Future Agricultures

Research Paper

Small farm commercialisation in Africa: Reviewing the issues

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Cover photo: Tomato growers, Brong-Ahafo, Ghana

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Abbreviations

Eurep	Euro-Retailer Produce Working Group
GAP	Good Agricultural practice protocol, Eurep
HACCP	Hazard Analysis and Critical Control Points
KTDA	Kenya Tea Development Authority
kt	Thousand tonnes
LF	Large farmer
m	Million
SF	Small farmer
SPS	Sanitary and Phytosanitary Standards

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Summary

Introduction and framework

Small farmers in Africa have long been engaged with markets. Whenever villages have been connected to urban or overseas markets, smallholders have produced surpluses for them — at times prompting remarkable transformations in rural economies. The opportunities to engage with markets for small farmers are increasing — making questions that arise about smallholder commercialisation all the more important.

Formally defined, commercialisation is about increasing engagement with markets. It is about increasing fractions of crops and animal products being destined for sale. It is also about increasing inputs and factors of production being acquired from the market: most obviously in machinery and tools, seed, fertiliser, crop protection chemicals, veterinary drugs, animal feed; but also using markets to hire labour, borrow funds, deal in land and obtain technical advice and market information. Indices to measure the degree of commercialisation have been proposed such as the value of farm sales over the value of all farm production. However this and other measures have their dangers since very poor farmers who have to sell much of their harvest to repay debts can appear to be commercial producers.

When small farmers engage with markets they encounter traders, processors, input suppliers, banks and so on, who usually operate at a much larger scale with much larger amounts of capital and often political influence as well. There are very different expectations of what may then happen to small farmers. This review picks out three perspectives, each with two variants that are influential in framing questions and setting policy agenda.

One of these perspectives sees markets as places where unequal relations lead to differentiation. In the Marxian variant, capitalists end up with capital and land, and the former small farmers end up as landless. Some non-Marxian approaches see large-scale farms as more efficient than smallholdings and thereby expect that the former will supplant the latter. Unlike Marxian perspectives that fear the impoverishment of those rendered landless, in this case it is expected that increased production and productivity from large farms will create jobs for those leaving farming.

Another perspective sees distinctive features to peasant farming, including the ability of family farms to survive bad harvests and economic shocks that might leave a large commercial farm bankrupt since they do not need to pay for family labour and can accept temporarily reduced implicit earnings. A less favourable variant of this thinking sees small farmers enmeshed in an 'economy of affection' (Hyden 1980), where accumulated capital is likely to be redistributed rather than reinvested slowing agricultural growth.

A third view sees small farms as little different to any other kind of business and hence likely to thrive when economic conditions are favourable. A variant here proposes the difference that small farms in rural areas are unusually likely to suffer from one or more of three market failures: insecure land rights; high transactions costs when dealing with larger concerns in supply chains; and the exercise of monopoly power by those larger operators. The first two deter investment and the third can

lead to the exploitation of small farmers. The severity and extent of these failures, especially high transaction costs, has become a major bone of contention in contemporary debates. Some see the inability to access inputs and credit owing to high transactions costs as a poverty trap requiring public intervention to remedy. This review looks at the debates, evidence and policy implications through a set of questions, as follows:

Processes of small farmer commercialisation

- How do small farms commercialise? To what degree, and how specialised do they become?
- What have been the drivers of commercialisation?
- Which farmers commercialise? What happens to other small farmers?
- How do commercialising small farms interact with larger-scale businesses in farming and the supply chains? What is the scope for complementary outcomes through contracting and other forms of co-operation?

Outcomes

- What are benefits of commercialisation?
  - o How much benefit do small farmers gain from commercialisation?
  - o What linkages may be created by commercialisation to create additional jobs and incomes in the rural economy for those not commercialising?

These are the most important questions of all about commercialisation. It may be expected that commercialisation will see farmers achieving higher gross margins from land and labour used for their commercial enterprises, compared to their former use, and hence their incomes should rise. Furthermore, linkages in production and consumption should lead to extra jobs being created in the local rural economy, to the benefit of the landless and marginal farmers unable to take full advantage of the opportunities of commercialisation.

