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Agricultural Development and Pro Poor Economic Growth in Sub Saharan Africa: Potential and Policy

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Abstract

There is widespread concern at continuing, and indeed deepening, poverty in sub-Saharan Africa, and the lack of processes of rapid and broad based economic growth to combat this. There is also debate about the role agriculture in driving pro-poor economic growth with some arguing that it has a critical role in this while others see it is as largely irrelevant. This paper examines these arguments. We summarise and critique what we term the Washington Consensus on Agriculture (a consensus that appears to be eroding) and alternative positions opposing investment in agriculture. We suggest that both sets of arguments pay insufficient attention to important institutional issues in development, and, having taken these into account, we conclude that agriculture has a critical role to play, largely by default as there are no other candidates with the same potential for supporting broad based pro-poor growth. However, there are immense challenges to agricultural growth, challenges that in some cases may be too great to be economically viable. In considering economic viability, however, regard must be taken of the economic and social costs of rural stagnation and of providing safety nets in situations of enduring poverty. Policy needs to focus more on agriculture, and recognise and address the diversity of institutional, trade, technological and governance challenges to poverty reducing growth in Africa.

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1 Poverty and Agriculture in Sub Saharan Africa

The extent and severity of poverty in Sub Saharan Africa, and the challenges to poverty reduction are well documented (eg World Bank, 2000a) and will not be discussed in detail here, beyond setting out the main stylised facts on the extent and causes of poverty. The majority of the world's poor live in South Asia, East Asia and Africa with approximately 25% of the below $1/day poor in sub Saharan Africa (in 1998, World Bank, 2000b). However, while both the extent and severity of poverty have been decreasing in South and East Asia, they have both been increasing in Africa (World Bank, 2000b). Within Sub Saharan Africa, a little over 70% of the poor are located in rural areas, where again the extent and severity of rural poverty are greater than in urban areas. There are also close links between urban and rural poverty. Many poor urban people have strong links with rural areas, and cyclical transfers between urban and rural people are increasingly important (Bryceson, 1999b). There are no clear patterns of change in poverty incidence across Africa in recent years, with increases and decreases in the incidence and severity of rural and urban poverty observed in different countries. Policy reforms appear to have benefited the poor with access to public services and markets, but to have left behind those in remote areas, those growing subsistence crops, and those without work (World Bank, 2000a p 95).

There are a number of contributory factors to the high levels of poverty in Africa and the disappointing performance of Africa in economic growth and poverty reduction as compared with other regions. These include bad governance by unaccountable and predatory elites and inter and intra-state conflicts; low savings and investment rates; poor health, education and infrastructure; high dependency ratios; the spread of HIV/AIDS; weak management of and access to public services; misconceived economic and policies; worsening terms of trade and continuing dependence on primary exports; low population density; and poor agricultural performance. We concentrate on the last.

Growth in agricultural production over the last 30 years has been disappointing. Rates of productivity growth in sub Saharan Africa have been slower than other regions, although growth rates in the different regions have converged somewhat in the 1990s. In Sub Saharan Africa very low rates of growth in the 1970s were followed by increases in the 1980s and 1990s, but per capita growth has been very low or negative over much of the period: thus Sub Saharan Africa is the only region with agriculture growing at a rate below overall population growth from 1965-1998, and at a lower rate than growth in the agricultural labour force from 1980-1998.

Furthermore, information on various elements of agricultural productivity suggest that Sub-Saharan Africa is achieving its agricultural growth largely through a different pattern from that found in other regions. It stands out for increasing its area under cereals dramatically at the expense of other crops, whereas in other regions the area under cereals has either declined or increased only slightly. Sub Saharan Africa's increased cereal area is accompanied by a slight fall in overall fertiliser consumption, a larger fall in rate of fertiliser use, and only a small rise in cereal yields. The area of irrigated land also shows only a small percentage rise[1]. As a result, whereas other regions have achieved 80% or more of their increased cereal production from yield increases, in Sub Saharan Africa more than 70% of increased cereal production is from area increases (World Bank, 2000b; FAO, 2000).

[1] Although this is similar to the percentage increase in irrigated land in the East Asia and Pacific region, Sub-Saharan Africa's increase is from a very low base (only 4% of crop land being irrigated, compared with 36% in the East Asia and Pacific region)

Most observers see this pattern of agricultural growth as presenting a major problem as it is widely held that a process of 'sustainable intensification' is needed (e.g. World Bank, 1997, Reardon, 1998a, Reardon *et al.*, 1999), to avoid continued 'soil mining' and extension of cultivation onto increasingly fragile and vulnerable land. 'Sustainable intensification' requires increased use of purchased inputs, especially seeds and inorganic fertilisers (to supplement low external input organic sources plant nutrients).

National statistics and survey findings paint the same general picture of low rates fertiliser use in SSA as compared with other parts of the world, growth in fertiliser use in the 1970s and 80s stagnating in the 1990s, high variability between and within countries, and discrepancies between rates of application on cash and food crops. Naseem and Kelly, 1999 report that from 1970 to 1995, fertiliser dosage rose from 3.3 kilograms per hectare to 9.9 kilograms per hectare, but the SSA average of 8.9 kilograms per hectare for 1991-95 remains very low when compared with rates in Latin America (54kg/ha), South Asia (80 kg/ha) and South-East Asia (86.9kg/ha) [2]. World Bank, 2000b paints a more pessimistic picture, with overall fertiliser use in low and middle income countries in SSA declining by 2% over the period 1979/81 to 1995/97, while rates of use per hectare declined by 18%. These figures contrast sharply with those from other regions of the world.

There are a number of related reasons for the low fertiliser dosages, slow rates of growth in fertiliser usage, high variability between countries and crops, and stagnation and decline in fertiliser use in SSA the 1990s. These may be broadly considered in terms of supply and demand constraints. Supply depends upon the capacity, efficiency and resources of suppliers, their ability to access fertiliser imports, and the incentives for private firms to enter the industry. Similarly demand depends upon farmers' resources and their capacity to finance input purchases, and the profitability of fertiliser use. This in turn depends upon input and output prices (economic and institutional variables) and yield responses to fertiliser (determined by agro-ecology, technology and complementary inputs).[3]

In the past, input supply was commonly managed by parastatals and was linked in with pan territorial pricing and monopsonistic crop purchasing. The problems of such parastatals, their increasing inefficiency and ineffectiveness, and the growing fiscal burden they imposed are widely documented. However, liberalisation of the input supply system has not generally lead to an influx of private traders selling inputs to smallholders in marginal areas: such traders are often severely constrained by problems in accessing fertiliser imports and credit for working capital, and face high credit and distribution costs (with poor transport systems and low volumes) with uncertain returns (due to policy uncertainties, variable demand and difficulties in communicating with poor, dispersed farmers) (Bryceson, 1999a, Reardon *et al.*, 1999; Kelly *et al.*, 1999; Larson and Frisvold, 1996; Naseem and Kelly, 1999; Howard *et al.*, 1999; Brinn *et al.*, 1999; Gordon and Goodland, 2000; Karanja *et al.*, 1998; Jones, 1998).

Low and variable demand is one reason for low profitability and the lack of private sector investment in inorganic fertiliser supplies, but this is itself partly caused by the poor supply system: farmers cannot rely on and wait for uncertain deliveries, often in inappropriate package sizes and formulations, and with few (or no) alternative suppliers may be in a weak position to negotiate prices if alternative supplies are not available locally. In addition, uncertain output prices and output marketing opportunities, and relatively higher input prices (as a result of devaluations and subsidy removals) undermine the underlying profitability of fertiliser

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[2] However, these figures mask very high variability. From 1991 to 1995, for example, four countries (Ethiopia Kenya Nigeria and Zimbabwe) used 60 per cent of all SSA fertiliser (excluding South Africa) (Naseem and Kelly, 1999). Larson and Frisvold, 1996 cite average fertiliser use in Kenya as 48kg/ha, comparable to fertiliser use in South Asia (58kg/ha) and South East Asia (62 kg/ha).

