-1994/95 and even to only 45% in 2003/04. That these shifts were also present for other DAC-donors during the last decade, can be seen in figure 4.

Figure 4: Aid by major purpose for all DAC member states



Source: OECD-DAC, *International development statistics*

The graph makes clear that aid for social infrastructure and services has increased during the last ten years, while that for economic infrastructure and services and production sectors decreased.¹⁷ Taking into account the importance rightly paid to the MDGs, with their focus on social indicators, this trend is not expected to reverse in the coming years.

¹⁷ The increasing use of debt relief during the last decade enlarges this trend as the money that has come free in this way, is mostly linked to social spending through the PRSP

4 THE MONETARY AND EXCHANGE RATE MANAGEMENT OF AID FLOWS.

4.1 The need for intervening

Until now we assumed that the monetary authorities did not intervene. Monetary authorities have however their own objectives: stable inflation and a competitive exchange rate; on which the fiscal policies discussed in the previous sections might have an important impact when, for example, the supply side does not expand timely in reaction to the increased demand or when the tradable sector is hit too hard by changes in the exchange rate.

In this section, we will therefore explain the possible instruments monetary authorities can use to reach their objectives. In the fifth section we will then bring the fiscal and the monetary decisions together, and explain their need for coordination.

4.2 How can the monetary authorities intervene?

To explain the link between the previous sections and the objectives of the central bank, we will start from the situation where a government receives aid. Then we will look at the link between fiscal policy and monetary policy objectives and go into the possible reactions of the central bank to remain on target.

In a typical situation, the government of a developing country receives aid from a donor and sells the foreign currency to its central bank in exchange for an equivalent value of domestic assets. Initially, there is thus no effect on the money supply of the economy. Only when the government starts to spend in excess of its tax receipts, the money supply in the economy increases. When the central bank does not react, keeps the foreign exchange as reserves and undertakes no other actions, the impact of the government expenditures is likely to be inflationary. If the central bank wants to avoid this and keep the macroeconomic variables on target, it can intervene in different ways (DFID, 2002):

- 1.** The central bank can sterilize the expansion of the money supply by selling foreign exchange to the private sector. Consequently, some of the liquidity injected through government expenditures will be reduced, but the nominal exchange rate will appreciate. The exact impact on the real exchange rate will depend on the way foreign currency is used by the private sector (DFID, 2002; UNDP, 2005c). When capital goods are imported, the long term growth potential of the economy may increase. By importing basic food, local prices could be held down and consumption of poor households guaranteed. Additional imports of luxury consumer items, would only have an impact on the consump-

tion of the rich and the opportunity of undoing the appreciation of the RER or further improving the growth prospects for the country would be missed (UNDP, 2005c).

2. Secondly, the central bank can reduce the liquidity in the economy through private banks. The technique that is most often cited, is the sale of domestic debt to the private sector, typically banks, to soak up the excess liquidity in the economy (DFID, 2002; Christensen, 2005; Prati et al., 2003). Given that domestic interest rates in developing countries are determined in the short to medium term by domestic money market conditions and that these financial markets are rather shallow, this can lead to a rapid increase in domestic interest rates and a crowding out of the private sector. Evidence of this crowding out of private investment was found by Christensen (2005). By using a dataset of 27 SSA countries covering a 20-year period (1980-2000), he found that an increase in the ratio of domestic debt to M2 of 1 percent, decreased the ratio of private sector lending to M2 by 0.15%.

Other ways of reducing the liquidity through private banks are an increase in reserve requirements of those banks or a shift in government deposits from private banks to the Central Bank (Prati et al., 2003; Gupta et al., 2005).

Evidence on the efficiency of these techniques was found by Prati et al. (2003). Their estimates show that the sale of government bonds and higher government deposits at the central bank significantly reduced the real appreciation caused by aid.

As the explanations above have shown, these interventions can lower inflation but often bring with them other costs to the economy. For this reason, there is a need to balance the different costs against each other and see what combination of changes in inflation, exchange rates and interest rates are best to absorb the aid. High inflation of, say, 40% or more, is detrimental to both growth and equity and must thus be avoided. Reducing inflation to levels below five percent, however, may also not lead to optimal growth for the economy. Empirical evidence suggests that the growth maximising rate of inflation for developing countries lies somewhere between 5-10 percent (IMF, 2005a; Adam and Bevan, 2001a,b; Gupta et al., 2005).

