White Rose Research Online

eprints@whiterose.ac.uk
https://eprints.whiterose.ac.uk
Universities of Leeds, Sheffield and York

Deposited via The University of Sheffield.

White Rose Research Online URL for this paper:
https://eprints.whiterose.ac.uk/id/eprint/9919/

Monograph:
Mosley, P. and Suleiman, A. (2005) Aid, agriculture and poverty in developing countries. Working Paper. Department of Economics, University of Sheffield ISSN 1749-8368

Sheffield Economic Research Paper Series 2005010

Reuse
Items deposited in White Rose Research Online are protected by copyright, with all rights reserved unless indicated otherwise. They may be downloaded and/or printed for private study, or other acts as permitted by national copyright laws. The publisher or other rights holders may allow further reproduction and re-use of the full text version. This is indicated by the licence information on the White Rose Research Online record for the item.

Takedown
If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.

UNIVERSITY OF LEEDS
University of Sheffield
UNIVERSITY of York

Sheffield Economic Research Paper Series

SERP Number: 2005010

Paul Mosley and Abrar Suleiman

Aid, agriculture and poverty in developing countries.

June 2005

Department of Economics
University of Sheffield
9 Mappin Street
Sheffield
S1 4DT
United Kingdom
www.shef.ac.uk/economics

Abstract.

We make two contributions to the debate on aid-effectiveness, illustrating that for impact on poverty what matters is not just the level but also the composition and stability of aid. One specific implication of this for aid policy is that aid most effectively reduces poverty if it supports public (and other) expenditures which are supportive of agricultural development – these, our regression analysis confirms, are not only direct expenditure on agriculture, but also education and infrastructure, and military expenditure has a negative impact. Three factors appear to be particularly conducive to the development of stable pro-poor expenditure patterms (and in particular pro-agriculture expenditure patterns). These are expenditure strategies which protect the poor against risk, the development of stable relations between governments and aid donors, and long-term political commitment to pro-poor strategies by government. The argument is pursued partly by panel-data econometric analysis of developing countries as a whole, and partly by case studies of sustained and non-sustained green revolutions in heavily aid-dependent countries in Africa.

1.*Introduction*

Albeit that the aid-effectiveness debate has become progressively more technical and more intense, it has not yet reached an equilibrium. The proposition that aid effectiveness is positive, but policy-contingent (Burnside and Dollar, 2000; Collier and Dollar, 2002; Mosley, Hudson and Verschoor, 2004), currently sits alongside the proposition that it is effective whatever the policy regime (Tarp and Hansen, 2001) and the proposition that, under proper estimation methods, effectiveness cannot be established (Gonzalez et al. 2004) or may even be negative for long-term institutional development (Braeutigam et al. 2004). Arguments for and against conditionality consequently continue to abound, and within the 'for' camp there are sub-debates about the right instrument(s) to use. Aid donors, NGOs and policy makers, all of them wondering what is the right way if any to use overseas aid as an instrument of development, have the right to feel confused.

The argument of this paper is that while most aid is indeed, on balance, effective, its effectiveness is conditioned by factors other than the components of 'good policy' emphasised by Dollar and Burnside. Specifically, we argue, two dimensions of aid flows, other than size and policy environment, matter for aid effectiveness: *stability* and *inter-sectoral distribution.* On the first point, whether or not an aid flow is sustained and perceived as sustainable has, on standard permanent-income arguments, an important bearing on whether it has a long-term ability to influence expenditure patterns. On the second point, various dimensions of inter-sectoral distribution are relevant, but in this paper we focus on the role of agriculture, because, we argue, the agricultural sector of a developing country has a unique ability to generate poverty reduction, partly because small farmers, at least, often have low incomes, but also because of the sector's labour-intensity, its ability to reduce the prices of goods consumed by the poor, and its ability to stimulate linkages to the non-farm sector. Both these characteristics of the aid flow, stability and inter-sectoral distribution, are heavily influenced by the country's political structure.

We support this argument by means of two different methodologies. In Section 2, we use a regression approach, arguing that institutional quality as well as the two variables mentioned above has an important bearing on aid effectiveness. By contrast, in section 3, we offer four case studies, all from Africa where aid dependence is generally highest, examining two ' positive outliers', Ethiopia and Uganda, where aid effectiveness has been impressively high, and two, Zimbabwe and Malawi, where it has been depressingly low. Section 4 presents the conclusions for policy.

2.*General approach and regression tests*

It is now conventional to distinguish the effect of aid (A) on poverty (P) as operating partly in a direct manner through growth (Y) and partly through its effects on policy and institutions, which for the moment we summarise in a vector α:

$$\frac{dP}{dA} = \frac{\partial P}{\partial Y}\left[\frac{\partial Y}{\partial A} + \frac{\partial Y}{\partial \alpha}\frac{\partial \alpha}{\partial A}\right] + \frac{\partial P}{\partial \alpha}\frac{\partial \alpha}{\partial A} \qquad (1)$$

The dominant controversy in the aid-effectiveness literature at present is whether the 'policy and institutions' vector α matters, and if so what should go into it . Dollar and Burnside (2000) have put forward the 'Washington consensus' view that the α-vector should consist of mainly macro-variables (budget deficit and inflation) plus economic openness; Collier and Dollar (2002) add to this shortlist the large range of variables (related to governance, etc.) contained in the World Bank's Country Policy and Institutional Assessment (CPIA) index.

Our own approach is different. Firstly, we argue that neither the gross *amount* of aid allocations (A) nor the policy vector α is the only parameter which matters from the point of view of bringing about sustainable shifts of resource allocation from less to more productive uses, and thence to growth and poverty reduction, but also the *stability* of aid flows. This can be seen partly in commonsense terms: aid flows which are initiated one year and then broken off the next, whatever their average monetary value, have a tangible negative consequence in terms of half-completed roads which go nowhere, school buildings without teachers, agricultural extension services with no credit or seed supplies to support them, and ideas which have no time or opportunity to take root, the productivity costs of which are obvious[1]. Secondly, however, instability of aid disbursements has a cost in terms of the credibility of subsequent commitments, and thus the allocation of resources. Commitments of aid from a donor which has a track record of breaking off aid flows (either because of taking a hard line on conditionality, or for any other reason) will not generate trust: rather, they will by a rational aid recipient not be treated as 'permanent income' and for that very reason unlikely to be convertible into a long-term increase in expected physical or human capital investment, and hence be switched into non-productive expenditure which strengthens the political support base. Thirdly, instability of the disbursements of one donor damages social capital of a different sort, between members of

[1] Some of the processes by which aid by the Rockefeller Foundation and others to the agricultural sector of India scored over aid to Africa between the 1960s and the 1980s through being more stable are eloquently illustrated by Lele and Goldsmith:

'We have noted the foundation's determination to make a long-term commitment to its India Agriculture Program. This is unlike the very unstable aid commitments to Africa associated with the changing political importance of individual recipient countries to aid givers. The USAID's staff in Kenya and Tanzania, for instance, fell sharply (by 53% and 22% respectively) during the presidencies of Richard Nixon and Gerald Ford, only to rise again (by 65% and 43%) under President Jimmy Carter… Rockefeller advisers were permitted to work on India programmes for extended terms of duty… which helped with the task of creating a constituency of supporters within the cadres of the Indian government concerned with agricultural research. [In addition, these long –term tours of duty had the result that] advice tended to be more consistent over time and among individuals than is generally the case in Africa, where different donors offer mutually contradictory recommendations and procedures.

Another factor that makes it more difficult for contemporary African countries to benefit from agricultural research to the degree that India did a quarter-century ago is that they are experiencing a much greater turnover of research staff. For example, 51% of researchers in Kenya had been on the job less than two years. Only 9% had more than 10 years' experience… In the case of expatriate personnel, official bilateral donor agencies in Africa do not encourage their technical assistance staff to take up long-term residence in individual countries.'(Lele and Goldsmith 1989: 317, 331-332.)

the donor community, since the failure of one donor, either official or NGO, to provide its promised contribution to a joint effort destroys possibilities for coordination in support of 'productive' public expenditure programmes. Fourth and last, failure to sustain aid flows weakens the political base of support for such expenditure, and thereby threatens the stability of public expenditure which, as we shall argue below, is also negative for growth and poverty reduction possibilities. For these reasons, we argue that stability of aid matters, and indeed that aid flows which are small but stable may be worth more than aid flows which have a large average value but which are often broken off[2].

Secondly, we argue that an important determinant of poverty impact missing from (1) is the *sectoral incidence* of aid expenditure, on the grounds that growth processes in different parts of the economy have radically different capacities for reducing poverty ('poverty elasticities'). For example, very poor people in every country typically depend on unskilled casual labour for their subsistence, and hence the promotion of sectors which have a high propensity to take on such labour is always an important element in any anti-poverty strategy, as argued eloquently by the World Bank's first *World Development Report* on poverty (World Bank 1990). More broadly, sectors which are labour-intensive, which contain a high proportion of self-employed low-income persons, which supply goods which are salient in the consumption of the poor, and whose input demands have the ability to stimulate sectors which are pro-poor in the above sense, will themselves be pro-poor, and aid will be pro-poor if it falls on these sectors. By the same token, if aid falls on sectors which are capital-intensive and which produce goods which are insignificant in poor people's consumption, its ability to reduce poverty is small.