[3] Investigating the role of asset ownership and working capital constraints in Zambia, Deininger, K. and Olinto, 2000b conclude that high input prices are not causing the application of fertiliser to be economically unprofitable. Access, not price, is the key problem. Fertiliser is found to have a significant output enhancing effect when extended to those farmers not currently using it, but doesn't have a significant effect where additional amounts are made available to farmers already applying fertiliser. The authors suggest that a decrease in fertiliser use is related to constraints in availability and that such constraints have been exacerbated by government intervention which has been ad hoc and has undermined predictability. (They also find that the ownership of productive assets (eg draft animals) is a key constraint to increased agricultural productivity due to more timely tilling and improved access to credit and fertiliser).

application (Bryceson, 1999a; Kherrallah *et al.*, 2000; Jayne *et al.*, 1997; Reardon *et al.*, 1999; Brinn *et al.*, 1999; Kelly, 1999 #134]; Naseem and Kelly, 1999; Larson and Frisvold, 1996; Poulton, 1998). These effects are most severe in more remote areas (where transport and communications costs increase input prices and market uncertainty) and in areas with lower rainfall and poorer soils (with lower or more risky yield responses to fertiliser

To conclude and summarise, agricultural growth in sub Saharan Africa has been slow compared to other regions. An important element in the lack of growth in many areas is low use of inorganic fertilisers, particularly on food grains produced by smallholders in more remote areas, and a major problem here (but not the only problem) is the difficulty that these farmers have in financing seasonal input purchases[4]. The importance of this situation depends upon the importance of agriculture's role in pro-poor economic growth.

2 Why agricultural development may be critical for Pro Poor Economic Growth

Livelihoods analysis suggests that sustained poverty reduction requires some combination of (a) improved access for the poor to a balanced set of assets, (b) increased productivity of the assets that they hold, and (c) reduced vulnerability to shocks. Complementary components of this include improving health and education services to expand human capital, increasing the social capital of disadvantaged and marginalised groups, reducing vulnerability to seasonal and other variation and shocks, and expanding income opportunities. This paper focuses on the last of these, expanding income opportunities. We recognise that building of human and social capital, of infrastructure, and of improved governance are essential for poverty reduction but argue that, in the medium term at least, they are unlikely to achieve sufficient impact without explicit attention to economic growth.

We begin from the position that expanded income opportunities and reduced income vulnerability for large numbers of people may be achieved by directly or indirectly increasing (a) secure access to assets that are both constraining large numbers of poor peoples' incomes and are potentially productive for these people, and/ or (b) the productivity of these assets. Poor people's access to assets may be increased by changes in policies, institutions or processes that redistribute assets within society, or that reduce the costs of access through subsidy or through infrastructural or institutional change (reducing risks or transaction costs, for example). Access to assets may also be improved through increased income from or productivity of existing assets, as a result of changes in technology, in access to complementary assets, in costs of inputs, or in demand for goods and services supplied by poor people (affecting the volume of demand and/or prices). A key question for poverty reduction strategies is therefore where the greatest poverty reduction benefits are likely to come from.

2.1 Linkages in the rural economy

A long-standing theoretical and empirical literature has examined the linkages between different activities within rural economies (for recent reviews see for example Delgado *et al.*, 1998; Dorward, A. *et al.*, 2001). Four types of linkage are commonly identified: direct upstream and downstream production linkages; investment linkages; and indirect consumption (or expenditure) linkages, as summarised in figure 1.

Starting at the left hand side of Figure 1, exogenous change in policies, technologies, markets, infrastructure and capital, for example, may set off changes in prices and productivity in a rural economy. A distinction is made between tradable and non-tradable goods and services, tradables being those that may be imported or exported to or from the area[5]. The lower part of figure 1 suggests that productivity increases in non-tradable

[4] It is important to stress that seasonal finance constraints are not the only constraint: as argued earlier, input supply and profitability are also important and as Larson and Frisvold, 1996 note, credit is not useful if farmers remain chronically short of cash even after receiving access to seasonal input credit.

[5] In practice the distinction between tradables and non-tradables is often not distinct, varying with (a) the scale or the boundaries of an area (the larger the area the greater the proportion of non-tradables), (b) its accessibility (the less accessible the greater the proportion of non-tradables) and (c) the comparative production costs inside and outside the area. These factors together determine the relationship between local costs on the one hand and the spread between 'import' and 'export' parity prices on the other. Although these terms are often associated with

activities will normally lead to a price fall, as local demand will be constrained by local incomes. This price fall will lead to an increase in consumers' real incomes if the good or service commands a high average budget share (e.g. staple foods in poor communities). Similar results will follow a tradable price reduction.

A consumption (or expenditure) 'multiplier' or linkage may then kick in as increased real incomes lead to increased demand for local (non-tradable) goods and services and this expanded demand generates local employment opportunities. This further raises incomes, contributing to a virtuous circle multiplying the benefits from the original gains in real consumer incomes.

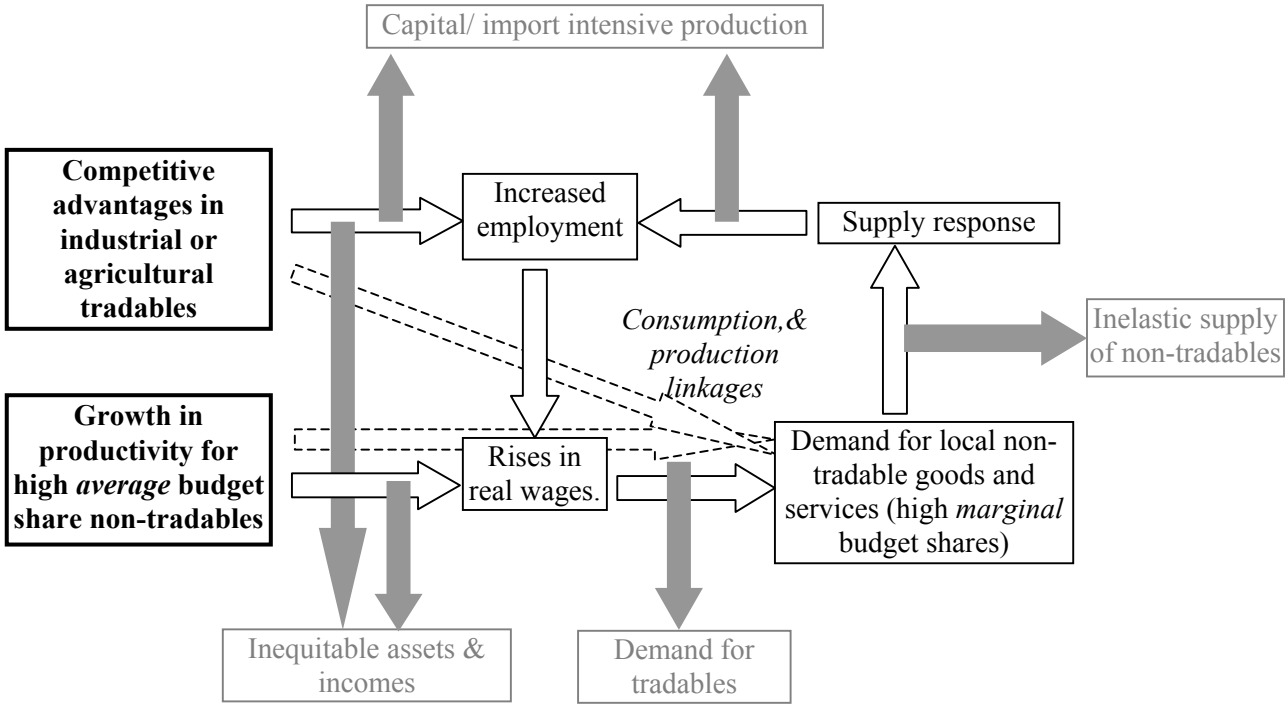

Figure 1. Linkages and leakages in a local economy

The extent of these gains, however, is limited by 'leakages', also shown in Figure 1. If local consumers use their extra income to buy tradables then there is reduced stimulus to local demand. Even with such a stimulus, if local producers cannot respond to the increased demand (due to limited supply of labour or capital, or poor market development and high transaction costs), there will be inflationary pressure on prices, off-setting consumers' increased incomes. Finally, even if there is a local supply response, there will be reduced gains from increased local employment and earnings if production systems are capital intensive, import intensive or provide returns to a only a limited number of local people.