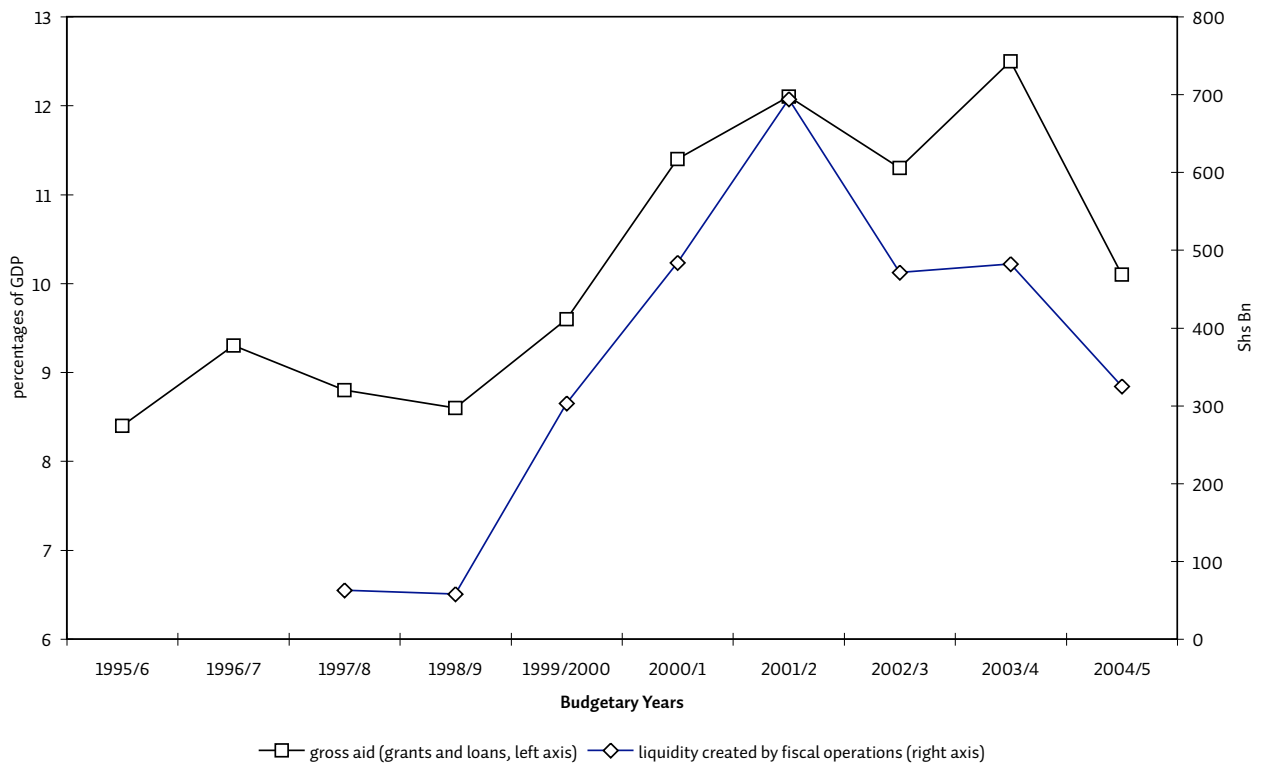
Finally it has to be noted that the rate of appreciation of RER and the intervention of the Central Bank will depend on the exchange rate regime in use. In a pure float, the central bank sells the additional foreign exchange it receives, so that the RER will mainly appreciate through a nominal appreciation. With a fixed exchange rate, the fiscal authorities spend the aid and inflation rises. In this case, the real appreciation is thus caused by a rise of the domestic price level, while the nominal exchange rate remains constant. Consequently the demand for cheaper imports increases and the central bank has to sell

foreign exchange to keep the exchange rate at its level. (Heller and Gupta, 2002; Gupta et al, 2005). Buffie et al. (2005) use a simulation to illustrate that these two extreme cases may not give optimal results in handling persistent inflows of aid. In a pure float, inflation remains limited but the nominal exchange rate is extremely volatile. Alternatively, with a fixed exchange rate, inflation shoots up. Both are situations that would not lead to successful growth and poverty-reduction. A third exchange rate regime, that is preferred by most countries, gives better results in their simulation: the managed float. By using the different available instruments in a judicious manner, the central bank can keep macroeconomic variables better on target.

4.3 Uganda's experience

Uganda's experience illustrates this difficult balance a government has to strike. Since the beginning of the nineties, donors helped financing Uganda's successful economic development. As this aid was mainly spent on nontradables, through a rise in the government's deficit, the liquidity created by fiscal operations increased ten-fold between 1997/8 and 2001/2 (see figure 5) (Brownbridge and Tumusiime-Mutebile, 2007).

Figure 5: Gross aid and liquidity created through fiscal operations.



Source: Brownbridge and Tumusiime-Mutebile, 2007

Consequently, the Bank of Uganda needed to intervene to keep inflation at its target level of 4 to 5% (see table 2).