Historically, one sector above all others has had the ability to stimulate pro-poor growth processes, especially in East and parts of South Asia (China, Indonesia, Thailand, Philippines, Bangladesh, northwest India), and this is smallholder agriculture. Although the early literature on the Asian green revolution was sceptical (Freebairn 1995), because the first uptake of hybrid wheat and rice was by larger, less risk-averse farmers, it is now overwhelmingly acknowledged that its impact on poverty has been positive, and indeed that it accounts for a large share of the extraordinary reduction in poverty that has characterised these countries over the last thirty years. This is above all for four reasons: first its *labour-intensity*, in other words it is intensive in the only factor which most poor people are able to sell; secondly its ability to promote *linkages to the rural non-farm sector*, which is also labour-intensive and therefore by the same logic poverty-reducing; thirdly its ability to reduce the cost of goods which poor people consume, ie basic foods; and fourthly its *direct impact on self-employed producers*, the fact that some small farmers are themselves below the poverty line. In recent years a substantial set of contributions from the 'Imperial school' (Dorward et al. 2002, 2004; Irz et al. 2001; Thirtle et al.2001) has examined and conditionally supported the proposition that agriculture may in general terms may be treated as an instrument of pro-poor growth, and specifically that it may be

[2] There is an analogy between this story and the suggestion by Rodrik (1990) that a consistent stance of policy yields more, in terms of macro-economic performance, than depth of reform (expand?)

capable, in the very different environment of twenty-first century Africa, of bringing about the kind of pro-poor transformation that occurred in Asia between the 1960s and the 1990s. Such a process, should it occur, will inescapably involve aid donors for better or worse, since they still finance a very significant component of the infrastructure, agricultural extension services, schools and health services on the African continent – in other words, most of the development expenditure and a large part of the recurrent expenditure.

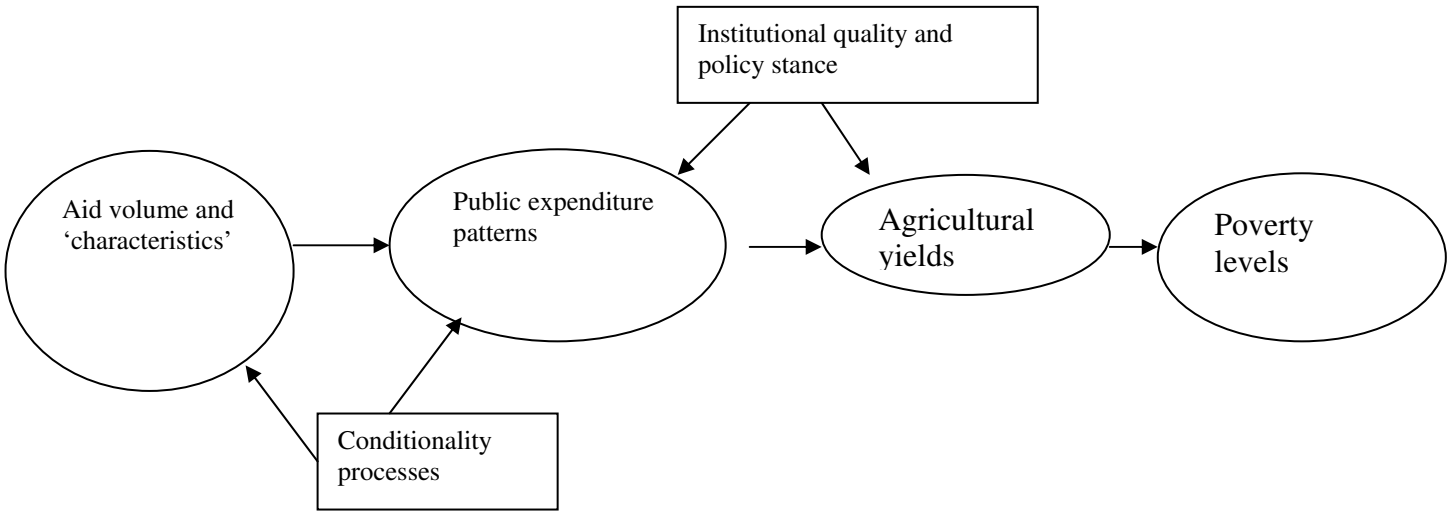
The intention in this paper, therefore, is to factor these two fundamental hypotheses – that the stability of aid flows is crucial, and that their sectoral incidence is important too – into the analysis of aid-effectiveness[3]. Formally, this requires us to modify the basic 'aid-effectiveness identity' (1) to incorporate these factors:

$$\frac{dP}{dA} = \frac{\partial P}{\partial Y}\left[\frac{\partial Y}{\partial A} + \frac{\partial Y}{\partial \alpha}\frac{\partial \alpha}{\partial A}\right] + \frac{\partial P}{\partial \alpha}\frac{\partial \alpha}{\partial A} + \frac{\partial P}{\partial \varphi}\frac{\partial \varphi}{\partial A} + \frac{\partial P}{\partial \sigma}\frac{\partial \sigma}{\partial A} \quad (2)$$

The first two terms incorporate effects of aid through growth and through policy, as before; the third term embodies effects operating through the sectoral mix φ (the share of pro-poor sectors in GNP) and the final term takes in the effects of instability in aid levels, captured by the coefficient of variation of aid flows σ.

For estimating purposes, we also need to observe each of the links in the chain-of-causation black box by which aid influences poverty: from aid, to expenditure, to yields, to indicators of poverty. These linkages are set out in figure 1.

Figure 1. Overall model structure



[3] We here assume for simplicity that the impact of instability, σ, and the distribution of expenditure, φ, fall purely on the numbers of people in poverty and not directly on income, Y.

Taking note of these linkages requires us to convert (2) into a system of estimating equations in which each of the four variables in Figure 1 appears as a dependent variable.

(3a) *Aid:* $A = \text{constant} + \beta_1 P + \text{miscellaneous instrumental variables}$

Aid (A) is endogenous, being driven inter al. by the level of poverty (P).

(3b) *The public expenditure mix:*

$\varphi_1 = \text{constant} + \beta_2\, \sigma(A) + \beta_3\, A + \beta_4 \alpha + \text{country/time fixed effects}$

The share of public expenditure allocated to pro-poor sectors φ depends on aid instability (σ) , the level of aid (A) and the stance of policy α. The extent to which aid is able to induce a shift in the public expenditure pattern (β_3) will depend on the effectiveness of donors' conditionality.

(3c) *Agricultural yields:*

$$\frac{Y_a}{L_a} = \text{constant} + \beta_5 \varphi_2 + \beta_6\, \sigma(\varphi_2) + \beta_7 \left[\frac{L_a}{N_a}\right]$$

For reasons indicated earlier, we pick on agriculture as a sector, expenditure on which is particularly likely to be pro-poor. Within this sector, yields per unit of labour (Y_a/L_a) are determined by the share of expenditure allocated to agriculture-supportive sectors (φ_2), the variance of this expenditure share σ (φ_2), population pressure in agriculture (L_a/N_a), and once again by the overall stance of policy (α).

(3d) *Poverty levels:*

$P = \text{constant} + \beta_8 (Y_a/L_a)$

Poverty varies (negatively, we expect) with the level of smallholder agricultural productivity.

There are a number of simultaneities in this system, observable in Figure 1 and much noted by previous writers on aid (for example influences of poverty on aid allocation and of aid on institutional quality): hence in Table 1 below we estimate the system of equations (3) by three-stage least squares methods. The sample for our estimations, which are set out in Table 1, is a set of annual observations for 39 developing and transitional economies between 1980 and 2002.

Table 1. Aid-expenditure-yields-poverty links: regression analysis
Simultaneous 3SLS panel-data estimation over period 1980-2002.

	Dependent variable			
	Aid (% of GNP)	'Pro-agricultural' share of expenditure(1)	Growth of foodcrop yields	Poverty indices (2)

		Agr	E+I	Mil		PovHC	InfMor
Regression coefficients on independent variables:							
Equation	1	2			3	4	
Constant	44.35** (4.72)	14.63* (2.07)	4.23 0.69)	34.3** (4.16)	21.15** (3.92)	-62.2 (1.82)	-91.3 (1.56)
Macro variables							
Growth of GDP per cap (one period lag)			0.0013 (0.59)	0.0025 (0.82)	-0.002 (1.19)0	-0.008 (0.011)	0.0009 (0.05)
Ln(Instability of government expenditure)		-0.21** (4.40)	-0.13** (3.25)	-0.105 (1.86)	0.036 (0.90)	0.49 (2.11)	1.11 (0.40)
Ln (government expenditure, lagged one period)		-0.027 (0.53)	-0.17** (3.81)	-0.097 (1.59)	-0.039 (0.92)	-0.35 (1.43)	-0.28 (0.68)
Growth of government expenditure(lagged one period)		-0.0038 (1.46)	0.0009 (0.61)	-0.002 (1.32)	0.0011 (0.95)	0.002 (0.34)	0.01 (0.87)
Ln (economic instability variable)	0.0006 (1.17)	0.0001 (0.30)	-0.0003 (0.74)	0.00004 (0.09)	0.0001 (0.35)	-0.0008 (0.45)	0.002 (0.83)
Expenditure shares Share of agricultural in total expenditures (ln ('agricultural share'))					0.055 (1.62)	-0.022 (0.11)	-0.71 (2.08)
Ln (Growth of agricultural share)					0.0018** (3.96)	-0.009** (3.43)	-0.0008 (0.18)
Instability coefficient (C of V) of agricultural share					-0.1268** (3.99)	0.34* (2.05)	0.003 (0.01)
Share of education and infrastructure in total exp-enditure ('edinfrashare')					-0.020 (0.46)	-0.27 (1.93)	-0.44 (1.00)
Growth of edinfrashare					0.002** (4.95)	0.0028 (0.92)	-0.009 (1.93)
Ln(educational expenditure, primary level)					0.010* (2.13)	-0.073* (2.42)	-0.13** (2.56)
Share of military expenditure in GDP		-0.12* (3.69)	-0.0007 (0.03)		-0.081** (3.16)		
Growth of military share		-0.0019* (3.92)	-0.002** (5.39)		-0.0023** (5.32)		
Aid ratios Aid as % GDP,lagged two periods)	0.86** (43.6)	0.037* (2.13)	0.052** (3.47)	0.095** (5.36)	0.063** (4.14)	0.065 (0.73)	0.53** (3.42)
Growth of aid/GNP ratio		7.42E-06 (0.30)	-0.00002 (0.32)	0.00004 (1.76)	-9.3E-08 (0.00)	0.00009 (0.92)	0.0002 (1.52)
Aid to Africa		-0.019 (0.59)	0.19** (6.65)	-0.17** (4.39)	0.089** (3.16)	0.17 (1.00)	
Instability(coefficient of variation) of aid/GNP ratio		-0.24** (5.42)	-0.24** (6.32)	-0.13** (2.61)	-0.37** (10.52)	-0.023 (1.09)	0.44 (1.23)
Agricultural economy							
Ln (agricultural productivity per hectare (foodcrops))						-0.85** (2.66)	-0.79 (1.52)
Ln (Food production per capita)						-0.22* (2.42)	-0.70** (2.57)