The effects on producers of increases in non-tradable productivity are more mixed. Lower prices may largely off-set producers' gains from higher productivity[6], unless demand is relatively elastic or cost reductions or changes in technology are sufficient to allow significant expansion of supply with expanded labour demands and/or entry of new (perhaps poorer) producers into the market.

Lower prices for tradables harm existing net producers of these tradables, with associated losses of producer income imposing a drag on the positive consumption linkages that may arise from lower consumer prices and increased consumer real incomes. Higher prices for tradables have opposite positive effects on producer

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international trade, they are equally applicable to *intra*national trade between different districts or between rural and urban areas.

[6] Where productivity increases result from some form of innovation, early adopters are likely to gain from higher productivity before more widespread adoption lowers prices.

incomes, similar to the positive effects of increased productivity in tradable activities. The latter, however, does not have the same negative effects on consumers as do price increases.

Finally, we consider savings and investment linkages which may arise where increased real incomes allow increased savings and investment in capital, reducing vulnerability and increasing both the productivity of local activities and the potential elasticity of supply responses crucial to consumption linkages 'Leakages' arise if the returns to local savings and investment are very low, due to lack of secure investment opportunities or of local financial markets linking savers with investment opportunities. They may also arise if there are effective financial markets linking the local economy with other economies, so that either local activities are already able to access outside sources of capital or locally generated capital is invested outside the area [7].

Two further types of linkage may arise from growth in production of tradables (Govereh *et al.*, 1999). First, increasing trade flows may lead to improvements in a range of services, particularly in communications (telecommunications and transport services for example) with both investment in improved infrastructure and greater demand for and frequency of services, with greater volumes allowing lower unit costs[8]. These linkages may be described in terms of economies of scope within the local economy. There may also be economies of scope within particular livelihoods, with, for example, the purchase of farm equipment for production of tradables also being used in the production of non-tradables.

An important conclusion from this analysis is that the effects of particular changes on a rural economy and on poor people within it depend crucially upon the nature of the change, on the structure of the local economy, and on different poor peoples' places within it. This is illustrated by the discussion above of the different effects of price changes and of changes in productivity of non-tradables on the poor as producers and labourers on the one hand and as consumers on the other. The nature and scale of possible direct and indirect effects of such changes on the incomes and expenditures of different categories of the poor are then determined by the answers to questions about the characteristics of the goods and services subject to the initial price or productivity change. Regard must be given to the local demand characteristics of these goods (their average and marginal budget shares for different income groups), tradability, and local production characteristics (supply elasticities, labour and tradable input demand, upstream and downstream linkages).

We conclude therefore that pro-poor growth may arise where there are:

(a) price or productivity increases in tradable products with a high labour input by the poor;

(b) productivity increases in non-tradable products (or falls in price for tradable products) which have a high average budget share in the poor's expenditure;

(c) changes in technology or reduced barriers to entry which allow the poor to engage in production of non-tradables (with a high average budget share) which they could not previously engage in; or

(d) gains to significant numbers of non-poor (as in (a) or (b)) which lead to expanded demand for goods and services produced by the poor as a result of upstream, downstream or expenditure linkages. Expenditure linkages will be increased where non-tradables with a high labour content and low barriers to entry have a high marginal budget share in expenditure by groups benefiting from initial productivity or price benefits. The benefits to the poor of such growth will, however, be constrained by income and asset inequality [9].

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[7] Under these latter circumstances finance is 'tradable'.

[8] These greater trade and information flows will also increase the proportion of tradables in the economy. This will increase the consumption leakages and reduce consumption linkages, and may also cause previous producers of non-tradables (for example traditional goods) to lose market share to manufactured items imported into the area. These negative effects should be offset (with time normally to a greater extent) by gains to consumers from these cheaper goods and by new opportunities for expanded tradable production where the area has competitive advantage.

[9] Deininger, K. and Olinto, 2000a suggest that asset distribution could matter more than income distribution in this respect. High land ownership inequality is suggested to have a negative incentive effect that goes beyond the

2.2 The roles of agriculture in rural livelihoods

A major contribution of recent emphasis on 'livelihoods thinking' about rural development has been the recognition that rural people often engage in a highly diversified portfolio of activities (Barrett *et al.*, 2000; Bryceson, 1999a; Bryceson, 2000; Ellis, 2000a; Reardon, 1998b; Reardon *et al.*, 2000). This literature has shown the extent of non-farm activities[10] in rural livelihoods and has begun to examine ways that diversification out of farm activities vary between different types of households, reasons for such variation, and the potential for different types of household to benefit from growth in farm and non-farm activities. We consider three related questions regarding the relative roles of farm and non-farm activities in poverty reduction:

- How are rural livelihoods diversified between different farm and non-farm activities, considering diversification both between different households (in the rural economy as a whole) and within household livelihood strategies?
- Is it possible to determine if growth in one sector yields greater returns in overall economic growth in rural areas?
- How do the poor benefit from growth in the different sectors?

2.2.1 The extent of rural livelihood diversification in sub Saharan Africa

Many rural households in sub Saharan Africa, and particularly poor rural households, obtain a large part of their income, and devote a large part of their resources (especially labour) to non-farm activities. Thus Reardon, 1998b finds average non farm income shares of 42% in Africa (45% in East and Southern Africa, and 36% in West Africa), although this may mask wide variation in the importance of non-farm income between households with different incomes and livelihood strategies in the same area, and between households in different areas (Barrett *et al.*, 2000). Bryceson (1999b) finds even higher non-farm income shares of 55 to 80% across a range of case studies in sub Saharan Africa, with evidence that non-farm income shares have increased dramatically since the mid 1980s[11].

An immediate conclusion that might be drawn is that if rural households, and especially poor rural households, derive a large part of their incomes from non-farm activities, then actions targeted to benefit poor rural people should focus on expanding their opportunities in non-farm activities. This may resonate with disenchantment with the difficulties experienced with large investments in agricultural development in Africa over the last 30 years and with enthusiasm for the successes of micro-finance initiatives in improving the livelihoods of the poor in Asia and in (largely) non-farm activities in more densely populated areas in Africa. However, theory and evidence on the nature of relations between farm and non-farm activities demand caution in arguing for concentration on non-farm activities as the major route for the poor to climb out of poverty. We examine relations between farm and non-farm activities at two scales of analysis: within household livelihood strategies, and within the local economy.

2.2.2 Farm: non-farm diversification within livelihoods

There are a number of reasons why households or individuals may find it beneficial to integrate farm and non-farm activities within a livelihood strategy. Farm activities are often characterised by highly seasonal demands for labour and inputs, delayed and seasonal returns from investment of these resources, uncertainty

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traditional association with credit market imperfections and reduced levels of investment, for example, such inequality may limit the effectiveness of education policy in contributing to growth. Ravallion, 1998 also finds a significant negative effect of asset distribution on individual consumption growth.

[10] Unfortunately different authors' definitions of non-farm and off-farm income are not always consistent. Whereas farm income generally refers to income from a household's own farming activities, and non-farm income refers to income that is not gained from direct engagement in agricultural activities, off-farm income sometimes refers (narrowly) to agricultural wage employment but may also refer (more widely) to include non-farm income as well.

[11] South Africa was an exception to the pattern of rising non-farm income shares, but these were already high.

in yields, dependence on access to land (which may be limited for poorer and more marginalised groups), need for substantial seasonal capital for higher productivity, and poor market opportunities, with high price variations between and within seasons. Engagement in non-farm activities alongside farm activities may allow:

- complementary use of labour in slack agricultural seasons;
- allocation of labour to different activities according to skill, productivity and earning differentials of different household members;
- better spread of income across the year to match consumption needs;
- opportunities for different patterns of income in farm and non-farm activities to cross-finance seasonal expenditure and larger medium to long term investments;
- diversification of risk by spreading involvement across activities with different production risk characteristics and across markets with different price risk characteristics.