Given the right conditions these hopes should be realised. These conditions include that farmers have physical access to markets, preferably those that are growing in size and have consumers prepared to pay for higher value products; that there are competent traders in a reasonably competitive marketing chain; and that farmers can get access to working capital and from that to farm inputs, as well as to technical advice and market information when needed.. However conditions are not always ideal and processes are often complicated resulting in undesirable outcomes. Concerns centre on the following questions:

- Does more commercial production lead to less food and nutrition security?

If farmers were to neglect production of food crops, not spend additional income to make up for any loss of food crops, or were to spend so much time farming that they had too little to take care of young children, then more commercial production could imperil food security. Does commercialisation lead to concentration of land and assets and widen inequality? Do the poor become even poorer?

- Does it exacerbate gender inequalities?

Commercial opportunities may be more accessible to men — since they may have capital and better links to traders and processors — who will use their advantages to pre-empt the

resources of the household to earn income they can control.

- Does commercial farming leave small farmers exposed to higher and unacceptable risks?

Output and input prices may be variable, more specialised production may be more vulnerable to drought, pest or disease. Furthermore, there may be hazards in production such as heavy chemical applications.

- Does more commercial production mean greater harm to the environment?

Producing more for the market involves either extending the farmed area with possible deforestation, loss of biodiversity and greatly increased emissions of greenhouse gases from cleared forest and bush. Or existing use is intensified, with potential for increased soil erosion and degradation, over-drawing of water sources, a build-up of pests and diseases, pollution of land, water-courses from the run-off of fertiliser and crop protection chemicals and more emissions from fertiliser and manure.

Policy lessons and implications

- What policies and programmes have been effective in promoting commercialisation with desirable outcomes?
- What should government, in collaboration with civil society and private sector, do to promote commercialisation with desirable outcomes

For most of these questions the answers will probably vary depending on:

- Size of farm and by gender of head of households
- Crop type: level of demand, quality standards and processing needs
- Location: access to markets, natural resources, population density, supply of public goods
- Time, since some outcomes only become clear after a few years have passed.

The report is structured around these questions.

Process of commercialisation

Most examples of small farmers commercialising do not involve radical changes. On the contrary, most commercialisation of small-scale farming takes place within existing farming systems, within existing land tenure forms, carried out by households using their own labour, and governed by longstanding norms about who does what and with what reward. Changes are often small and incremental although they may form part of series of small steps that eventually add up to quite substantial changes in the farming system.

Two things tend to prevent more dramatic change. One is land tenure: in much of Africa collective forms of tenure allocate land for usufruct (i.e., to allocate land for use in farming, but not for transfer to others) limiting landholding to the area the household can farm. The other is the preference for organising labour within households, where labour is self-supervising and has incentives to be diligent. As most small farmers are reluctant to operate farms with hired hands, other than for short periods at peak seasons, commercialised small farms tend to operate on relatively small areas using household labour for the most part.

It is tempting to see commercialisation as linear process whereby households progress from subsistence to pure commercial farming,

and in the process specialise their production. In the early stages of development, however, specialisation is not necessarily observed: indeed, commercialisation may well be associated with diversification, not specialisation. Two reasons explain this: an aversion to higher risks that could arise from relying on a single crop for income; and because most small farmers want to produce a large part of staples for home consumption, owing to fears about availability and cost in markets.

What has led to commercialisation? Two factors stand out: on the demand side higher prices and better access to markets; on the supply side the diffusion of improved technology — which, of course, may result from public policy and investment.

Higher prices at the farm gate can come about in several ways. They can be the direct result of policy, as can happen when currencies are devalued and the price in local currency of an export crops rises. For example, in Ghana heavy devaluation of the Cedi in the 1980s led to much higher prices for cocoa farmers. Another possibility arises when state agencies offer a guaranteed price across the country thereby offering farmers in remote areas prices well above what traders could offer given transport costs. This was the case in Tanzania and Zambia in the 1980s for maize, leading to major increases in marketed surplus from remote areas such as the southern highlands of Tanzania. Prices at the farm gate and in the village can rise when improved roads cut transport costs to market, and as towns and cities grow and transmit demand to their hinterlands in the form of higher prices, especially for fresh and perishable produce.