Ln (nonfood agricultural production per capita)						-0.032 (0.53)	0.038 (0.37)
Ln (total agricultural production index per capita)						-0.75 (1.86)	-1.09** (3.94)
Ln(Rural population density)					0.097** (8.37)	0.52** (2.85)	0.14 (0.45)
Ln(total rural population)						-0.012 (0.60)	-0.032 (0.89)
Ln(fertiliser/hectare)					0.31** (16.35)		
Ln(irrigation/hectare)					4.34** (10.98)		
Ln (fertiliser*irrigation/hectare)					-0.056** (6.39)		
Ln(rural population, non-agricultural)						-0.024 (0.78)	-0.06 (0.40)
Dummies and fixed effects Regional dummy 1, Asia	0.15 (1.75***)***	-0.080 (0.076)	-0.11 (1.76)	0.072 (0.81)	0.022 (0.35)	0.29 (0.79)	0.18 (0.29)
Regional dummy 2, Latin America	-0.008 (0.11)	-0.76* (10.22)	-0.23** (3.53)	-0.032 (0.38)	-0.24** (3.11)	0.77 (1.83)	1.19 (1.63)
Regional dummy 3, Africa	0.23** (3.19)	-0.16** (1.59)	-0.54** (6.33)	0.051 (0.47)	-0.50** (5.05)	0.72 (1.29)	1.77 (1.82)
Country size (ln(population))	-0.089** (3.91)						
Country fixed effects	0.001 (0.55)	0.004** (2.72)	-0.003** (2.75)	0.0044* (2.30)	0.002 (1.50)	-0.001 (0.12)	-0.020 (1.54)
Year (since 1980) fixed effects	-0.021** (4.53)	-0.005 (1.67)	0.0003 (0.003)	-0.015** (3.74)	0.0026 (1.39)	0.027 (1.55)	0.041 (0.03)
Ln(Gini coefficient of inequality)						0.24** (4.31)	0.03 (0.32)
Ln (Infant mortality, lagged one period)	0.014 (1.72)						
Sachs-Warner openness measure	-0.073 (1.91)	-0.089** (4.49)	-0.025 (0.017)	-0.039 (1.44)	0.066 (1.49)	0.022 (0.22)	0.31 (1.69)
P	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R^2	0.8769	0.4222	0.2851	0.1402	0.7400	0.1137	0.1147
Number of observations	614	614	614	614	614	614	614

Sources: Aid data from OECD, *Geographical Distribution of Financial Flows to Less Developed Countries.* Agricultural data from FAO *Production Yearbooks.*
Notes: (1) Agr= agricultural expenditure, E+I = educational and infrastructural expenditure, Mil = military expenditure
(2) PovHC = poverty headcount (%) below $1/day poverty line, InfMor = infant mortality rate (per 1000 live births)

Country sample: Bangladesh, Bolivia, Botswana, Brazil, Bulgaria, China, Colombia, Costa Rica, Cote d'Ivoire, Czech Republic, Dominican Republic, Ecuador, Ethiopia, Ghana, Guatemala, Hungary, India, Indonesia, Jordan, Kenya, Kyrgyz Rep., Lesotho, Madagascar, Malaysia, Mexico, Morocco, Nicaragua, Nigeria, Pakistan, Peru, Philippines, Poland, Romania, Senegal, Tanzania, Thailand, Tunisia, Uganda, Zambia, Zimbabwe. Maximum of 22 observations on each country over the period 1980-2002.

Various preliminary conclusions emerge from Table 1, working back up the chain of causation from the right-hand end of the table, that is to say from poverty to its causes:

First, as noted by Irz, Thirtle et al. (equation 4) total agricultural productivity (both in the sense of output per unit of land and of labour) has a significant negative influence on indices of poverty, especially on the infant mortality definition. The headcount poverty indicator is (as predicted by Dorward et al.)[4], more responsive to yields and production of foodcrops than non-food crops, even though labour-intensity – one of the correlates of poverty reduction - is highest of all for some non-cereal crops, notably horticulture. The crop-mix is further considered in the next section of the paper. The instability of total government expenditure and its agricultural component have a direct negative bearing on poverty.

Second, (equation 3), agricultural productivity – we focus on foodcrops in view of their higher poverty leverage - is significantly influenced by various categories of expenditure – in particular educational and infrastructural (in a positive sense) and military expenditure (in a negative sense),and negatively influenced by instability of government expenditure, allowing for country and year fixed effects and holding constant known 'classic' long-period influences on agricultural yields such as population density. If aid can influence these variables, it is therefore reasonable to expect it to be able to influence poverty; and it also has a significant direct impact on foodcrop yields (row 15 of the table) . As we shall illustrate in the case-study analysis of Section 3, both stability and the intersectoral distribution of expenditure are heavily driven by political variables, and specifically by fiscal strength and by the sense of danger associated with food insecurity. Relevantly for proponents of the so-called 'Washington consensus on agriculture' (Binswanger and Townsend 2000), the Sachs-Warner openness variable is insignificant.

Third (equation 2), aid does positively influence both of the types of expenditure -directly in support of agriculture and on education and infrastructure – which, from the previous equation, are beneficial for agricultural yields and thus pro-poor. Instability of aid is a negative influence on these types of expenditure and their effectiveness, for reasons discussed earlier. Military expenditure and, interestingly, a high Sachs-Warner coefficient of openness are negative for levels of agricultural support expenditure[5]: it is possible to observe cases, notably that of Ethiopia described in more detail in the next section, and less dramatically Uganda, Cambodia and Mozambique, where the conversion of swords into ploughshares had a clear and visible poverty dividend.

[4] 'Intensive cereal-based countries' agricultural growth has in the past provided the greatest potential for sustained pro-poor agricultural growth'(2002:16),

[4] We suggest that this is because, in countries which were open to effective pressure from the Washington institutions, governments were forced to cut total real public expenditure and in such cases the axe tended to fall on the politically weakest sectors, of which agriculture was almost invariably one (Mosley and Smith 1989)

Finally (equation 1), aid flows are responsive to country poverty levels. This is now a common and completely orthodox result, but it does influence the manner in which aid impact is modelled.

The econometric evidence thus provides useful initial confirmation of our story that expenditure allocation within recipient countries and aid instability are important correlates of aid effectiveness against poverty, which implies that if aid donors can get a handle on these variables they may be able to influence poverty as well. Is this a feasible hope? We can expect that it will be only if donors are able to exercise influence on recipient expenditure patterns, rapid and sustained growth of agricultural productivity can be achieved in the poorer countries, and most important of all, the internal political support required to achieve high and stable levels of pro-agricultural expenditure, which was so important in India, Indonesia and China, can be replicated in Africa. The degree of political impetus behind agricultural support expenditure is, as we saw earlier, argued by Lele and Goldsmith (1989:335) to be one of the key differences between North India during its green revolution and 'Africa today'; but Africa is changing, and one of the key developments of the nineties has been the emergence of pro-poor African governments with their own pro-agriculture philosophy. What are the chances of this philosophy being disseminated, and consequently impacting on yields and poverty?

In the next section we focus on Africa, which is the most aid-dependent region of the world, and examine these questions in relation to two matched pairs of countries. In the first two of these countries, Uganda and Ethiopia, agricultural productivity has shown a sustained increase and poverty has fallen (Table 2); in the other two, Zimbabwe and Malawi, productivity has faltered and poverty trends vary, according to the source examined, from unpromising to catastrophic. What can be learned from this contrast which will provide enlightenment concerning patterns of causation and, as a consequence, lessons for aid donors and other policy-makers?

3. Pathways of impact: case studies

We can begin by examining the impact, in our case-study countries, of the variables which emerged as significant influences on poverty in the econometric analysis of Section 2: the composition and stability of public expenditure, and the influence on these of aid policy. We are particularly interested in equation (2) of the econometric analysis, that which goes from the politically-determined allocation of expenditures between sectors to agricultural productivity. The approach taken here is that the impact of public expenditures on poverty depends on their ability to protect the poor against risk. It is a commonplace that risk is an important barrier to escape from poverty, and may form part of a vicious circle in which vulnerability precludes innovation and change in life-patterns, which preserves poverty, which precludes innovation. The essay by Wood (2003) embodies this approach in the idea of a 'Faustian bargain': the poor deliberately choose to stay poor in order to avoid embracing risks which they feel they cannot handle, and in consequence find themselves caught in a long-term chronic

poverty trap. We have already argued that aid strategies may be able to spring this trap at macro- level by means of a more stable and more pro-poor focussed pattern of expenditure, and now examine how this can also be done at micro-level.

In Figure 5, we consider the process by which low-income rural people may escape from poverty by acquiring assets such as new seeds, fertilisers and other productivity-raising equipment. These assets are depicted on the vertical axis.

The right-hand part of Figure 5 is a conventional isoquant diagram: it shows the optimal agricultural technology shifting from a low-input optimum (such as A) to a high-input optimum (such as B) as the price line steepens under the impetus of population pressure and land shortage. These pressures may, according to the argument of Hayami and Ruttan(1970) stimulate both technical and institutional innovation. The process may be artificially accelerated by policies which make land more expensive or capital cheaper – such as capital subsidies, or any of the 'expenditures in support of agriculture' discussed in the econometric analysis of table 1 above. One major difficulty which we have observed with these policies is that they may be fiscally unsustainable, as they have proved to be in many countries under structural adjustment, and specifically in the countries indicated. Once abandoned, it may be difficult to effectively reinstate such policies, as they may be perceived from past experience as transient and 'non-credible'.