On the other hand, retaining some farm activities (rather than exiting from agriculture completely) allows domestic agricultural production that may:

- reduce risks from local price hikes for food items,
- provide very high marginal returns to labour at particular times of year, and
- be important as a means of retaining social and land tenure rights.
- through access to land provide a 'safety net' which although offering relatively low returns offers a 'fall back' if non-farm income opportunities fail (e.g. if a member of the household loses a job).

The benefits from such diversification are likely to be highest where risk aversion is high, where activities are highly seasonal in terms of production and resource demands, and where markets are thin and poorly developed, detracting from the benefits of specialisation and exacerbating problems of risk and seasonal shortages of labour and capital. However, Reardon *et al.*, 2000 and Barrett *et al.*, 2000, note that, paradoxically, the poorest households, who have these characteristics and the greatest need to diversify out of agriculture, also have the most difficulty in engaging in higher return non-farm activities as they lack the necessary financial, social and human capital to enter these activities. Thus the poorest households tend to crowd into low return, seasonal labouring activities. Barrett *et al.*, 2000, Reardon *et al.*, 2000 and Toulmin *et al.*, 2000 note a common (but not universal) 'U shaped' relationship between the proportion of income earned and total income, with poorer and better off households both having a higher proportion of off-farm income, but with very different returns to these activities. On the other hand, households which are intermediate in wealth ranking may have lower proportions of earning from off farm activities, as they are able to gain more from farm activities than the poorest households, but are not able to engage in the highest return off farm activities open to the better off households.

A number of authors make the helpful if often not precise distinction between push and pull factors promoting diversification out of agriculture into non-farm activities (for example Reardon, 1998b, Ellis, 2000a, Bryceson, 2000). 'Push' occurs where households or individuals engage in low return non farm activities because of inadequate returns in agriculture (as a result of chronic low productivity or lack of assets or following shocks such as drought), or where, despite higher average returns from agriculture, they are forced to diversify out of agriculture to overcome seasonal shortages of capital for consumption or investment in seasonal inputs or to reduce the overall risk from their portfolio of activities. The latter situations (where households diversify out of agriculture despite its higher returns) typically occur because of an absence of market or non-market arrangements for savings, credit and insurance. 'Pull' occurs where diversification into non-farm activities offers higher returns than agriculture. Bryceson, 2000 argues that much of the diversification into non farm activities in Africa in the late 1980s and '90s can be characterised as 'push' as smallholders have been caught between the scissors of declining profitability of and support for commercial smallholder agriculture on the one hand, and increasing needs for cash to pay for school and health fees and for increasingly expensive consumer goods on the other.

2.2.3 Farm: non-farm diversification within the rural economy

This discussion of the effects of barriers to entry shows that diversification out of agriculture needs to be examined in the context of markets for goods and services produced by low barriers to entry activities. Our earlier discussion of pro-poor growth and linkages in the rural economy is relevant here, suggesting that there can be strong linkages between different activities, that these linkages may work in different ways and affect different activities and categories of the poor in different ways, and that the nature and strength of these linkages will depend upon particular characteristics of activities (as outlined earlier) These conclusions are borne out by (and were developed from) studies estimating agricultural growth multipliers in different parts of the world, which show that linkages can be strong, and that they do vary in the ways described above. These studies estimate agricultural growth multipliers that range from around 1.5 to over 2.0 (Reardon, 1998b, Delgado *et al.*, 1998)[12] and show that consumption linkages are generally more important than production linkages[13].

In examining the relative roles of farm and non-farm activities in poverty reduction we must therefore examine the nature of the contribution that different activities can make to growth in the rural economy, focussing on two sources of growth[14]: growth in production of tradables (increasing local incomes directly) and growth in production of non-tradables (increasing local incomes through lowering local prices).

Ignoring for the moment how these two types of growth may arise, different conditions are required for them to be effective in reducing poverty. For the first, the tradable must either be widely produced with significant labour demands generating broadly based earnings (so that the poor benefit from the multiplier effects of growth induced in the local economy), or produced by the poor themselves as hired labour or self-employed. Increased productivity of non-tradables will be effective in pro-poor growth where the good or service is widely consumed (with a high average budget share), either by the poor themselves or by a large non-poor population (so that falls in price either directly benefit poor net consumers or benefit a substantial non-poor population, with increased incomes for the poor through expenditure linkages)[15]. There may also be direct benefits to poor producers if productivity change involves sufficiently large falls in costs or institutional or technical changes that allow the poor to enter the market. Growth and poverty reduction through increased productivity of non-tradables with high marginal budget shares may also be important as a secondary growth process supporting (through expenditure linkages) one of the two primary processes above. The potential for farm or non-farm activities to stimulate and sustain growth in particular areas may then be evaluated against their ability to meet the conditions specified above.

Examining first the potential for growth in tradables, in poorer, more remote areas there are unlikely to be many tradable non-farm activities apart from mining that offer broadly based employment opportunities. Only as links with urban areas develop will opportunities for other non-farm tradable activities develop (Reardon, 1998b and Bryceson, 1999b recognise shifts in the structure of local economies as they develop

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[12] A multiplier of 1.5 indicates that $1.00 of extra income from production of agricultural tradables stimulates further income growth of $0.5. These estimates are subject to error due to implicit assumptions in the estimation methods that the supply of non-tradables is elastic (leading to an overestimate of the multiplier), and due to failure to allow for the dynamic effects of downstream production linkages and of savings and investment (leading to an underestimate of the multiplier). Allowing for the effects of supply inelasticity in production of non-tradables may reduce estimates of multipliers by around 10% in Asia and by 30% in Africa (Haggblade *et al.*, 1991).

[13] The multiplier estimates cited above do not necessarily assume high elasticity of supply and although they may overestimate consumption linkages, they may also underestimate downstream production linkages and investment linkages. Overall, multipliers are likely to remain significant. Some authors, however, are sceptical of the scale of these multipliers (see for example comments by Harriss, 1987 and reply by Hazell and Slade, 1987, and a summary by Ellis, 2000b).

[14] Migrant labour and remittances are not included here as sources of growth 'within' the rural economy, although they may be another source of growth, with labour export effectively a tradable.

[15] Autarkic subsistence producers will also benefit directly through release of resources to other activities.

more outside links) but Bryceson, 1999b suggests that trading links and remittances are generally more important than local employment-generating non-farm tradable activities, and Reardon's analysis suggests that non-farm activities will have high barriers to entry, limiting both the direct opportunities for employment and income benefits for the poor, as well as the extent to which wider income gains among the non-poor may lead to employment opportunities for the poor through consumption linkages.

Farm activities, on the other hand, offer more opportunities for expansion in tradable activities (whether cash crops or tradable food crops), with direct and indirect employment and income opportunities for the poor again depending upon barriers to entry associated with, for example, the nature of the crop, marketing systems, access to land, etc.. Opportunities for the poor to benefit directly from increased production of agricultural tradables may be constrained by their limited access to land and seasonal capital, low agricultural wages in most areas, and their limited importance in overall incomes (Barrett *et al.*, 2000), but (Barrett *et al.*, 2000) also note the importance of agricultural wages on the poorest. However, there may be greater opportunities for the poor from expenditure linkages, discussed below.

Turning now to consider the potential for growth in non-tradables, high average budget shares for food crops in rural areas in Africa (Delgado *et al.*, 1998) suggest that if these are non-tradables (for example root crops), then the greatest potential for direct growth benefits will arise from growth in farm activities rather than in non-farm activities, provided that there are more winners (subsistence producers and net consumers) than there are losers (net producer employers and employees). There may, however, be greater importance of growth in non-tradable non-farm activities (together with livestock and horticultural production) in supporting expenditure linkages and secondary growth in demand for non-tradables with high marginal budget shares.