The other main driver has been technical advances that have either improved productivity, or removed a severe obstacle to producing crops or raising livestock in particular environments, or reduced physical risks faced by farmers. The green revolution provides prime examples. Although the literature tends to highlight the contribution of formal innovation emerging from research stations and diffused by extension services, some innovations owe more to practices developed by farmers themselves; for example the planting pits ('zai') and stone bunds deployed on the Mossi plateau of Burkina Faso to retain soil and water.

New techniques are generally adopted by making small, incremental changes to existing systems. The clearest exception to this is when irrigation is introduced, which often entails a change of crop, more intensive use of fertilisation and crop protection, more intensive weeding, and new forms of social organisation to manage water and maintain the irrigation infrastructure. Irrigation may also entail mechanisation through the use of pumps, which also generates new jobs for mechanics to maintain them. Technology, by and large, does not of itself lead to enhanced production and commercialisation, unless there is a market opportunity that makes it worth adopting.

Obstacles to small farm commercialisation These driving forces apply to all farms, not just smallholdings. Are large farms better placed to respond to these forces? For most crops and livestock, economies of scale do not apply on the farm: on the contrary, there may be diseconomies of scale that apply when farms reach a size where most of the labour has to be hired in. Economies of scale are, however, seen in the supply chains: in processing, getting access to capital, inputs and information. They

apply strongly when supplying international and other demanding markets for high-value produce, where requirements for certification of production methods and for leaner logistics increase by the year. Across the world there are documented cases of small farmers being squeezed out of markets they once were part of; examples include horticultural exports from Kenya and Senegal, and pineapples from Ghana.

Other than these demands, what other obstacles particularly affect smallholdings trying to commercialise? Three have been suggested. One, some worry that small farmers with usufruct rights under collective tenure will neither invest in their land nor conserve it, land titling programmes often take this an article of faith. Most evidence, however, shows that farmers with such tenure invest and conserve their land to the same extent as those with freehold titles. Lack of title does however prevent farmers pledging their land as collateral for credit, but there are serious questions about allowing farmers to risk gambling their farms when both production and prices in markets are variable.

Two, more important may be the information failures and resulting high transaction costs that restrict supply and drive up costs of inputs, credit and insurance to small farmers. The issue is not in dispute, but what is difficult to determine from the evidence is how serious it is. Given how many small farmers manage to invest and innovate in the face of high transactions costs suggests they are not necessarily an absolute barrier to development, but rather a hindrance.

Three, there is widespread suspicion that traders exercise monopoly power to depress prices paid to farmers. While there is evidence of imperfect competition, and cases where prices to farmers have thus been held down, there are counter cases of competitive trading with low margins — especially when the high costs of transport and risks run by many traders are taken into account. Moreover recent surveys in eastern Africa show that most farmers can choose to sell maize to half a dozen or more traders.

Who commercialises? Processes of commercialisation are uneven: although higher prices, improved market access and agricultural innovations may allow commercialisation in a particular zone, the response to these stimuli will vary across individual farms. This is not surprising since even within areas where smallholdings dominate, there can be substantial differences between farm households in access to land, capital, labour, and to knowledge and skills.

It is therefore to be expected that commercialisation will be uneven across households. But if some farmers are able to commercialise earlier and more than others, what does this imply for the prospects of their less well positioned neighbours? It is possible that they will benefit from: being encouraged to imitate those commercialising, from additional local jobs in production, or from multipliers in consumption as extra earnings are spent locally creating opportunities in the non-farm economy.

There is, however, the possibility that early movers may be able to take up opportunities and pre-empt others imitating them. Moreover, it could be that the more successful commercialising farmers are able to use their initial advantage to expand their holdings by buying up or renting land off others, potentially

undermining the livelihoods of their neighbours.