There is a more fundamental difficulty with relying on such policies alone to force agricultural development, which is the difficulty described by Wood and others. This is that low-income farmers, indeed low-income people of any description, may be reluctant to adopt capital assets whose acquisition involves an unacceptable degree of risk – they make the 'Faustian decision' to stay poor to avoid risk. This problem is represented as a constraint on choice in the left-hand half of Figure 5. We imagine that individuals are motivated so as at all costs to prevent the value of their assets falling below a specific 'disaster' level, indicated as D on Figure 5. To prevent this happening, they behave so that the probability of a 'disaster' level of assets is set below a less than a specified precautionary level, which in the illustration given, is 1%. A line drawn two standard deviations away from the vertical axis satisfies the condition that Y-2SD(Y) = D, in other words that the probability of disaster is 1% or less. The line satisfying this condition is drawn as a *boundary-line* in the left-hand half of Figure 5, which defines the boundary between a safe zone (to the east of the line DE) within which there is a less than 1% probability of disaster and a risky zone (to the west of the line DE) within which there is a higher than 1% probability of disaster. Thus individuals optimise their position so as to stay within this boundary-line: formally, they position themselves so that their risk-yield trade-off (the set of technical possibilities available to them) touches but does not cross the boundary of the safe zone. If this risk-constrained optimum (say at C) is associated with a lower level of assets than that implied by a risk-ignoring optimum such as B, then that is binding on them and forms a constraint on their acquisition of assets. This is the nature of the 'Faustian bargain' and it may be a real poverty trap eg. households are deterred by lack of asset protection from investing in water-harvesting methods which might protect them against drought even though they have

experienced its ravages, and so they do not, and so when a drought comes along, as in Malawi or Zimbabwe in 2002, they are defenceless.

The empirical argument of this paper has, however, indicated a possible exit from the trap. This is to devise a combination of technical and fiscal strategies such that it becomes possible to increase productivity without increasing risk (such as 'strategy 2' on figure 5). Such strategies may be seen as potential ladders out of poverty. Illustrations of such strategies include large-scale public investment in water-harvesting and other minor irrigation methods in semi-arid areas, as in Ethiopia during the 1990s; development of short-season hybrids and composites which raise the expectation of yield and at the same time improve the 'worst-case yield' under deficient rainfall; and maintenance of credit and extension services which the farmer can rely on year after year- rather than commit herself to a new technology which requires continuing advice and moral support and discover one day that the extension service is not there, as occurred all over Africa during the years of structural. The role of aid in this context, which we have illustrated in relation to Uganda and Ethiopia, is to provide stable support for expenditures which make the provision of these inputs possible. Aid which becomes more stable or focuses the budget more effectively on pro-agriculture expenditures increases the likelihood that farmers can climb 'ladder 2' out of the poverty trap, both by giving them the confidence that their adoption of productivity-raising inputs will not take them across the risk frontier and by giving them the expectation that the personal relationships which underpin their acquisition of these inputs can be trusted and will continue. This is the fundamental driving force, we believe,behind the measured effectiveness of pro-agricultural expenditure against poverty in Table 1. We now demonstrate this principle in relation to the four case-study countries.

At the macro-level, as illustrated by Table 2 below, expenditure in the 'poverty priority' sectors identified in Table 1 (agricultural research and extension, infrastructure, and education) has been on a rapid growth trend as a share of total expenditure in the 'sustained green revolution' countries, whereas it has been falling in the other two[6]; and it has been relatively stable in Uganda and Ethiopia, and severely unstable in Zimbabwe. In Malawi, where we have IMF data only for the 1980s, there is some appearance of stability during that period but during the 1990s there are wild swings in several components of public spending crucial to smallholder productivity, including agricultural credit, the smallholder subsidy (which was finally abolished in 1994 after many years of struggle with World Bank negotiators) and expenditures on the salaries and running costs of the extension service. These components of agricultural support expenditure are then graphed for each country on Figures 3a and 3b, to enable the time-series pattern of government inputs and agricultural yields for the case-study countries to be inspected.

[6] In the 1990s in Zimbabwe 'real government spending on extension declined considerably' (Poulton et al 2002:7)

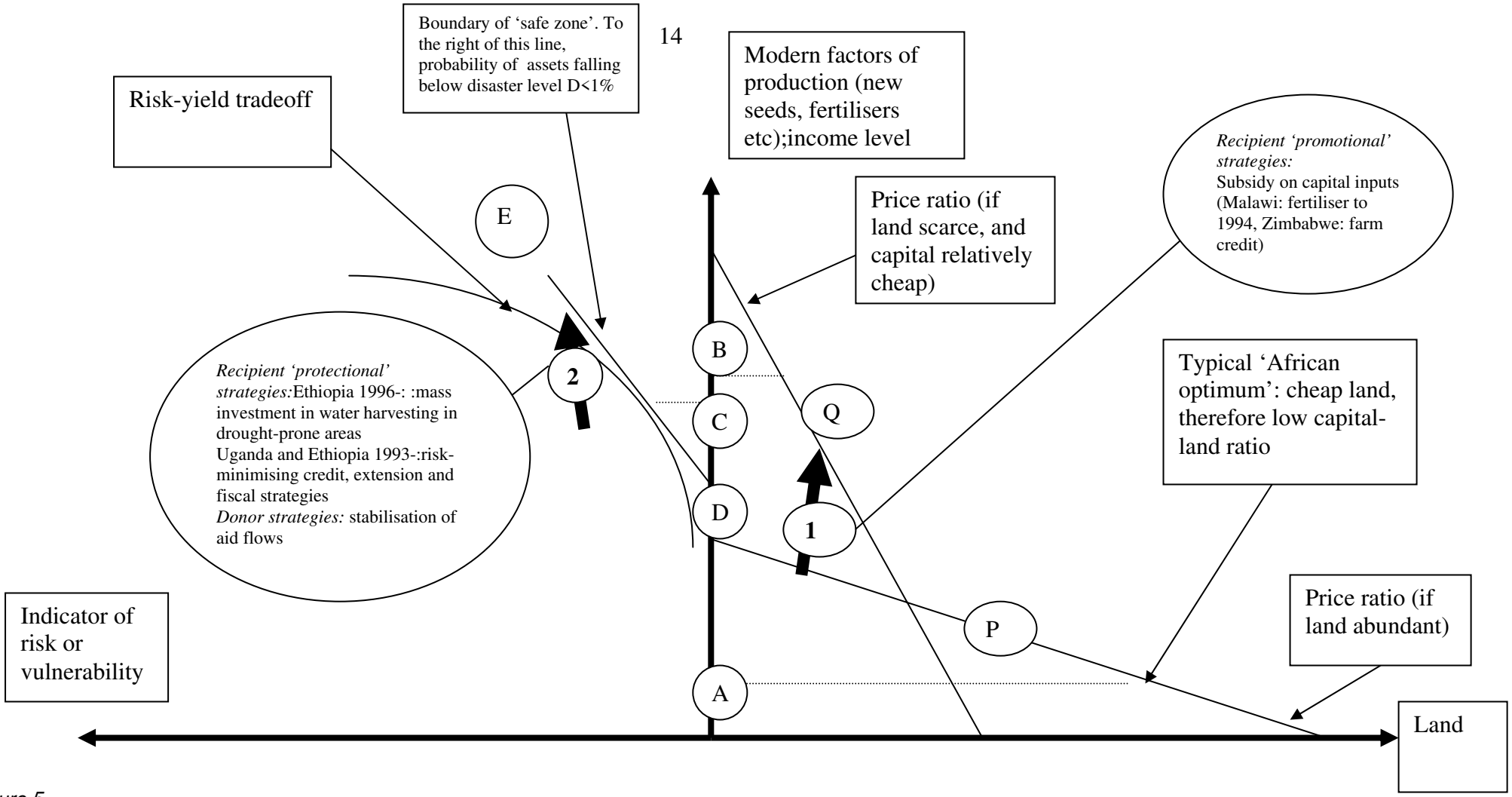


Figure 5

Agricultural development, institutional quality and the potential role of the state, as seen by the farm household

Possible roles for policy- induced innovation:

1: capital subsidy ('promotional' adjustment): reduce relative price of capital from P to Q (optimum assets under certainty shift from A to B).

2: risk reduction ('protectional' adjustment): provide institutions or technologies which shift the risk-income tradeoff upwards (optimum assets shift from C to a point above C) .

Note that the constraint is defined such that the probability of a 'disaster' level of assets is required to be less than a specified precautionary level. In the illustration given, the specified precautionary level is 1% (prob assets <D =1% minimum), ie the constraint is drawn such that Y-2SD(Y) = D. The region inside the constraint is a safe region within which the probability of disaster is reduced to acceptable levels as above defined.

Table 2. 'Sustained' versus 'stalled' green revolution countries: contrasts in aid flows and policy stance[7]

Unless otherwise specified data relate to the sample period 1980-2003, or closest available data.

	(1)Aid policy parameters		*(2)Expenditure allocation*		*(3)Agricultural yields*		*(4)Poverty trend*	
Country cases *(Donor-recipient distrust score in brackets)(4)*	Aid as % GNP average 1980-2001	Aid stability (C of V) 1990-2003	Pro-agriculture spending (ag + ed+ infra) Average 1980-2002(3)	Instability index (coefficient of variation) of total pro-agriculture spending Average 1980-2002	Average cereal yields (kg/ha) 2001-3	Trend 1981-83 to 2001-03	**Headcount** (national poverty line)	**Infant mortality (1980-98)**
Sustained green revolution:high political commitment								
Ethiopia(1)	12.1	30.0	37.7	26.9	1292	+7	**Fall from 51%(1992) (1)to 44%(2000)**	**-31%**
Uganda(0)	11.0	24.6	43.0	26.7	1651	+14	**Fall from 50% (in 1992) to 32% (2000)**	-13%
Average, sustained green revolution cases	**11.6**	**27.3**	**40.4**	**26.8**	**1471**	**+11**	Sustained improvement	**-22%**
Political commitment lapsed: green revolution initiated but aborted								
Zimbabwe(6)	4.6	51.5	32.1	44.3	763	-44	**Increase from 25%(1990) to 35%(1996). By 2002 'more than 60%'(4)**	-9%
Malawi(3)	22.1	25.3	37.2(3)	14.5(3)	1116	-4	**Increase from 54%(1990) to 65%(1998)**	-21%
Average, abortive green revolution cases	**13.4**	**38.4**	**34.6**	**29.4**	**939**	**-24**	Sustained deterioration	**-15%**
Africa (south of the Sahara) Average	7.0	**..**	43.1	40.6	1245	+28	**Increase from 217m(1987) to 291m(1998) (as % of population, level at 46%) (2)**	-20%
Asia(developing) average	1.2	**..**	45.1	21.6	3251	+47	Decline from 891m(1987) to 800m(1998) (as % of population fell from 35% to 28%) (2)	-37%

[7] Sources: FAO Agrostat database for crop yields; World Bank *World Development Indicators 2003* and *World Development Indicators* for other data, plus additional sources as follows:

(1) Ethiopia poverty 1992 from Dercon(2003)
(2) Global poverty data: from World Bank, *World Development Report 2000,* table 1.1, using $1/day poverty line.
(3) Data on components of government expenditure from IMF, *Government Expenditure Statistics Yearbook* (IMF-GESY), various. For Malawi, IMF-GESY quotes data from 1980-89 only.
(4) The 'distrust score' is the number of times that IMF or World Bank budget support disbursements were interrupted over the period 1985-2003. See Mosley and Suleiman(2005), appendix.