A broad conclusion, to which there will be significant exceptions, is summarised in Table 1: that in many poorer rural areas in sub-Saharan Africa increasing productivity of farm activities will often have greater potential for stimulating poverty reducing growth, either through direct income benefits and indirect expenditure linkages from the production of tradables or through consumer benefits in the production of non-tradables. The former will be enhanced if the activities have low barriers to entry. Increased productivity of non-farm activities may yield their greatest poverty reducing benefits when they are supporting secondary, linkage dependent growth, again particularly if the activities have low barriers to entry. Pro-poor policies in these areas will need to involve stimulation of tradable agricultural production, stimulation of production of non-tradable staple foods, and support to employment opportunities for the poor in production of non-farm, non-tradable goods and services with high marginal budget shares.

Increases in productivity in semi-tradable agricultural staples may have special benefits, combining some of the advantages of both tradables and non-tradables. This may arise where increasing productivity initially depresses prices (benefiting poor net food consumers) as an area moves from being a net food importer to a net food exporter. However, further productivity increases will not depress prices further as surpluses are exported to other areas. Such productivity increases will also counteract the dangers that a high income elasticity of demand for cereals can result in higher grain price impoverishing the poor (Dasgupta, 1998, cited by Thirtle *et al.*, 2001 p8). This illustrates the importance of increasing agricultural productivity to keep incomes and prices in balance.

Table 1: Effects of Productivity Growth on Pro-poor Economic Growth

<table>
<tr><th></th><th>Tradable</th><th>Non tradable</th></tr>
<tr><td rowspan="2"></td><td rowspan="2">Direct gains if high labour content by poor producers or high upstream / downstream linkages have high labour content by poor producers</td><td>Direct gains if high average budget share for poor consumers</td></tr>
<tr><td>Indirect gains if high average budget share for non-poor consumers and poor benefit from expenditure linkages</td></tr>
</table>

Farm activities	Indirect gains if high labour content by non-poor and poor benefit from expenditure linkages	Elasticity of supply and low barriers to entry important for goods and services with high marginal budget shares, to support expenditure linkages
Non farm activities	Apart from mining and other NR activities, unlikely without good communications and strong urban or export markets (eg. Reardon stage 2 or 3 of rural non-farm transformation)	Unlikely to have high average budget shares for poor consumers
		Elasticity of supply and low barriers to entry important for goods and services with high marginal budget shares, to support expenditure linkages

2.2.4 Other arguments for agriculture's role in growth and poverty reduction

Two other strands of literature suggest a key role for agriculture in pro-poor growth: sectoral growth and the new economic geography.

It has long been recognised that a dynamic agricultural sector can make five broad contributions to broader development in poorer countries where the agricultural sector accounts for a large proportion of GDP and an even larger proportion of employment: increasing agricultural productivity is essential first for capital investment in agriculture itself and for the steady release of surplus capital and labour to other sectors of the economy; it is the major source of export earnings and of food; it plays a major role in keeping food prices down; and it is the major source of domestic income and hence stimulus for demand for local goods and services. (Mellor, 1986; Timmer, 1988). Statistical studies of the connection between sectoral indicators (e.g. change in labour productivity) and economic growth and poverty reduction in the latter part of the 20th century strongly supports these arguments (see Thirtle *et al.*, 2001 for a review).

Wiggins, 2001 presents further arguments from the 'New Economic Geography' suggesting that rural areas, and particularly more remote rural areas, suffer from a wide range of economic disadvantages as regards information and access to input and output markets, with the result that urban areas have a strong comparative advantage for many economic activities. He argues that in 'the deep countryside' only activities with a strong natural resource base (for example agriculture and in some areas tourism and recreation), local processing of agricultural products, and non-tradable services for the rural population will survive. Exceptions to this may arise where rural labour costs are much lower than urban costs, and there are good communications and road networks in rural areas encouraging labour intensive industries to locate in rural areas (Taiwan is presented as an example here).

3 Why not agricultural development? Challenges to Agriculture

Thus far we have presented a number of arguments suggesting a critical role for agriculture in the growth of poor rural economies in Africa. These are related to the characteristics of poor rural livelihoods, of poor rural economies, of agricultural production and of demand for agricultural products, notwithstanding the importance of non-farm activities in rural livelihoods. These arguments are backed up by examination of recent historical experience. Strongly desirable though agricultural led growth may be, however, this is of little relevance if agricultural development is not feasible or viable in poor rural areas in Sub Saharan Africa today. In this section we therefore discuss challenges to agricultural development in Africa which were not faced to the same extent in the successful Green Revolution areas of Asia. We consider three broad sets of challenges: in physical conditions and factor proportions; in the processes of globalisation; and in institutions and policies.

3.1 Physical conditions and factor proportions

The first broad set of challenges arise because the physical conditions and factor proportions are very different from Asian green revolution areas, so that a staple food based, genetic-chemical modernisation of agriculture is much less likely to be achievable. Much evidence can be adduced to support this view:

- Water control is more difficult in Africa, at least in the zones with soils suitable for intensive agriculture, and, in comparison to Asia, Africa has proportionately less than a tenth of the irrigated surface. Irrigation in Africa has also often been an economic failure and is more dependent on seasonal rainfall and therefore has less capacity for 'drought proofing'.
- Population density is low in many areas, leading to high cost: benefit ratios in infrastructural investment and service delivery. These problems are exacerbated by poor communications infrastructure in small land-locked nation states.
- Africa's agro-ecology is very varied and this implies that a wider range of technological solutions are necessary. This further raises unit costs (per hectare and per capita) of agricultural research and information.
- Reversing soil deterioration poses a series of complex technical challenges, probably requiring changes in farming systems to return more biomass to the soil, in tandem with inorganic fertilisers. But the social challenge is much greater than this, where the land is cultivated by poor, labour constrained households which face great difficulties in accessing finance
- Farmers in semi arid rain-fed systems face a particular constraint in that as the average seasonal rainfall decreases, year to year variation also tends to increase. This constrains their crop choice in favour of crops that even in erratic rainfall areas still produce a minimum yield, and both reduces returns to investment in agricultural intensification and makes such investments much more risky, to the point that investments in agricultural are not justified by their returns.
- There are large parts of Africa where the 'green revolution cereals' (wheat, rice and maize) are not suited and/or not favoured as staples: staples are roots, tubers, bananas/plantains and more drought resistant but lower yielding cereals such as sorghum and millet. Livestock keeping is the major activity in some areas. There are both agronomic and economic difficulties with agricultural led growth not based on the green revolution cereals. Roots and tubers can achieve high yields, but there are concerns about rapid soil mining, vulnerability to diseases and challenges to intensification. There is therefore a substantial though not impossible research agenda, which is being pursued at present. However it will require substantial increases in resources and management, will be less able to draw on work performed elsewhere, and may be eclipsed by advances in biotechnology, which are largely aimed at addressing problems and opportunities faced by commercial farmers (Pingali, 2001; Kydd, J. and Haddock, 2001. Tradability is also limited by a high bulk/nutrient ratio and (for most cassavas) rapid post-harvest deterioration, and thus the linkage contributions of these crops will differ from cereals. Broadly similar concerns arise with plantain based systems, coarse grains and livestock.
- Further challenges facing poor rural areas in Africa arise from the effects of the HIV/AIDS pandemic, on social structures, labour, skills, and capital.

3.2 Processes of globalisation

The second major set of challenges arise not from intrinsic differences between poor rural areas in Sub Saharan Africa and those in green revolution areas in Asia, but because the global economic environment has changed. There are a number of interacting elements of this:

- World food prices have fallen in real terms over the last 30 years, and liberalisation has led to a more integrated global market for foodstuffs. Thus import substituting agriculture in Africa enjoys relatively less protection from policy and distance than did Asian agriculture 30 years ago.
- Smallholder agricultural development has been promoted as a 'win-win' strategy, promoting both efficiency and equity. Smallholder farms' efficiency advantages arise in labour intensive agriculture, because family labour is better motivated (i.e. labour transactions costs are lower) and has good micro-environmental knowledge. However, smallholder farms are at a disadvantage relative to larger commercial farms in all other types of transactions (outputs, inputs and, especially, finance). These disadvantages deepen with domestic market liberalisation and with intensification, as markets for outputs, inputs and finance grow in importance relative to labour. Global markets' increasing emphasis on processes of supply chain management pose a further threat to small farms' competitiveness. A

smallholder-based strategy is therefore less likely to be successful in Africa than during the Asian green revolution, but large farm based development strategy for Africa will be less equitable, and slower to deliver poverty reduction.