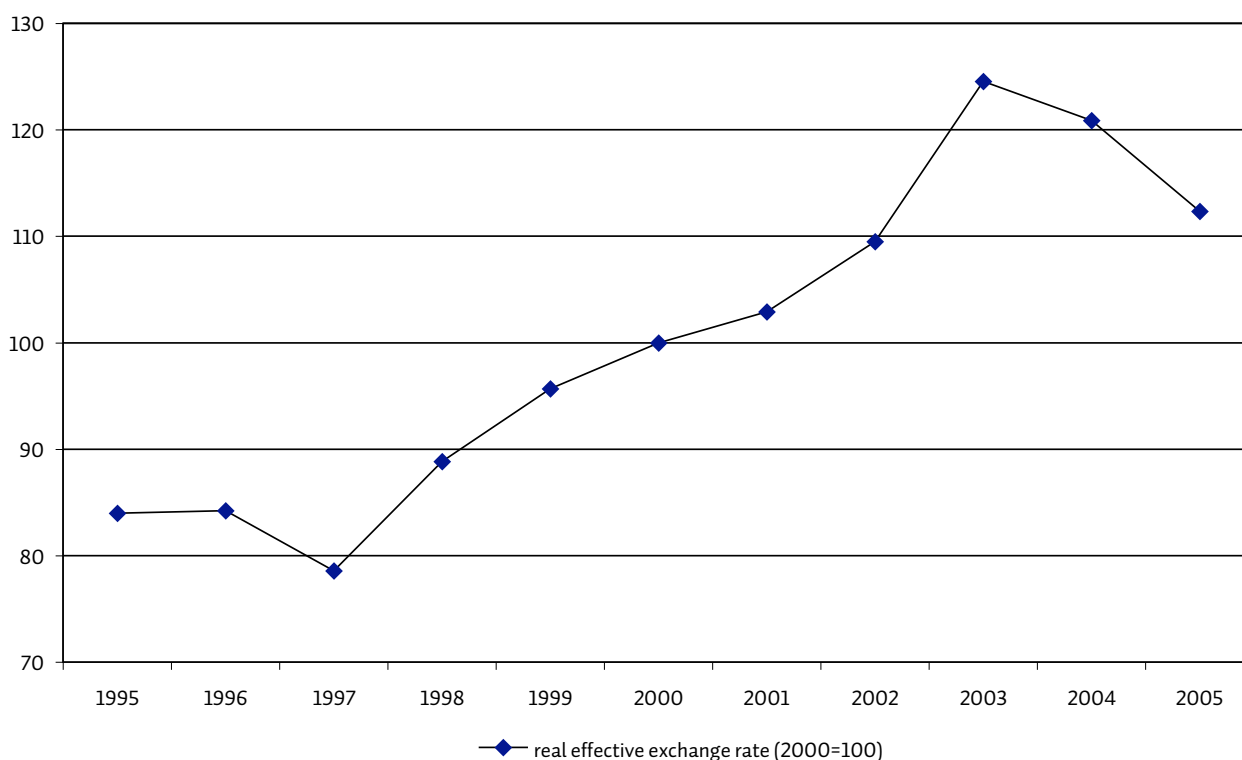
Table 2: The Bank of Uganda's intervention

	1997/8	1998/9	1999/00	2000/1	2001/2	2002/3	2003/4	2004/5
Foreign-exchange sales by the Bank of Uganda (%mln)	5	25	117	174	199	247	141	70
Net issue of securities to the market (Shs Bn)	42	46	150	147	266	216	67	227
Growth in private sector credit (%)	24,8	33,6	6,2	9,4	4,2	28,2	16,2	21,9

Source: Brownbridge and Tumusiime-Mutebile, 2007

For fear of losing export competitiveness, at the time that terms of trade were worsening, the sales of foreign exchange were lower than planned to allow the real exchange rate to depreciate (Brownbridge and Tumusiime-Mutebile, 2007). As a result, the real effective exchange rate depreciated by 50% between 1997 and 2003 (see figure 6) (Atingi Ego, 2005 and IMF, 2006a).