Figure 3a. Zimbabwe and Malawi 1980-2003: Cereal yields and agricultural support expenditure

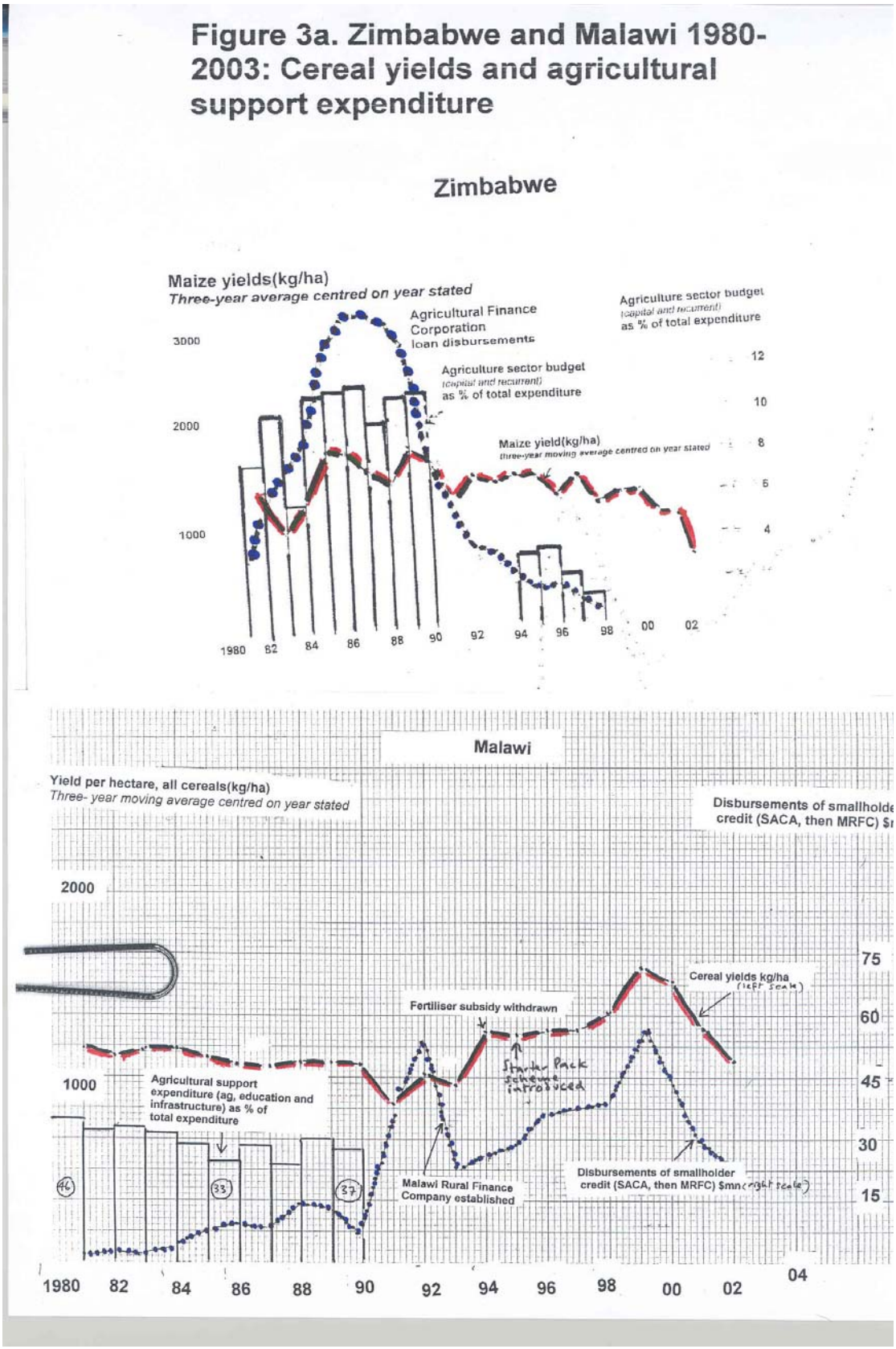
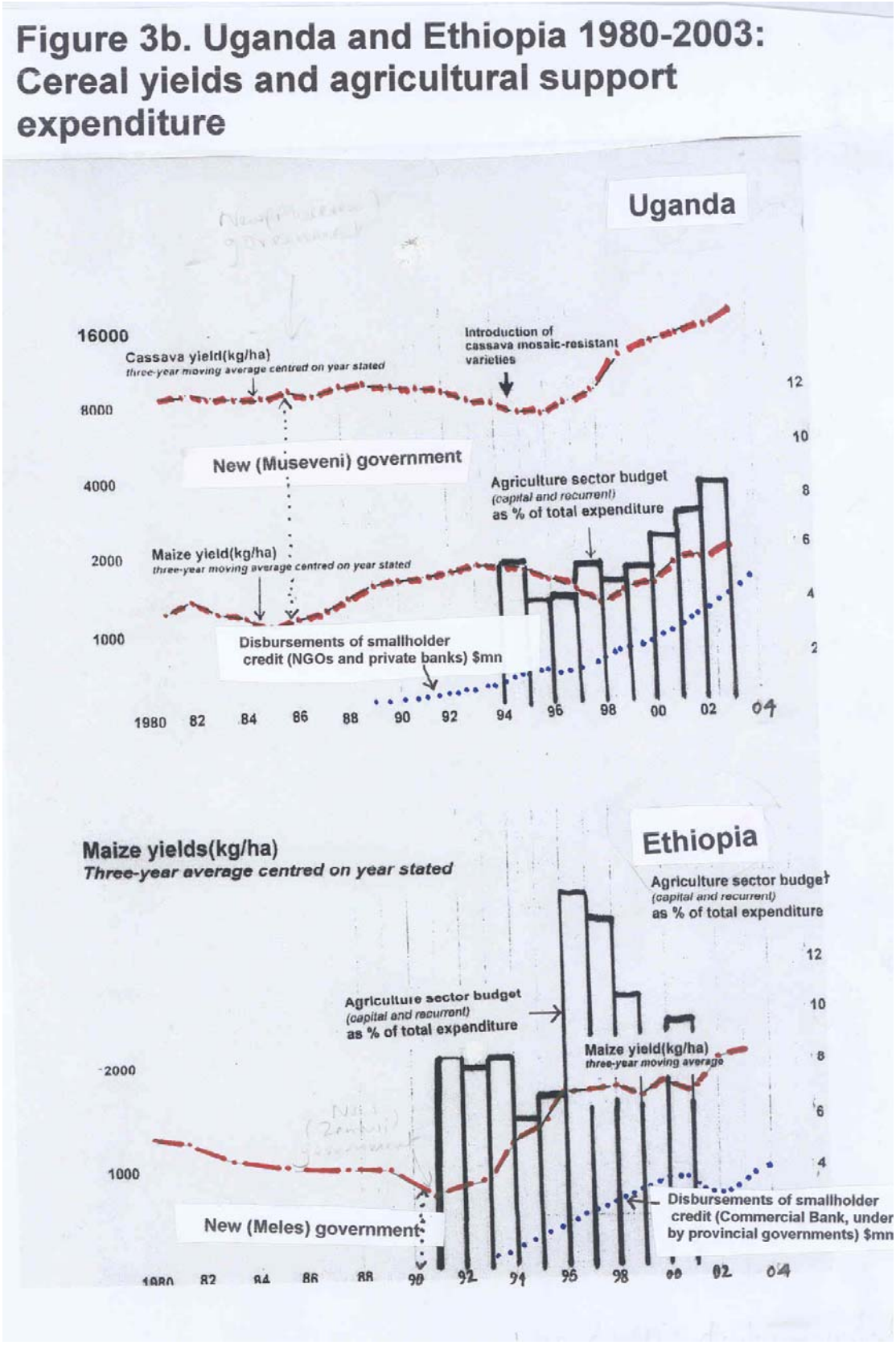


Figure 3b. Uganda and Ethiopia 1980-2003: Cereal yields and agricultural support expenditure



Thus, as in the cross-country analysis of Table 1, so amongst these case studies, we are able to provide support for the hypothesis that greater stability of aid and a more pro-agricultural pattern of expenditure were positive for aid's poverty impact. The case studies, however, also shed light on the

processes by which this impact occurred, which are deeply embedded in the politics of the recipient country. Three aspects of this linkage are sufficiently important that we can describe them, on the evidence of the case studies, as crucial for the sustaining of stable pro-poor expenditure patterns:

1 Policies which are.'protectional' of low income groups.

Our first main argument is that those African countries which have achieved sustainable growth visualised aid inflows as part of a long-term process which anticipated and insured against some of the likely risks, rather than a short-term injection of resources which was vulnerable to those risks: they rejected, in A.K. Sen's terminology, a 'promotional' approach[8] , in which factor prices are deliberately twisted in a pro-capital direction by subsidy in order to motivate an intensive use of land by smallholders (right-hand part of Figure 5), and favoured a 'protectional' approach , in which incentives to higher productivity are provided by reducing the risks to which vulnerable households are subjected (left-hand part of Figure 5). Firstly, *climatic* risks were controlled, especially in Ethiopia, through the pattern of investment., especially in rainfall-deficit areas(for example, the government of Tigray has been particularly proactive in the installation of earth dams, terraces and other defences against drought), and $250mn has been committed from the (central Ethiopian) government budget to water-harvesting in drought-vulnerable northern areas alone during the financial year 2003-4, a rainfall-deficit year in which one might have expected short-term priorities to predominate. This was also important for the long-term sustainability of modern varieties use and, thence, of yields: with irrigation available, the risk that drought would cause disaster or demotivate the use of improved varieties was considerably reduced, and with climatic shocks converting into smaller production shocks[9], the stability of the whole economy – and hence of government expenditure itself – was improved. Secondly, risks were mitigated at the level of *research and extension*. At the level of breeding, there was more emphasis in Uganda at least on the development of composite open-pollinated varieties (Longe 1-5) which have lower average yields than hybrids but can be resown from seed year after year, and therefore leave the farmer with lower set-up costs and fewer risks associated with dependence on the commercial input supply chain. And further downstream, extension staff had more drought-resistant planting materials available to them to promote and, on a subjective judgment, more awareness of the need to introduce risk analysis into the extension message[10]: as a consequence, the likelihood of Southern African farmers

[8] Arrow 1 in Figure 5.

[9] In 2002, when there was a rainfall shortfall of about 30% in much of southern Africa, crop yields fell in Malawi by 38% (from 1675 to 1045 kg/ha) and in Zimbabwe by 69% (from 1199 to 378 kg/ha). The following year there was a drought of more or less equivalent magnitude in Ethiopia, and yields fell by only 1% (from 1345 to 1334 kg/ha). We surmise that this is because the Ethiopian government had made the smallholder economy better prepared against climatic risk.

[10] Estimates of the proportion of the maize acreage sown to modern varieties are as follows:

	Sown to modern varieties(1997, national data)	% of modern varieties acreage sown to composites (2003, sample data)
Zimbabwe	70	23
South Africa	88	14(Sensako, Kalahari)

receiving a negative surprise from the use of modern varieties, specifically in drought years such as 1992 and 2002, was greater than in Uganda and Ethiopia, given the range of cultivars available. In Ethiopia, credit was linked in with the supply of extension, and thanks to very effective loan-recovery technologies very similar to those adopted by the Indonesian regional microfinance authorities,it proved possible to expand the supply of rural microcredit in a stable manner (Figure 3b), in strong contrast to the experience of Malawi and Zimbabwe[11]. The poverty focus agreed with the aid donors also entailed strong proactive measures by extension staffs to offset previous biases against women farmers, and in Uganda at least these appear to have borne fruit, in the sense that in a sample in Mbale district surveyed by the author, women farmers in partnership households, contrary to the normal African pattern, have higher average maize yields than male farmers (Mosley 2003; table 7.2). Finally, *fiscal* risks were controlled, in Uganda and Ethiopia, by avoiding large-scale deficit financing of credit and other development expenditures, - in this respect deviating from the model which had brought success in much of Asia[12]. In particular, and by explicit contrast with Malawi and Zimbabwe, subsidies on inputs including credit were avoided[13]; and yet (Figure 3 above) smallholder credit was able to grow steadily on this basis in Uganda and Ethiopia, whereas it nosedived in Zimbabwe (after 1987) and in Malawi (after 1994). There was, by contrast with Asian experience, very substantial delegation not only of smallholder credit but of agricultural extension and even applied research to NGOs such as the Sasakawa Foundation (Howard et al, 1999) The general approach, in other words, was protectional of the ministry of finance, as well as of the small farmer – in particular, the hands-off approach adopted by both governments helped to prevent the disappearance of much of the development budget into a black hole of defaulted agricultural debt, which as we have seen was a major factor behind the eventual crash of the Zimbabwe Agricultural Finance Corporation

Malawi	35	
Uganda	70	74
Ethiopia		Na

Source; column 1, CIMMYT, *Survey of maize research Impacts 1998:*column 2, survey data from agro-economic surveys carried out in 2002-03 in Phokoane(South Africa), Mbale(Uganda) and Zvishavane(Zimbabwe), details in Mosley and Rock (2002) and Mosley et al. (2003)

We also argue in P.Mosley, *Extension, farmer-decision making and the spread of the African green revolution,* Gatsby Occasional Paper 3, 2000, table 3.6, that the Ugandan extension style takes particular care to make farmers aware of the risks attached to particular extension recommendations.

[11] The scheme is operated by the state-financed Commercial Bank of Ethiopia but highly decentralised. Loan arrears are recovered from the provincial governments, which also operate the extension service and use the extension agents, as in Indonesia, to recover them from clients.

[12] In Uganda and Ethiopia ,the stance of agricultural policy (summarised in table 4 below), intriguingly, deviates much further from the successful' Asian policy model' than is the case in Malawi and Zimbabwe – in Ethiopia and Uganda there is no input subsidy and no state control of foodcrop marketing, and although the Ethiopian government does disburse smallholder credit, it has imposed tight financial discipline on these credits, in part by devolving many agricultural policy responsibilities to regional governments and getting them to act as guarantors, on the Indonesian model . As a consequence, credit flows to the smallholder sector have been sustained in Ethiopia and Uganda (figure 1) whereas they have collapsed in Zimbabwe and Malawi[12]. (and also, incidentally, smallholder South Africa, which also experienced an 'aborted green revolution' over the course of the 1990s) .

[13] The Malawi fertiliser subsidy was removed, chaotically, in 1994.

(AFC) and the Malawian Smallholder Agricultural Credit Authority (SACA) – and of their associated green revolutions. When those state agricultural credit institutions ran out of money there was no fiscal momentum in the private or NGO sector to take up the slack, with the result that small-farm yields fell.

As one might expect both from the character of protectional strategies and also from the relative factor endowments of the two countries' small-farm sectors, the results of these programmes in terms of productivity were relatively slow in appearing, with a focus in both Uganda and Ethiopia throughout the early 1990s on area expansion rather than the dramatic yield increases seen ephemerally in Mashonaland (northern, eastern and central Zimbabwe), north-central Malawi, and the South African homelands. But under the impetus of effective extension, yields did build up also in the late nineties, most spectacularly in Ugandan cassava, a classic drought-resistant 'protectional' crop, whose yields have doubled since 1996; but in Ethiopia also, foodcrop production grew, according to FAOSTAT data, by 69% between 1994 and 2003[14]. The sustainability of these successes, in poverty and conflict reduction as well as in agricultural growth, then bred a virtuous circle – including the reward of debt cancellation by donors under HIPC - and this helped to avert the 'fiscal turning-point' which brought down Malawi, Zimbabwe, and also, outside our sample, Kenya and even South Africa[15]. In Malawi, the risks facing peasant farmers were further increased by the dissolution of the state-financed ADMARC (Agricultural Development and Marketing Corporation) system which, for all its faults, had offered them a measure of protection against risks associated with the input supply chain (Harrigan 1995, Kydd and Dorward 2002) and in Zimbabwe, by the liberalisation and then reimposition in a harsher form of the Grain Marketing Board[16].The Ethiopian/Ugandan strategy was more sparing of scarce skills and investible resources, and therefore less vulnerable to being blown off course by political and climatic shocks, and therefore easier to keep on course – and again we have seen, in the previous section, the payoff to stability of policy.

2.Stable relations between aid donors and recipients. In Africa especially the fiscal stability of most countries is dependent on aid flows, and aid donors were crucial in enabling Uganda and Ethiopia to achieve the long-term 'protectional' strategies described above. We have observed, in table 1 above, columns 2 and 3 , a positive and significant correlation in our case-study countries between levels of aid, stability of aid, and levels of the pro-agriculture expenditures on which we focus (agricultural support, education, and infrastructure), just as there is a negative correlation between aid levels and military expenditure. In other words, contrary to the recent disclaimers of

[14] In the same publication the Government also claims that the number of farmers reached through the national extension programme rose from 32,000 to 2.8 million – that is to about 37% of the farming population – and that maize yields for this group of participating farmers rose from 1.2 tons per hectare in 1994/95 to 4.7 tons per hectare in 1999/2000.

[15] For the case of South Africa see Mosley and Suleiman(2004)

[16] As of late 2004 the GMB was confiscating private consignments of more than five bags of maize, sometimes without compensation (BBC 2004)

the World Bank (Collier 1999; World Bank 2000), 'conditionality works'[17], across this country sample at least. But this is not old-fashioned ultimatum conditionality, nor is there a homogeneous and mechanical response of expenditure patterns to aid donors and their advice. Rather, we argue (Mosley and Suleiman 2005) the conditionality process in some countries builds up *social capital,* or trust, between negotiators for the donor and recipient, and in some cases fails to do so, and the level of social capital then impacts on aid composition and stability. In Uganda and Ethiopia, policy dialogue from the late 1980s through the middle 1990s was tense, with the government of Uganda insisting on a measure of resistance to exchange-rate movements and on its right to impose coffee export taxes in 1994, and the government of Ethiopia insisting on continued government ownership of all land, in face of explicit donor opposition. However, this opposition was not expressed in the form of a threat: the recipients compromised by drafting a coherent , home-grown and poverty-focussed expenditure framework in the requisite idiom[18], and the donors compromised by sustained aid flows (the relatively lower coefficient of variation is observable in Table 3), with the consequence that these tensions melted somewhat, and trust between the parties was able to grow. This is what in Mosley, Hudson and Verschoor (2004) we describe as 'new conditionality': donor influence achieved through an implicit rather than an explicit bargaining game, with the recipients able and willing to make an opening bid within the context of a coherent anti-poverty framework. Contrast the cases of Malawi and Zimbabwe. In Malawi, the government did not have a consistent development philosophy to govern its negotiating stance, but became involved in an unstable agricultural- policy dialogue with donors whose instability was in large part the donors' fault (first resisting donor pressure to abolish fertiliser subsidies, for example, in the early 1980s, abolishing them in 1985, reintroducing them at a higher rate than before in 1987, receiving donor approval for their reintroduction in 1990, and finally abolishing them in 1994 after donor approval was rescinded)[19] ; but the end result of this instability was to destroy the structure of incentives to smallholder maize producers which the government had spent most of the 1980s and 90s trying to erect. In Zimbabwe, again, there was an unstable dialogue with donors, but more of the responsibility for the instabilities rests with the Zimbabwe government: the donors were embraced after independence in 1980, retreated from when they sought to impose structural adjustment in the mid-eighties, surrendered to in 1991-2, and finally and

[17] See also Mosley, Hudson and Verschoor (2004), table 3 and Figure 1 .