- Related to this, it is difficult to envisage in what exportable agricultural products Africa will be able to develop competitive advantage on a large scale. Present trade patterns suggests that African agriculture has a well established competitive advantage in a range of tree crops, fibre, sugar, tobacco, fruits and spices. All of these face strong international competition, originating in many points of the globe and there is a question mark against the future of tobacco.
- Developments in the science and organisation of bio-technology are likely to reinforce difficulties for African agriculture, and particularly for smallholder agriculture (Pingali, 2001; Kydd, J. and Haddock, 2001) with declining share of research addressing the needs of small farms, increasing concentration of bio-technology research in a small number of trans national corporations with links to agro-chemical and commodity markets.

3.3 Institutions and policies

The third set of challenges facing smallholder agricultural development in sub Saharan Africa concern the policy environment. The critical points to be made here emerge from our earlier discussion of the difficulties faced in fertiliser and staple food markets, before and after market liberalisation, and of the effects of liberalisation on smallholder farmers' competitiveness and access to financial, input and outputs markets. Whatever the relative merits of pre- and post- liberalisation market systems, it is clear (a) that successful Asian green revolutions were not generally achieved under liberalised markets and (b) that current liberalised (or partially liberalised) fertiliser and output markets are not supporting growth in smallholder cereals production in most of Sub Saharan Africa, whatever their other merits. We argue elsewhere (Dorward, A.R. *et al.*, 2002) that the problem is not primarily one of incomplete liberalisation (the current conventional wisdom as argued by, for example, Kherallah *et al.*, 2000) but the result of more fundamental institutional problems with thin competitive markets where growth requires investments by many different players, but the returns to that investment are dependent upon simultaneous investments by other players. In such circumstances non-market coordinating mechanisms are needed to provide the different players with assurance that other players will indeed make the matching investments necessary for their own investment to yield the desired return. State interventions in markets attempted to address these problems (a) by taking on the major trading investment risks, and (b) by providing farmers with assurance that if they invested in agricultural intensification then they would not be stranded by lack of marketing services. They often also attempted to provide coordinating mechanisms to reduce smallholders' transaction costs in finance, input and output markets, thereby helping them to maintain competitiveness against large scale farmers.

4 Conclusions

Three clear conclusions emerge from the preceding sections: (a) that smallholder agriculture is in a parlous state in much of sub Saharan Africa; (b) that if smallholder agricultural growth could be achieved then it has the potential to make a greater impact on poverty reduction than other types of growth; and (c) that there are major technical, economic and institutional obstacles to smallholder agricultural growth in much of sub Saharan Africa. Where do such clear conclusions lead policy makers? We observe two dominant lines of policy, the first being to abandon agriculture, the second being to promote agriculture within current liberalisation policies.

Proponents of agricultural-led growth in Africa (for example IFAD, 2001) may be described in terms of a New Washington Consensus on Agriculture which faces an 'agricultural investment dilemma' (Kydd, J. and Dorward, 2001). The dilemma is that even where the potential for agricultural development is recognised, it is hard to find ways of investing in agriculture: investment is directed towards governance, general rural infrastructure (roads, health and education) and rural institutions supporting competitive markets. Although the value of investments in research and extension are recognised, these are almost the only specifically agricultural investments recognised as potentially beneficial, and rates of investment are depressed by ongoing questions about their practical value and organisational structures. The result is low and declining

levels of investment, continuing ack of progress on the ground, and disillusioned defection to the 'abandon agriculture' school.

Proponents of the 'abandon agriculture' school focus on the difficulties facing smallholder agriculture (primarily the technical and economic difficulties outlined above, institutional difficulties are less well understood) and on the lack of progress with smallholder agricultural development in Africa despite two or more decades of donor and government expenditure on agricultural development. Within this school two different alternatives are offered to agricultural led growth: rural non-farm diversification and export (largely manufacturing) growth. Arguments for rural non-farm diversification were considered earlier. Although it is easy to see why such arguments are attractive, given the importance of the rural non-farm economy and agricultural stagnation, the linkage, sectoral and new economic geography theories and evidence all argue against the rural non-farm sector being a driver of wider growth except in a small number of circumscribed situations: non-farm diversification will not provide an engine for rural growth, nor for wider economic growth, and hence will be neither effective nor sustainable as a poverty reduction strategy. Reliance on export manufacturing growth to drive development is more likely to be successful in promoting growth, but as its proponents recognise, will only be successful in a limited number of locations, leaving, apart from limited areas where export crops, mining or tourism can generate growth, a large undeveloped and immiserated hinterland (Fafchamps M *et al.*, 2001). This then either throws the ball back into the agricultural court, demanding broader based agricultural growth that at least prevents poverty from increasing, or else welfare safety nets to support rural populations in the long process of transition to an urban industrial/ service economy.

It seems then that we face a choice between three policy thrusts: mainly manufacturing export led growth plus welfare safety nets; mainly manufacturing export led growth plus some broad based agricultural growth; or broad based agricultural growth. These are not mutually exclusive, but the costs of large scale welfare safety nets programmes are likely to be unacceptably high, in terms of fiscal demands on donors, aid fatigue, and long term distortions to African societies and economies. Some combination of broad based agricultural growth with export led growth is needed, with small welfare programmes targeted at particularly disadvantaged and vulnerable groups.

If agricultural development must then play a doubly important role in pro-poor economic growth, how can the challenges it faces be overcome? We suggest a commitment to five key policy themes: diversity; institutional development; trade; research; and governance.

4.1 Diversity

As already noted, Africa is a diverse continent as regards agro-ecology, but it is also diverse socially and institutionally. More than any other continent it is a patchwork of generally small nation states, most composed of different ethnic groups, each with their own history and culture. Different colonial histories have led to further diversity in institutions, language, culture, economic structure and trading patterns. Different technical and institutional solutions are therefore needed to match these various conditions (Belshaw, 2002) and these require differentiated policies recognising different types of agricultural development pathway (for example irrigated and rainfed cereal intensification, root crop intensification, export cash crops, export livestock, mixed cropping systems, and semi-arid cropping systems); their relative importance in terms of dependent populations and wider economic potential; their different technical, economic and institutional needs; and dynamic interactions between them and with rural and urban non-farm growth paths [16] and with productive and non-productive safety net programmes.

[16] For example earlier discussion suggested that within Africa, small scale producers of exportables will gradually lose competitiveness to larger scale producers as at the high-value end of the market partial vertical integration seems necessary to obtain contracts from supermarkets and the detailed information which come with this and relatively high levels of capital investment and high levels of supervision are increasingly needed to reach demanding product specifications. The policy implications are not to abandon support for smallholder producers of exportables but: (i) to "get in quick" to raise their productivity while they still have comparative advantage; (ii) look for institutional arrangements that can combine the different transaction cost advantages of large and scale farms; and (iii) base support around the possibility that exits and/or consolidation may be necessary in later years.

4.2 Institutional Development

The fundamental point to be made here is that in addition to the increasing attention (rightly) paid to wider 'institutional arrangements' (World Bank, 2002), policy analysts should pay much more attention to "institutional arrangements" and should accept the possibility that pure competition may not always be the most satisfactory was of ensuring market access by smallholder farmers to finance and inputs (Dorward, A. *et al.*, 1998; Kydd, J.G. *et al.*, 2001; Dorward, A.R. *et al.*, 2002). Thus small shoots of bottom-up institutional innovation to enable access to finance (innovations in institutional arrangements by individual businesses and collective groups and by local and provincial governments) should be recognised, studied and where appropriate nurtured to promote increasing access by small farmers. Policy must also, however, take the initiative, as bottom-up innovations, whether private, collective or local-state, are largely focussed on non-staples, are very patchy, tend to exclude poorer farmers and, in the case of local government interventions are, so far, rather ineffective. A key issue is whether elements of the now-abandoned system of monopsonistic interlocking to support finance and inputs for food production should be reintroduced, bearing in mind that such systems showed some success in fostering the beginnings of a maize Green Revolution in some African countries prior to its removal. In the absence of workable alternatives for food crops, there is a strong case for investigating how such a system could be introduced, embedded in a governance structure which was responsive to farmers' interests, conducive to operational efficiency and fiscally disciplined [17].