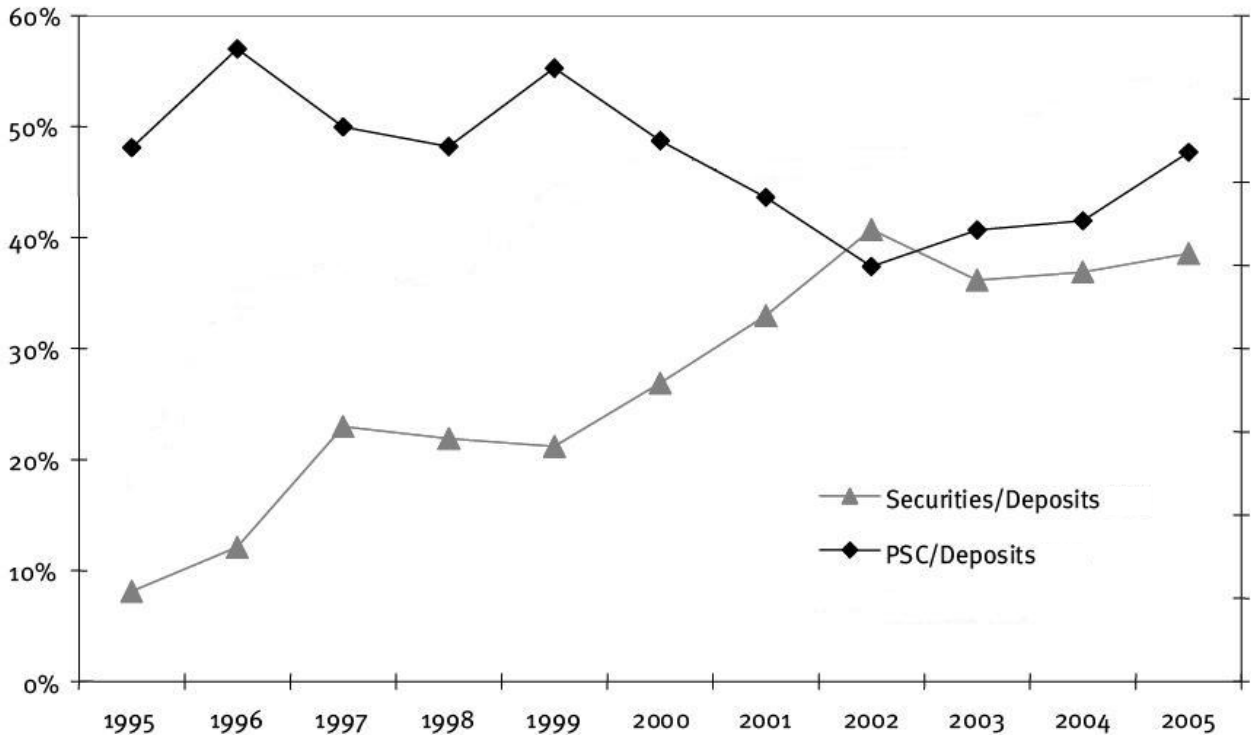
Figure 6: Impact of the Bank's policy on the real effective exchange rate.



Source: World Development indicators

As the sales of foreign exchange were lower than programmed, a larger share of the liquidity created by fiscal operations had to be borne by the sales of domestic debt to the private sector. Figure 7 shows the consequences of this policy:

Figure 7: Private sector credit and bank holdings of government securities as a percentage of bank's deposits.



Note: PSC = Private-Sector Credit

Source: Brownbridge and Tumusiime-Mutebile, 2007

As a result of the sale of domestic debt, the distribution of the government's domestic borrowing requirement shifted away from the Central Bank onto the commercial banks. Their stock of government debt increased by more than 500% in five years and private sector borrowing reduced significantly. The average interest rate on a 364 day Treasury Bill increased from 9% in 1998/1999 up to 17% in 2002/3 (The Republic of Uganda, 2005).

By 2002, the Ugandan government came to recognise the potential economic danger of this fiscal strategy and the necessary sterilisation. From the budgetary year 2002/3 onwards, the government therefore started implementing a new strategy of fiscal consolidation. The main aim was to reduce aid dependency and increase domestic revenue mobilization. Because of this, liquidity created through fiscal operations fell by a third (see figure 5). Consequently, the Central Bank had to sterilize less and more room could be created for private sector lending by the commercial banks (see table 2, figure 6 and figure 7).

5 THE NEED FOR COORDINATION BETWEEN MONETARY AND FISCAL POLICIES

As illustrated in the previous sections, the efficiency of monetary and fiscal policies depend on each other. Coordination of both policies must therefore be high on the political agenda of recipients. For developing countries, that have only limited capacity to perform these tasks, this might be a difficult task. That it is however worth doing the effort, is shown by a study of the IMF (IMF, 2005b), recently supported with evidence reported in Foster and Killick (2006). Both studies see coordination as one of the main determinants for good macroeconomic management of aid flows.