[18] The Permanent Secretary to the Uganda Ministry of Finance described the process as follows: 'In a way, our poverty strategy came about as a by-product of our structural adjustment programme. Last year [1993] we were asked by the donors to make serious proposals for retrenchment of public servants in order to make the requisite cuts in planned public expenditure. At the same time, we were asked to introduce an anti-poverty programme which went beyond the expedients then in force [ie, PAPSCA, the Programme (or social fund) for Alleviating the Social Costs of Adjustment] . So we proposed to exempt from cuts the sectors of public expenditure which had clear anti-poverty potential – primary health and education, rural water and infrastructure, agricultural research and extension. This list was intuitive – it was not based on research.' Emanuel Tumusime-Mutabile, interview with author and other members of ILO team, 3 November, 1994.Intuitive as the list may have been, it shows remarkably close correspondence with the 'pro-poor expenditure' which we have demonstrated to increase pro-poor effectiveness (Mosley, Hudson and Verschoor 2004, and Table 1 above)

[19] See Harrigan(2003) for a detailed account of these and other policy reversals (by government and donors) in Malawi.

brusquely rejected in 2000 as a by-product of the Mugabe government's policy of securing land for 'war veterans' and other government clients through land invasions.

What is significant for the present argument is that whereas in Uganda and Ethiopia an increasingly harmonious policy dialogue, rooted in a clear anti-poverty strategy, bred stability in aid flows and thence in public expenditure[20], which we have observed to be a key determinant of growth and poverty outcomes, so in Malawi and especially in Zimbabwe in the absence of such a strategy (Kenya under Moi and possibly Zambia under Chiluba are also relevant cases) there was a decumulation of social capital between donor and recipient which led to instability in developmental expenditure and a negative poverty dividend. In table 2, this difference is embodied in a higher 'distrust score' (number of programme interruptions) in the last two countries than in the first two. Expenditure instability, in other words, is not exogenous, but reflects the trust relations between donor and recipient. The question to which this then leads is how trust is built, which the large social capital literature (e.g. O'Neill 2002, Glaeser et al 2002, Barr 2003) has not been definitively able to resolve[21]. What is clear is that the willingness of Uganda and Ethiopia to articulate and defend a coherent anti-poverty strategy, which they then were able to operationalise through their expenditure allocations, enabled them to build a reputation with the donors for trustworthiness in the important things[22]. Credibility bred trust, and trust then generated a stable aid flow.

3. The sustaining of fiscal strength and pro-poor political commitment.

No green revolution in history, whether in China or South Korea or North India or anywhere in Africa, has been a private sector-driven process; all have depended on a high level of state commitment in order to overcome the multiple market failures encountered in rural input and labour markets. In most of Africa, such state commitment as existed to forcing the smallholder green revolution in the 1980s (as in Zimbabwe, smallholder South Africa and Malawi), as we have observed, was rapidly undone by the rigours of structural adjustment, since when the IMF and other creditors demanded cuts, capital spending in support of smallholder agriculture proved invariably to be one of the first sectors selected by those governments to be cut to balance the books, and a downward drift of agricultural support spending, as we have

[20] The argument of this paper refers to the years 1991 to 2004. At the time of writing, in June 2005, several donors have suspended aid to Ethiopia following outbreaks of violence pending the announcement of the election result. The extent to which this will cause long-term disruption in the politics of Ethiopia and in its aid flows is not yet clear.

[21] For an analysis of trust-building in budget support negotiations, see Mosley and Suleiman (2005). This paper considers three classes of trust-building factors: *initiatives by the recipient* (which establish a reputation for credibility, and distract attention from unsatisfactory performance; *key signals of policy and institutional stance* such as expenditure priorities and low corruption levels; and *procedural factors* such as frequency of meetings with donors, stability of personnel, existence of a resident mission, etc.

[22] For modelling of the growth and decumulation of trust between donor and recipient see Mosley and Suleiman (2005)

seen, is one of the factors which has caused productivity surges to self-destruct (Mosley and Suleiman 2004) . In Uganda and Ethiopia, as we have observed (Figure 3), the evolution of spending priorities was different, and the iron law that agricultural support expenditure, in times of crisis, must always go to the back of the queue turned out to be disproved. African experience therefore offers, around a mean of very weak growth in agricultural support spending (Mosley and Suleiman, 2004, table 1) two different patterns of political priorities and thence of expenditure patterns. Which of the two tendencies dominates in future is likely, on our analysis, to be crucial for poverty trends.

In seeking to understand the higher level of political commitment to pro-agriculture expenditures in Uganda and Ethiopia, we note that those two regimes, in the early 1990s, were reconstructing after a long period of civil conflict – and, in the case of Ethiopia, also reforming a command economy. Fear of renewed conflict certainly acted as a force to concentrate political weight in support of, rather than conceding cuts in, the agricultural development budget , just as it did in the early years of the Malawi and Zimbabwe programmes (and for that matter in the Indonesia and India of the 1960s also)[23]. In Ethiopia the fear was justified, as war with Eritrea broke out again in 2000, causing a temporary suspension of debt-relief aid disbursements. Fear of renewed famine has also, ever since 1984 (BBC, 2004) been a spur behind the government of Ethiopia, as it had been behind the government of China in the 1970s. But, much more than the governments of Southern Africa, Uganda and Ethiopia not only employed but took the initiative in moulding the anti-poverty rhetoric that has now become a commonplace of development policy: they realised that in the new political economy of heavy pressure towards democracy and aid allocations governed by pro-poor commitments, a pro-poor politics had the potential to be an effective politics (Mosley 2004) for seeking to placate disaffected groups and hold the country together[24]. Of course, democracy in both countries has been imperfect, with opposition parties being banned altogether in Uganda and in Ethiopia effectively neutralised by elections arranged (until April 2005) to favour the inter-tribal EPRDF governing coalition[25]; but enough pressure was coming from the grass-roots to make the political pay-off to pro-poor policies such as smallholder development and universal primary education immensely greater than it had been in the 1970s and 1980s. Implementation of these policies varied between the two country cases. The government of Uganda in 1994 exempted six sectors of public expenditure, of which two were agricultural research and extension (the others were primary health and education, and rural water and road-building) from cuts being made under the structural adjustment programme[26]. The Ethiopian strategy of agricultural

[23] There is some evidence from regressions that a high rate of agricultural growth is negatively associated with conflict: see Nafziger and Auvinen (2000)

[24] This has not always been appreciated, and some writers on the political economy of developing countries have explicitly denied it. Haggard and Morrisson, for example, have written

(1995, page).

[25] For discussion of limitations on democracy in these two countries, see the papers by Bratton and Lambright (2001) and Abbay(2004)

[26] Emanuel Mutabile-Tumusime, Permanent Secretary, Ministry of Finance: see note 8 above; reiterated in Government of Uganda 2001,page 6.

development-led industrialisation (ADLI)[27] again was a pro-poor initiative conceived by, rather than forced on government; it was planned in exile by the Tigray People's Liberation Front before it came into office, and explicitly based on the agricultural development policy models of Taiwan and South Korea (Rock 2003). As in Uganda, there was emphasis on administrative decentralisation, on diffusion of extension services to small-scale farmers in high-potential areas, and on the development of human capital through expansion of the coverage of primary health care and primary education. Thus the philosophy governing the overall development strategy came from government, whereas elsewhere in Africa it continued to come from the aid donors: this was one of the first cases in the history of IFI-government interactions - in which an African recipient government had answered an IMF or World Bank opening bid with its own coherent counter-strategy[28]. This had two important consequences for aid effectiveness. In the first place, the donors were so genuinely delighted and charmed to find themselves dealing with genuine interlocutors in the policy dialogue[29], rather than stooges who asked the donors to draft the initial Letter of Development Policy or PRSP[30] and then reneged on the agreement, that they almost immediately gave Uganda and Ethiopia long-term and stable commitments to all the aid they needed – including debt relief under HIPC. In the second place the governments of Uganda and Ethiopia, because they were managing aid flows proactively rather than passively, took active steps to avoid the institutional moral hazard traps advertised by the aid-sceptical literature – notably the trap of using aid as a substitute for the development of indigenous sources of tax revenue. Thus whereas there is quite a strong case for arguing that aid has been associated with long-term institutional erosion in many African countries (Braeutigam and Knack,2004), in Ethiopia and Uganda, at least, this argument does not hold. Strong leadership, willing to take on short-term political opposition in the interests of making the long-term development strategy work, sprang the moral hazard trap.

When we focus on Africa, therefore, we observe substantial variation of experience across the continent in respect of the two main independent variables of this paper – the pattern of public expenditures, and the stability of those expenditures and of aid flows. On enquring what causes these variations, we discover underlying socio-political forces, not easy to quantify and therefore not covered in the econometric analysis of Section 2, which appear to account for some of them – protectional policies, stability of aid flows and long-term political commitment.. Where these conditioning factors are favourable, we are indeed seeing the beginnings of a green revolution,

[27] Note the contrast with the South African homeland model in which farmers were not given any incentive to develop linkage investments.
[28] With the arguable exception of Mauritus in the early 1980s.
[29] This particularly applies to the relationship between the World Bank chief economist Joseph Stiglitz and the Ethiopian President Meles Zenawi at the end of the 1990s, which quickly developed into one of extreme mutual admiration – and in the process opened up a split between the Bank and the IMF. See Stiglitz(2003), chapter .
[30] Poverty Reduction Strategy Paper – intended by the donors to be drafted by the recipient government in active consultation with civil society groups as a basis fro long-term aid flows. For evidence that many PRSPs however continue to be drafted in Washington rather than in the desired way see the paper by Stewart (2003).

and of long-term poverty reduction, on a scale rivalling that achieved in East Asia during the 1970s and 80s:the Ugandan achievement in nearly halving poverty over an eight-year period has not been observed before in Africa, ever, and very seldom in any other developing country.