4.3 Trade

Developing countries will be differentially affected, in terms of poverty/ food security status, if OECD economies open up their agricultural markets. It is clear however that they can increase the opportunities for gains from increased trade by reconsidering their own trade policy options. If low producer prices are constraining agricultural growth, is a degree of policy protection required, and is this feasible in terms of policy implementation and WTO obligations? Policy support to staples could be argued both to inhibit production of exportables and to harm rural and urban net consumers, and hence to slow down diversification and growth. In our view, much depends on the detailed design of policies and the quality of their implementation. For example, supports to farmers that (i) brought about large reductions in transactions costs in crop finance and input markets, and (ii) reduced or mitigated some of the price risk in output markets, could create the conditions for output increases which raise rural incomes and tradable production sufficiently to overcome the conventionally identified (and, of course, real) costs of protection. Studies are therefore needed of policy regimes which would, for example, maintain linkages to the world market, via competitive trading, while guarding against dumping and also partially stabilising prices during gluts of domestic production of staples and non-staples. Less controversially, investments are needed in the physical infrastructure connecting African cities to their rural hinterlands (which presently tends to be worse than the connections to the world markets).

4.4 Research

Research is needed in two related areas, technology and institutions. Fundamentally it must be recognised that technological and institutional innovations are both needed for economic development, and that if they are to promote pro-poor development then both need complementarity between bottom up innovation and formal pure and applied research.

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[17] Preliminary ideas include, for example, tenders for regional franchises, with rewards to the operating company (which could be private or associative in nature) linked to performance. Contract performance would have to be monitored and rewards to the operators determined by representatives of farmers, consumers and government. Furthermore, in the early years at least, international donors would require sufficient power over the system to ensure that it operated with transparency.

We discuss here specific issues regarding (irrigated and rainfed) cereal and root crop intensification, systems which we suggest (a) have the most promise and (b) may be viable in areas with large populations (although recognise that, for example, these systems may not be appropriate for large populations in the Sahel). For some areas crude, first-round, technological solutions exist (principally hybrid maize and rice plus fertiliser packages), although they urgently need further development to raise yields per capita (and usually per hectare) and improve soil quality (structure and nutrition) and improve performance with respect to weeds (such as striga), pests, drought tolerance, storage and processing characteristics. Further development of water control is also needed (for example water harvesting and treadle pumps). The roots and tubers based areas require increasing yields per capita and per hectare in the face of an evolving and aggressive pest and disease complex. Also the basic performance of the crops needs development to improve post harvest characteristics and response to fertiliser. There needs to be a high level of public research in biological technology to improve the usefulness of crops, and to protect against disease. The latter, especially, requires an ability to rapidly identify and bulk up and distribute new materials.

The critical issue for cereal intensification, however, is institutional development to improve farmers' access to seasonal finance and inputs [18]. It will be clear from our earlier discussion of institutional development policies that is an area where conventional policy does not have a well developed set of answers, and answers are likely to be variable and complex. There is therefore an important policy research agenda here. In addition to the points made earlier:

- The arguments about state failure in input and agricultural credit support need to be revisited, asking what state intervention did achieve, and what was right as well as wrong with different models. This needs to compare the effectiveness, costs and benefits associated with alternative models, and recognise both direct effects and indirect (linkage) effects on non-tradable farm and non-farm activities.
- Related to the above, more information is needed about the different ways that early agricultural modernisation was financed at the farm level in Asia, the role of the state here, and the way that this role and its effectiveness, costs and benefits changed over time.
- Detailed examination is needed of institutional lessons from elements of successful public sector programmes and private sector activities, to identify critical characteristics, the conditions under which they may work, and how the advantages of different institutional arrangements can be most effectively combined
- Action research is needed in institutional innovation, pulling in experience and trying out innovative institutional arrangements involving, for example, elements of interlocking tranactions, producer groups, regulated monopsony (eg applying lessons from the parastatals experience as discussed above), use of agents such as traders, trader information groups, cooperative competition.

4.5 Governance

A major issue in economic development in Africa is undoubtedly governance. One pessimistic (and understandable) view is to argue that unless governance achieves some minimum standard in a country then it is unrealistic to look for, or invest in, policies for economic growth: realistic action limits itself to working with NGOs and CBOs to promote local organisation and technical innovations to increase productivity and reduce vulnerability. Another approach is to identify and work towards development of institutions needed for market development (for example World Bank, 2002). Over emphasis on either of these has severe limitations: the former may result in very ineffective, limited and short term actions to address growing poverty, the latter may over- burden governments with expectations and demands. Interventions are needed that stimulate both political *and* economic development, drawing attention to the question of how accountable political institutions develop. Olson explained this with a metaphor of a transition from rule by "mobile bandits", who are entirely predatory, to "stationary bandits" who realise that they can raise their revenues in the longer term by allowing economic development, and that this in turn requires an

[18] Roots and tubers systems generally require relatively less annual purchase of inputs, so finance and conventional input markets are relatively less important than in cereal systems. However there are institutional issues in the need for systems to identify, bulk up and distribute disease resistant materials.

accommodation between the interests of the rulers and the ruled. An important "early stage" role of aid-financed interventions is then to stimulate economic growth in an unsatisfactory governance environment so that, if the early shoots of economic development become apparent, more "mobile bandits" will be attracted to a stationary life and embark on the task of building accountable political institutions, in turn fostering economic development. With the luck necessary given the unstable starting point, political and economic developments will then be cumulatively reinforcing.

If, as is argued in this paper, agricultural growth is essential for economic development and poverty reduction in Africa, then interventions to stimulate agricultural development become critical, even (or, perhaps, especially) where the governance environment is very poor, provided that these interventions are institutionally and technologically designed to be of use in a poor governance environment. We argue that this is more possible with agriculture than with other sectors (another argument for its promotion) and that it is necessary for two reasons: first, signs of success in agricultural development may persuade rulers to see their interests as being served by supporting the economy rather than arbitrarily raiding it (hence it may promote better governance); second, when governance does improve it is important that the institutional and technological groundwork is ready to respond and to generate rapid economic gains that in turn will provide broad based political support for the rocky road of continued political change.

References:

Barrett, C. B., M. Besfuneh, et al. (2000). Heterogeneous Constraints, Incentives and Income Diversification Stragies in Rural Africa. mimeo**:** 40.

Belshaw, D. (2002). Presidential Address, Agricultural Economic Society, Aberystwyth, 8th - 10th April 2002.

Brinn, P., A. Dorward, et al. (1999). Soil fertility management and sustainable rural livelihoods: new approaches to the policy process. Chatham, Natural Resources Institute.

Bryceson, D. (1999a). African Rural Labour, Income Diversification and Livelihood Approaches: A Long-Term Development Perspective. Review of African Political Economy **26**(80): 171-189.

Bryceson, D. (1999b). Sub Saharan Africa Betwixt and Between. Working Papers. Leiden, African Studies Centre, University of Leiden, Netherlands. http://asc.leidenuniv.nl.

Bryceson, D. (2000). Rural Africa at the Crossroads: Livelihood Practices and Policies. Natural Resources Perspectives(52).

Dasgupta, P. (1998). The economics of poverty in poor countries. Scandinavian Journal of Economics **100**(1): 41-68.

Deininger, K. and P. Olinto (2000a). Asset Distribution, inequality and growth. World Bank Policy Research Working Paper Series **2375**.

Deininger, K. and P. Olinto (2000b). Why liberalisation alone has not improved agricultural productivity in Zambia: The role of asset ownership and working capital constraints. World Bank Policy Research Working Paper Series **2302**.