1. The first important policy decision fiscal and monetary authorities will have to discuss is the potential for increasing spending in certain sectors without spilling the money or endangering the macroeconomic targets set by the monetary authorities. Two thoughts must be balanced against each other. On the one side, certain sectors, like health and education, may lack the human capital or infrastructure for efficiently using the huge amounts of aid forecasted. As spending aid in such an environment would not give an acceptable return and induce Dutch Disease, tackling these problems first might be a viable strategy in order to optimize the impact of aid in the longer term (Heller, 2005b; UNDP, 2005a; Bourguignon and Sundberg, 2006). On the other side, given the critical needs of poor people, it might be a defensible strategy to sacrifice some short-run growth and allow higher inflation rates. In this way certain problems faced by the poor can be addressed faster while growth can still be significant in the longer term (Heller, 2005a and 2005b and Bourguignon and Sundberg, 2006).

2. Cooperation between fiscal and monetary authorities does not stop with the preparation of the final budget. During the budget year, resources may fall below fiscal forecasts because of volatile donor resources and incompletely predictable domestic revenue, caused by its high dependency on international trade or weather conditions. Further, there is the danger that certain policy reforms that are important for keeping macroeconomic stability might not be implemented successfully, leading to a different macroeconomic reality than the one forecasted. Regularly reassessing government's revenues and expenditures is therefore needed to assure macroeconomic stability. To facilitate this process, different scenarios can be worked out during the budget preparation process which differ in the amount of economic growth or resources received by the government (Gupta et al., 2006b).

3. Finally, coordination between the two policies is also needed in a medium- to long-term perspective. With volatile expenditures and revenues in the medium- to long-term, macroeconomic management might become difficult, threatening economic growth. Together discussing the medium- and long-term expenditure path of the government is therefore needed. In the medium term, developing countries must be cautious about just spending any large increase in aid that comes their way. Saving aid over time, is a defensible strategy when aid surges are not assured. In section 6, we will discuss further this possibility. In the longer term not only high levels of aid but also aid itself will not sustain. Therefore, strategies must be developed by recipient countries to boost domestic revenue mobilization. In this way, the financing of the budget will also be more certain over time.

To successfully accomplish these demanding tasks, capacity building might thus be needed in the fiscal institutions responsible for the execution of the budget and at the central bank.

After the preparation of the budget, its successful execution depends on the capacity of the fiscal institutions, the incidence of corruption, the use of adequate auditing,... (IMF-IEO, 2005; Bourguignon and Sundberg, 2006). The experience of countries undergoing commodity booms - circumstances rather similar to those of aid surges - has shown that this might be problematic, causing a large scale waste of resources and endangering macroeconomic stability. To avoid similar difficulties in aid-recipient countries, good management of public resources will be needed. Donors can contribute to this by building in safeguards to monitor the use of their resources. To what extent these efforts of donors will be successful remains to be seen, given the disappointing experience of previous PFM-reforms, problems in the past with the effectiveness of conditionality imposed by donors, and the large scaling up of aid that might increase the pressure on donors to give aid indiscriminately (Foster and Killick, 2006).

As the central bank has to collaborate closely with the fiscal authorities in an high-aid environment, the capacity currently available at central banks might be inadequate, increasing the danger of important macroeconomic problems. Donors, convinced of the importance of macroeconomic stability, have always been willing to help recipients with these problems. In the new aid environment, two opposing forces must however be weighted against each other when accepting this help. On the one side, the danger exists that donors are putting too much pressure on recipient countries to accept massive increases in aid without considering enough the impact on the total economy (Foster and Killick, 2006). On the other hand, too strict macroeconomic targets might take away the opportunity of using aid to help desperately poor people survive. Traditionally the IMF has the task of helping countries balancing both potential dangers against

each other. The way it performs this task is regularly been highly criticised. Many critics blame the institution for looking only at the macroeconomic targets, without due consideration for the opportunities higher aid could give to the poor (Actionaid International, 2005; Ooms and Schrecker, 2005). At the 2006 WIDER-conference on aid, Peter Heller of the IMF agreed that the approach currently used by the institution is to limit expenditure strategies of recipient governments too much only on aid that is firmly committed by donors. Given that aid agencies rarely make commitments for two to three years in advance, this strategy puts significant restraints on the expenditure framework of the government. Taking into account this characteristic of donors, that does not mean that aid will not be available anymore after two to three years, Heller proposes the use of a new approach that bases government's expenditures on a "more optimistic and plausible" aid scenario that does not assume that aid will drop within two to three years (Heller, 2006). Participation of other donors in this analysis should help to come up with realistic forecasts.

6 THE ADVANTAGES OF SPENDING AID OVER TIME.

Finally we have to remark that in our textbook-analysis of Dutch Disease it was assumed that aid is spent by the government, followed by a reaction of the central bank to keep its instruments on target. Although this is the only way to use aid in the long term, it is worth mentioning two other scenarios that are possible.