4.Conclusions

We are thus able to suggest two additional channels by which the poverty impact of aid may be enhanced. On the basis of both global cross-section and African-case study evidence, it looks as if aid flows may have increased ability to reduce poverty if they can be made more stable, and if their composition is shifted in a more pro-poor direction, one element in which is support for the smallholder agriculture sector. This is not to downplay the importance of complementary anti-poverty strategies, in particular the development of the off-farm sector[31] , labour-market based approaches such as public employment schemes and general pro-poor expenditure strategies; indeed one of the messages of this paper is that much of the expenditure which benefits agriculture is not expenditure *within* the agricultural sector.

The lessons for policy-makers follow directly from the three key drivers of aid allocation and stability listed on pages xx-xx.

In the first place, and emerging especially from the African case-study part of the paper, we have observed certain characteristics of institutions and of the aid relationship which appear to be conducive to the effectiveness of aid against poverty. We have argued that institutions and behaviours *which protect against risk* are as important – on the evidence presented here, more important – for growth and poverty reduction at least in an African setting than institutions which protect private property rights as argued by the Washington Consensus on Agriculture (Binswanger and Townsend 2000, Acemoglu et al 2001). Specifically, we argue that it is through the development of 'protectional' risk-minimising strategies in infrastructure, in research, in extension and in budget management, more than through the opening-up of the economy, that the Ethiopian and Ugandan governments have been able to defend against shocks and sustain their green revolutions longer than any predecessor. The sustaining of these strategies, although initiated by recipient governments, counts also as an achievement of the 'new conditionality' which has characterised the majority of donor-recipient relationships in recent years.

In the second place, factors which build trust between donor and recipient – initiative-taking by the recipient, key policy signals arising in the recipient country such as low corruption, and procedural factors such as World Bank/IMF resident missions – are associated, other things being equal, with

[31] As noted by a referee, there are some indications from the problems which Uganda is experiencing in lowering poverty since 2000 that Uganda is encountering diminishing returns to its pro-agriculture spending policy, and a switch to an expenditure mix more orientated towards the non-farm sector (as in a number of Asian countries since the 1980s) might now be appropriate.

relatively high aid stability and thereby with relatively high levels of aid effectiveness.

Finally, a combination of high expectations aroused by the spread of democracy and the donors' increasing poverty focus has increased the attractiveness of pro-poor policies, we argue, as a political instrument for developing-country governments . This insight has for many years been acted upon by the governments of low-income Asia, but its implementation by African governments is relatively recent. A cluster of such governments, including Uganda and Ethiopia, the two used as exemplars in our case studies, have however illustrated through the 1990s that it is possible to use pro-poor expenditure, with agriculture in a leading role, as a means of winning support for a broad-based national development strategy – albeit in Ethiopia the political expectations aroused by this process have proved increasingly difficult to contain. Driven more than many developing countries by the ever-present fear of a return to civil conflict, they have perceived that pro-poor expenditure, and within that a strategy to prioritise smallholder agriculture, was an important instrument in the politics of survival. The dissemination of this insight might be one of the more important practical ideas available for reducing poverty in Africa.

References

Abbay, Alemseged(2001), 'Diversity and state-building in Ethiopia', *African Affiairs,* vol. 103, pp. 593-614.

Barr, Abigail(2003) 'Trust and expected trustworthiness: experimental evidence from Zimbabwean villages', *Economic Journal,* vol 113(July) 614-631.

Binswanger, Hans, and Robert Townsend(2000) 'The growth performance of agriculture in sub-Saharan Africa'*, American Journal of Agricultural Economics,* vol. 82, pp. 1075-1086.

Braeutigam, Deborah, and Stephen Knack(2004), 'Foreign aid, institutions and governance in sub-saharan Africa', Economic Development and Cultural Change, vol. xx, pp. 255-285.

Bratton, Michael and Gina Lambright (2001), 'Uganda's referendum 2000: the silent boycott' *African Affairs,* 100(2001), 429-452.

Burnside, C and Dollar, D. (2000). 'Aid, policies and growth', *American Economic Review,* vol.90, September, 847-868.

Collier, P. and Dollar, D.(2002a) 'Aid allocation and poverty reduction', *European Economic Review,* vol. 46, pp. 1475-1500.

Dercon, S., and Krishnan, P. (2003), 'Changes in poverty in Ethiopia 1990-99', chapter in A. Booth and P. Mosley(eds) *The New Poverty Strategies,* London: Macmillan Palgrave.

Dorward, Andrew, Jonathan Kydd, Jamie Morrison and Ian Urey(2002) ' A policy agenda for pro-poor agricultural growth',unpublished paper, Imperial College at Wye. (Forthcoming *World Development*)

Dorward, Andrew, Peter Wobst, Hans Lofgren, Hardwick Tchale and Jamie Morrison (2004) *Modelling pro-poor agricultural growth strategies in Malawi: lessons for policy and analysis,* unpublished paper, Imperial College at Wye.

Fan, Shenggen, Peter Hazell and Sukhadeo Thorat(2000) Government spending, growth and poverty in rural India', *American Journal of Agricultural Economics,* vol. 82 (November 2000), pp. 1038-1051.

Freebairn, D.K.(1995) 'Did the green revolution concentrate incomes? A quantitative study of research reports', *World Development,* vol. 23, 265-279.

Glaeser, E. et al. (2002) 'The economic approach to social capital' *Economic Journal* vol. 112 (November), 437-458.

Gonzalez, Roberto and others(2004),

Haggard, Stephan, and Christian Morrisson, 1995?

Harrigan, Jane (1995) 'Malawi', chapter 16 in P.Mosley, J. Harrigan and J. Toye (eds) *Aid and Power,* London: Routledge, vol. 2

Hansen, H. and F. Tarp(2000)

Hansen, H. and F. Tarp(2001) 'Aid and growth regressions', *Journal of Development Economics,* vol. 64, pp. 547-570.

Harrigan, Jane (2003) 'U-turns and full circles: two decades of agricultural reform in Malawi 1981-2000', *World Development,* vol. 31, pp. 847-863.

Howard, Julie, V. Kelly, J. Stepanek, E. Crawford, M. Demeke, M. Maredia(1999) *Green revolution technology takes root in Ethiopia: the promise and challenge of the Ministry of Agriculture/SG2000 experiment with improved cereals technology in Ethiopia,* East Lansing: Michigan State University, MSU International Development working paper 76.

IFAD(2002) *Rural poverty report 2002: the challenge of ending rural poverty,* Rome.

Iliffe, John(1987) *The African poor.* Cambridge: Cambridge University Press.

Irz, Xavier, Lin Lin, Colin Thirtle and Steve Wiggins(2001) 'Agricultural productivity growth and poverty alleviation', *Development Policy Review,* vol. 19, pp. 445-467.

Jayne, Thomas, and Steve Jones(1997) 'Food marketing and pricing policy in Eastern and Southern Africa; a survey', *World Development,* vol. 25, pp. 1505-1527.

Johnson, Michael. Peter Hazell and Ashok Gulati (2003) 'The role of intermediate factor markets in Asia's green revolution: Lessons for Africa? *American Journal of Agricultural Economics,* vol. 85, pp. 1211-1216.

Kydd, Jonathan, and Andrew Dorward(2001) 'The Washington Consensus on poor country agriculture: analysis, prescription and institutional gaps', *Development Policy Review,* vol. 19(December), 467-478.

Lele, U. and Arthur Goldsmith(1989), 'The development of national agricultural research capacity: India's experience with the Rockefeller Foundation and its significance for Africa', *Economic Development and Cultural Change,* vol. ,pp. 305-343.

Morrissey, O., and A.Verschoor(2003) 'Is ownership a meaningful concept in policy reform? Policy learning and the evolution of pro-poor policies in Uganda', unpublished paper.

Mosley, P. (2002) 'The African green revolution as a pro-poor policy instrument', *Journal of International Development,* Vol. 14, pp.695-724.

Mosley, P. et al(2003) *Risk and underdevelopment,* unpublished report to Department for International Development.

Mosley, P. (2004) 'Pro-poor politics and the new political economy of stabilisation', *New Political Economy*, vol. 9(June 2004), 271-297.

Mosley, P., J. Hudson and A. Verschoor(2004), 'Aid, poverty reduction and the 'new conditionality' ', *Economic Journal,* vol. 114, pp. 217-243.

Mosley, P. and Suleiman Abrar(2004) 'Must the African green revolution self-destruct? Aggregative and case-study analysis'. Unpublished paper, University of Sheffield.

Mosley P. and Suleiman Abrar(2005) 'Budget support, conditionality and poverty', unpublished paper, World Bank Practitioners' Forum on Budget Support, Cape Town, 5-6 May.

O'Neill, O. (2002), *A question of trust,* Reith Lectures 2002, London: BBC.

Poulton, C. , R. Davies, I. Matshe and I.Urey(2002) *A review of Zimbabwe's economic policies 1980-2000,* unpublished paper, University of Zimbabwe and Imperial College at Wye.

Rock, June ' Ethiopia: aid dependent, fiercely independent', unpublished paper.

Rodrik, D. (1990) 'The effectiveness of structural adjustment programmes', *World Development.*

Thirtle, C., Irx, X., Lin Lin, McKenzie-Hill, V. and Wiggins, S. (2001), *Relationships between changes in agricultural productivity and the incidence of poverty in developing countries,* report to Department of International Development, R7946.

Wood, G. (2003) 'Staying poor, staying secure: the 'Faustian bargain', *World Development,* vol 31(March 2003), 455-473.