Delgado, L. C., J. Hopkins, et al. (1998). Agricultural Growth Linkages in Sub-Saharan Africa. FPRI Research Report. Washington DC., International Food Policy Research Institute.

Dorward, A., J. Kydd, et al. (1998). Conclusions: NIE, Policy Debates and the Research Agenda. In (eds) A. Dorward, J. Kydd and C. Poulton Smallholder Cash Crop Production under Market Liberalisation: A New Institutional Economics Perspective. Wallingford, CAB International**:** 240-265.

Dorward, A., S. Moyo, et al. (2001). Seasonal finance for staple crop production: problems and potential for rural livelihoods in sub Saharan Africa. Working paper, DFID Policy Research Programme project 'Diverse income sources and seasonal finance for smallholder agriculture: applying a livelihoods approach in South Africa'. Wye, Imperial College.

Dorward, A. R., J. G. Kydd, et al. (2002). A Policy Agenda for Pro-Poor Agricultural Growth. Paper presented at the Agricultural Economics Society Conference, Aberystwyth, 8th - 10th April 2002.

Ellis, F. (2000a). The determinants of rural livelihood diversification in developing countries. Journal of Agricultural Economics **51**(2): 289-302.

Ellis, F. (2000b). Rural Livelihoods and Diversity in Developing Countries. Oxford, Oxford University Press.

Fafchamps M, F. Teal, et al. (2001). Towards a growth strategy for Africa. Oxford, Centre for Study of African Economies.

Fafchamps, M., F. Teal, et al. (2001). Towards a growth strategy for Africa. Oxford, Centre for Study of African Economies.

FAO (2000). FAOSTAT Statistics Database, FAO (Food and Agriculture Organisation). www.fao.org.

Gordon, A. and A. Goodland (2000). Production credit for African small-holders- conditions for private provision. Savings and development **XXIV**(1): 55-84.

Govereh, J., T. S. Jayne, et al. (1999). Smallholder commercialisation, interlinked markets and food crop productivity: cross country evidence in Eastern and Southern Africa, Michigan State University, Department of Agricultural Economics and Department of Economics**:** 39.

Haggblade, S., J. Hammer, et al. (1991). Modelling agriculutral growth multipliers. American Journal of Agricultural Economics **73**(May): 361-364.

Harriss, B. (1987). Regional growth linkages from agriculture. Journal of Development Studies **23**(2): 275-289.

Hazell, P. B. R. and R. Slade (1987). Regional growth linkages from agriculture: a reply. Journal of Development Studies **23**(2): 290-294.

Howard, J., V. Kelly, et al. (1999). Green revolution technology takes root in Africa: the promise and challenge of the Ministry of Agriculture /SG2000 experiment with improved cereals technology in Ethiopia. MSU international development working papers No 76. East Lansing, Michigan, Department of Agricultural Economics & Department of Economics, Michigan State University.

IFAD (2001). Rural Poverty Report: the challenge of ending rural poverty. Oxford/ Rome, Oxford University Press/ IFAD.

Jayne, T. S., J. D. Shaffer, et al. (1997). Improving the impact of market reform on agricultural productivity in Africa: how institutional design makes a difference. MSU International Development Working Paper 66. East Lansing, Michigan, Department of Agricultural Economics, Department of Economics, Michigan State University,.

Jones, S. (1998). Liberalised food marketing in developing countries: key policy problems. Oxford Policy Management Papers, No. 46. Oxford, Oxford Policy Management.

Karanja, D. D., T. S. Jayne, et al. (1998). Maize producivity and impact of market liberalization in Kenya. Strategies for raising smallholder agricultural productivity and welfare, Egerton University/ Tegemeo Institute of Agricultural Policy and Development, November 1998, Nairobi, Kenya.

Kelly, V. A., E. W. Crawford, et al. (1999). Towards a strategy for improving agricultural inputs markets in Africa, USAID**:** 6.

Kherallah, M., C. Delgado , et al. (2000). The road half-travelled: agricultural market reform in sub-Saharan Africa. FFood Policy Report. Washington D C, International Food Policy Research Institute.

Kherrallah, M., C. Delgado , et al. (2000). The road half-travelled: agricultural market reform in sub-Saharan Africa. FFood Policy Report. Washington D C, International Food Policy Research Institute.

Kydd, J. and A. Dorward (2001). The New Washington Consensus on Poor Country Agriculture: Analysis, Prescription and Gaps: with particular attention to globalisation and finance for seasonal inputs. Development Policy Review **19**(4).

Kydd, J. and J. Haddock (2001). Genetically modified organisms: major issues and policy responses for developing countries. Journal of International Development **12**: 1133-1145.

Kydd, J. G., A. R. Dorward, et al. (2001). New institutional economics, agricultural parastatals and marketing policy. In (eds) D. Byerlee and I. Livingstone, Renewing Development in Sub-Saharan Africa: policy, performance and prospects, Routledge.

Larson, B. A. and G. B. Frisvold (1996). Fertilizers to support agricultural development in sub-Saharan Africa: What is needed and why. Food Policy **21**(6): 509-525.

Mellor, J. W. (1986). Agriculture on the road to industrialisation. In (eds) J. P. Lewis and V. Kallab, Development Strategies reconsidered. New Brunswick, Transaction Books.

Naseem, A. and V. Kelly (1999). Macro trends and determinants of fertiliser use in sub-Saharan Africa. MSU international development working papers No 73. East Lansing Michigan, Department of Agricultural Economics Department of Economics Michigan State University.

Pingali, P. (2001). The Changing Locus of Agricultural Research: How will the poor fare? 74th EAAE Seminar, Livelihoods and Rural Poverty: Technology, Policy and Institutions,, Imperial College at Wye, UK.

Poulton, C. (1998). Cotton production and marketing in Northern Ghana: the Dynamics of Competition in a system of Interlocking Transactions. In (eds) A. R. Dorward, J. Kydd and C. Poulton, Smallholder Cash Crop Production under Market Liberalisation: A New Institutional Economics Perspective. Wallingford, CAB International**:** 56-112.

Ravallion, M. (1998). Does aggregation hide the harmful effects of inequality on growth? Economic Letters **61**: 73 - 77.

Reardon, T. (1998a). African agriculture: productivity and sustainability issues. In (eds) C. K. Eicher and J. Staatz, International Agricultural Development. Baltimore and London, John Hopkins University Press**:** 445-457.

Reardon, T. (1998b). Rural non-farm income in developing countries. In (eds) FAO, The State of Food and Agriculture 1998. Rome, Food and Agriculture Organisation.

Reardon, T., C. B. Barrett, et al. (1999). Policy reforms and sustainable agricultural intensification in Africa. Development Policy Review **17**: 375 - 395.

Reardon, T., J. E. Taylor, et al. (2000). Effects of non-farm employment on rural income inequality in developing countries: an investment perspective. Journal of Agricultural Economics **51**(2): 266-288.

Thirtle, C., X. Irz, et al. (2001). Relationship between changes in agricultural productivity and the incidence of poverty in developing countries. Paper prepared for DFID.

Timmer, C. P. (1988). The Agricultural transformation. In (eds) H. Chenery and T. N. Srinivasan, The Handbook of Development Economics Vol I. Amsterdam, Elsevier Science.

Toulmin, C., R. Leonard, et al. (2000). Diversification of livelihoods: evidence from Ethiopia and Mali. Research Report. Brighton, Institute of Development Studies. **47**.

Wiggins, S. (2001). Spatial dimensions of rural development. Department of Agricultural and Food Economics, University of Reading.

World Bank (1997). Rural development: From vision to action. Washington, D.C, World Bank.

World Bank (2000a). Can Africa Claim the 21st Century?, World Bank, African Development Bank, United Nations Economic Commission for Africa.

World Bank (2000b). World Development Indicators: tables and CD ROM (some data also gathered from earlier editions). Washington D.C., World Bank.

World Bank (2002). Institutions for markets: World Development Report 2001/2002. Washington D.C., World Bank.