In close collaboration, fiscal and monetary authorities can decide not to spend aid but hold the foreign currency as international reserves. The usual reason for holding international reserves is to insulate the country's capacity to finance its imports from the uncertain and variable amounts of foreign currency coming from exports. By holding international reserves, imports can still be financed even when exports are interrupted. For this reason, the amount of international reserves is usually expressed in months of imports, with countries facing more volatile exports, requiring larger amounts of reserves. In aid recipient countries, this reason for holding foreign exchange reserves may be less important.

A second reason that will possibly play a larger role in the reserve management of these countries, is the build-up of reserves to secure domestic budgetary policy from the short run volatility in its financing. In aid-recipient developing countries, this volatility is not only caused by domestic revenue that is volatile because of its dependency on international trade, weather conditions and other factors, but also by the low short-term predictability of aid, both in terms

of size, because of the disparity between commitments and disbursements, as timing, caused by the various factors that result in disbursements shortfalls (IMF-IEO, 2005; Heller, 2005a). When anticipated revenues consequently do not materialize, government faces a choice. It either forces spending to follow the volatile pattern of its budgetary resources or it allows its deficit to increase and find a way of financing it. As foreign financing is often not available, domestic financing can squeeze the private sector and increase interest rates, and an increase in money supply can cause inflation, the foreign exchange reserves could be used to finance the deficit. Following the previous reasoning, countries with more volatile budgetary resources might then be advised to hold more reserves (Bevan, 2005, Adam and Bevan, 2001b; Eifert and Gelb, 2005; Heller, 2005a; Roberts, 2005).

A third reason for holding international reserves, that might also play an important role in countries receiving aid, can be found in the medium- and long-term financing of the budget that must be assured. As predictability of aid is already not very high in the short term, it is not surprising that it is even lower in the medium- to long-term. Over the past 40 years, aid flows have frequently proven to be pro-cyclical and aid-surges often sustained only for short periods of time. Predicting aid two to three years in advance is then also very difficult. Spending aid when it is received may also not be possible as absorptive capacity of the economy can be lacking at the moment resources are received. To tackle these problems while assuring macroeconomic stability, the government could use stabilization funds in which the irregular inflows are converted into more permanent streams of funding so they can be spent at moments when the country can use them or needs them. The reserves accumulated at the time that aid is received can finance the deficit at the time that aid can be spent in excess of taxes received¹⁸ (Eifert and Gelb, 2005; IMF IEO, 2005; DFID, 2002; Foster and Killick, 2006).

The benefits of carefully considering the use of resources over time and taking into account absorptive capacity of the economy is shown in the success stories of Norway and Botswana. In Norway, the government exercised fiscal discipline, paid back debts and built up a fund to avoid the effects of excess demand on the economy (Larsen, 2004). The Botswanan government based its expenditure on long-term expectations of export earnings and government revenues, avoiding too much fluctuation over time. Remaining revenues were saved as foreign reserves in a stabilization fund, a policy decision that helped policymakers to keep the exchange rate competitive and allowed a larger diversification of the economy. Expenditure decisions were further guided by the absorptive capacity of the economy. The amount of skilled manpower and the long-term recurrent costs of investments were taken into account in considering scaling up expenditure (Sarraf and Jiwani, 2001; Hill, 1991 and Stevens, 2003b).

¹⁸ As it is very reasonable to assume that donors do not like the use of their funds for the building up of reserves, they must think by themselves what they can do to avoid the use of this option by recipient countries. One possibility is to pay attention to the predictability of funds, another is to gradually increase aid in line with the expanding absorptive capacity of the country.

In a recent paper of the IMF that looks at the experience some countries have with a surge in aid, two countries were found to have used the increments in aid to scale up their international reserves. Between 1999/2000 and 2002/2003, Ghana and Ethiopia saved the largest part of their aid surge in foreign reserves because they had very low levels of international reserves before the surge in aid, they experienced very volatile aid flows, and they wanted to avoid an exchange rate appreciation to preserve international competitiveness (IMF, 2005b).

A concrete proposal of this kind with respect to aid was made by Maureen Lewis. As the funding of HIV/AIDS-contributions is erratic and provided by donors in a concentrated period, a HIV/AIDS Stabilization Fund could be used to ensure sustainable funding over time, address the potential macroeconomic problems and optimize the impact of aid (Lewis, 2005).

As the examples of Norway and Botswana illustrate, saving aid in the form of foreign reserves can be a very efficient strategy for revenue stabilization in countries facing volatile revenues. Donors that are really concerned about the countries they are supporting, must thus give recipients discretion to use aid flexibly, including saving it in foreign reserves. Further must donors tackle one of the reasons why those recipients use the aid for building up foreign exchange reserves instead of spending it on poverty reduction and economic growth. Reducing the unpredictability and providing aid in more stable flows must therefore be very high on the policy agenda for donors.

Although this strategy of reserve accumulation has its advantages, there are also opponents to it. They argue that these reserves could be better spent in the developing country, where the return on investments in productive assets would be much higher than the low return these countries are now receiving from short-term US Treasury securities, in which the foreign reserves are usually invested (see for example Lapavitsas, 2007 or Rodrik, 2006).

Secondly, government can decide not to spend the aid, but sell the foreign exchange received. In countries facing problems with high rates of inflation, this strategy can help to reduce monetary supply growth and halt inflation (IMF, 2005b).

7 EXPLAINING THE IMF-LITERATURE

Following this explanation of Dutch Disease and its budgetary and macroeconomic impact, we are in a better position to explain the terms and reasoning used by the IMF in this respect (see textbox 2)

Textbox 2: Explaining the IMF-literature: 'absorb' and 'spend'

In IMF literature on the macroeconomic impact of aid and the potential danger of Dutch Disease, the authors often use the terms 'absorb' and 'spend'.

Aid absorption is defined as the extent to which a country's non-aid current account deficit widens in response to aid, relative to that aid flow. It measures thus the amount of aid that is used to buy imports and takes into account the first and second round effects.

$$\text{absorption} = \frac{\Delta(\text{non-aid current account deficit})}{\Delta \text{aid}}$$

Aid spending is defined as a widening of the government's fiscal deficit net of aid. It captures the amount of aid that is used by the government to increase public expenditures or reduce taxes.

$$\text{spending} = \frac{\Delta(\text{Total expenditure} - \text{Total Domestic Revenue})}{\Delta \text{aid}}$$

From these definitions it is clear that both take into account the fungibility of aid. If the foreign currency of aid is sold by the central bank, but the net sales of foreign currency do not increase, absorption will not change as there is no greater availability of foreign currency for imports. Similarly, spending will not change when the financing of a domestic project, that was paid before from other sources, is now paid with aid.

Different combinations¹⁹ of absorb and spend are now possible, all having their particular macroeconomic impact and potential danger for Dutch Disease as they differ in the amount of money injected in the economy and the part of aid used as international purchasing power. We will now explain the four extreme possible combinations of absorbing and spending aid to give an idea of what might happen in the many possible combinations of absorb and spend that are possible.

1. **Aid is absorbed and spent.** Absorbing and spending aid is the textbook-case discussed in this paper. The government spends the aid and the central bank sells the foreign currency for buying imports, widening the current account deficit. The amount of RER appreciation depends on the characteristics of the economy and on the extent to which aid directly finances imports.
2. **Aid is neither absorbed nor spent.** In this strategy, the aid flows are used to build up international reserves. For fiscal authorities facing volatile resource flows or central banks having very low levels of international reserves, this could certainly be an appropriate short-run strategy. Donors should leave the possibility open of us-

¹⁹ In all scenarios we assume that the government receives aid and sells it to the central bank in exchange for local currency.

ing aid in this way as it can reduce the impact of uncertain financing of the government budget for fiscal authorities and makes imports less dependent on the foreign currency received from exports, they must certainly not see it as a failure of aid. In the long-run, this strategy is however not useful as the benefits of spending the aid will start to dominate the advantages of this strategy.

3. **Aid is absorbed but not spent.** In countries that have not yet achieved stabilization, this strategy could be used to reduce inflation. In such a situation the fiscal authorities don't spend the aid, but the monetary authorities sell the foreign exchange to sterilize the monetary growth of the economy.
4. **Aid is spent but not absorbed.** Finally, the government could spend the aid on local goods and services, while the central bank does not sell the foreign currency. The macroeconomic impact of this strategy is similar to deficit spending without aid, except that the international reserves increase in this scenario and the pressure on the local credit market will be lower than when government finances the deficit spending by borrowing on the local credit market.

8 WHAT DOES THE EVIDENCE TELL?

In the economic literature, a lot of effort has been undertaken to find evidence of Dutch Disease. Although the search for evidence is statistically seen a difficult quest, neither convincing evidence of an aid-induced real exchange rate appreciation, nor persuasive evidence of an aid-financed contraction of the export-sector was found. Generally, controversy remains about whether empirical evidence supports the existence of this phenomenon (Adam, 2005; Stevens, 2003a; Bulir and Lane, 2002; Issa and Ouattara, 2004; Barder, 2006).

While some authors find evidence in certain countries, others argue that there are other reasons than the aid flows that explain the economic changes perceived as Dutch Disease. Nkusu (2004a) for example, reports a paper of Adenauer and Vagassky in which they find evidence of a direct relationship between aid flows and RER appreciation in Burkina Faso, Côte d'Ivoire, Senegal and Togo, supporting the idea of Dutch Disease. Nkusu notes however that the adverse developments in the world prices of the primary exports of these countries and the appreciation of the French franc against the dollar, could have played an important role in the economic development of the countries and the changes of the real exchange rate.

A recent study of the IMF illustrates the promising experience of a subset of developing countries²⁰ that have witnessed large financial inflows in the previous years but did not face important macroeconomic problems (IMF, 2005b). Using this evidence for telling that

²⁰ The countries discussed in the paper were: Ethiopia, Ghana, Mozambique, Tanzania and Uganda.

the large inflows in the future might not be problematic for developing countries would however be one step too far as this sample of countries was biased in favour of good performers²¹ and the 'large inflows in aid' these countries experienced were small compared to the increases referred to in section three.

²¹ 2005 IDA Resource Allocation Index (IRAI) of Ethiopia: 3.4, Ghana: 3.9, Mozambique 3.5, Tanzania 3.9, Uganda 3.9 (IDA-website, 2006). That politics might play a role in avoiding Dutch Disease will be discussed in the next section.

9 IS IT ONLY ECONOMICS?

In this last part of our paper we want to broaden our view and look further than only macroeconomics. To do this, we want to split up the problem in two parts and look at the problem of Dutch Disease from two different directions. First, economically it must be known what policies must be taken to tackle the problem of Dutch Disease. Stiglitz (2004) notes that economic theory and past experiences in several countries have given the knowledge to solve this problem. Secondly, one has to ask if governments have the political will to implement these necessary policies. This is the actual problem Stiglitz argues. Stevens (2003a) comes to the same conclusion after a literature survey on the resource curse. According to his findings, Dutch Disease has essentially something to do with governance and the answer lies more in political economy than in macro-economic analysis. In a case-by-case approach, Stevens (2003b) looks for the characteristics of 4 success-stories²² that avoided the resource curse. He finds 4 characteristics that might explain why the 'good' actions were taken to avoid Dutch Disease:

²² The countries he studied were Botswana, Chile, Indonesia and Malaysia

1. All countries had strong elements of frugality built in the national psyche.
2. All four had strong governments either as a result of voting support or military control.
3. All countries had highly competent bureaucrats who were well versed in developing economic policy.
4. The most important characteristic that was present in all case-studies, was the fact that they were 'developmental states'. These states have two characteristics:
 - a. The first element is an ideological component, the ruling elite adopts 'developmentalism' as their prime objective. The legitimacy of the rulers is thus derived from their ability to deliver economic development, implying growth and poverty reduction.
 - b. The second characteristic, a structural one, involves the capacity of the rulers to implement policies efficiently and sagaciously. This does not only involve the capabilities to implement the policies (as in point 3) but also a strong state that can resist pressure and implement sometimes difficult decisions.

Similar results were found by Mehlum et al. (2006) who showed that differences in the quality of institutions determine whether countries succeed in avoiding the resource curse or not.

In the countries receiving aid, these political aspects will also play an important role. The danger of not paying enough attention to these aspects might however be lesser in these countries than in countries where natural resources were discovered as donors will control the use of their aid.

Going further into the details of these political aspects of Dutch Disease would lead us too far away from the economic focus we took in this paper and is therefore left to other researchers.

TO CONCLUSION

Observing the increasing concerns for Dutch Disease in the donor community and developing countries receiving large inflows of aid, this paper tried to clarify what the problem is and why the danger is potentially higher in the current aid environment.

Throughout our paper we saw that, although empirical evidence for Dutch Disease caused by aid was not convincing, there are enough theoretical arguments suggesting that the risk of Dutch Disease must be taken serious if the intention is to substantially scale up aid by using new aid modalities such as budget support. Whether Dutch Disease will effectively occur, can however not be predicted as the long-term interactions in the economy are very complex and difficult to predict. The spending pattern of aid was shown to have an impact on the long-term reaction of the supply side, coordination between monetary and fiscal authorities were important to keep the macroeconomy stable, absorptive capacity could limit the amount of aid that can be successfully spent, donor policies may complicate the difficult exercise recipients face, capacity in the recipient's authorities may be insufficient to successfully execute the difficult tasks they are facing,... In general, there is thus no a priori case against scaling up, based on macroeconomic arguments, but attention will have to be paid to how the aid is used.

As pure macroeconomics did not give a conclusive answer on the potential danger of Dutch Disease, we finally looked at the problem through some research done on the political economy of the countries facing the potential problems of Dutch Disease. By taking into account that politicians must not only know how to solve the problem, but also need the political will to solve it, this line of analysis suggests that political characteristics of the recipient's government are important in determining whether a country will be more likely to experience Dutch disease or not.

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