How do commercialising small farms interact with larger-scale businesses in supply chains?

Supply chains are as diverse in their integration and sophistication of logistics as the farms they serve. Nevertheless, two broad types can be distinguished. Some supply chains are **decentralised, fragmented and competitive supply chains** that often link farmers to domestic markets for perishable and little processed goods, for example, onions, tomatoes and milk. Farmers deliver to small-scale traders, with more than one to choose from, in spot deals. Traders deliver to wholesalers, small retail stores, or directly to consumers, with little or no storage or processing. These chains work well enough when: farmers can produce to standards that are clear to immediate inspection by sight, feel, smell and taste; traders can bulk up small lots from many farmers and deliver regularly to their customers in quantities needed; and when working capital requirements are modest. Costs in these chains are often low: indeed, keeping them down is often key to success so that farmers consequently get a large share of the price paid by the consumer.

In contrast other chains are **centralised, integrated and sometimes monopolistic**. In these cases farmers deliver, sometimes through traders, to large-scale enterprises that grade, pack and deliver goods to particular wholesalers or retailers with demanding requirements for quality, standard bulk lots and timing.

These arrangements are found when: processing has to be large scale to achieve threshold economies, as applies for sugar, or when processing is critical to quality, as applies to tea; working capital requirements are onerous for small farmers; quality may not be immediately apparent, for example, with the use of pesticide residues; and when the production methods matter either for quality of product, or for certifying the conditions of production. Costs in these chains will be higher than in decentralised chains, farmers will get a lower share of the consumer price. But this may still be attractive since generally the product delivered to wholesalers or retailers is high unit value.

An increasingly common form of this latter chain is found with *contract farming* where a private company enters into agreement with farmers to supply produce. These schemes can link small farmers to traders or processors with the latter providing the farmers with inputs, technical assistance and marketing, in return for an assurance of getting regular supplies from the farmers.

This assumes that the traders or processors have access to sufficient capital to advance inputs or provide technical advice with thanks to low transactions costs with banks. Both parties to the contract are locked into the arrangement with incentives to make the deal work.

The large amount of literature on contract farming shows that success depends on there being a good business opportunity that neither contractor nor farmer could easily seize without the participation of the other; it also requires that the market is reasonably stable and the promised price is in line with the spot market. Contracting can work but it needs these conditions. Where crops and products that can be processed and marketed on a small scale by

all and sundry, where market failures are not that extreme; where farmers can get the inputs they need to produce, then contracts are not needed.

Outcomes from commercialisation of small farms

Plenty of evidence — for example, coffee, dairying and vegetables in central Kenya, tomatoes in Brong-Ahafo, Ghana, and tomatoes and peppers in south-west Nigeria — shows farmers achieving higher gross margins from land and labour used for commercial enterprises compared to former uses increasing their incomes.

They are not the only ones to benefit: under the right conditions linkages in production and consumption should lead to extra jobs being created in the local rural economy benefiting landless and marginal farmers unable to commercialise. Some studies suggest multipliers in rural Africa may be particularly high since so much of the additional income to small farmers is spent in the local rural economy.

What are the potential drawbacks? A frequent concern is that growing cash crops may **reduce household food security.** Yet the evidence shows few cases where small farmers have sacrificed home production to grow crops for sale. Small farmers time and again prioritise growing most of their main staple food. Generally households that produce more cash crops also produce more food crops since they can use cash to buy inputs to intensify production of staples; in some cases rotation of crops means that cereals benefit from residual fertiliser on fields used in the last season for the commercial crop.

There is little evidence that households with cash crop incomes spend less on food than neighbours without such incomes. However there are cases when the increased work load has meant mothers having too little time to prepare meals for infants who have suffered malnutrition, for example, in northern Zambia, where many men are absent women have to farm unassisted.

Overall, there is little to suggest that commercialisation reduces food security or nutrition; on the contrary, it often improves it. That said the connections between commercialisation and incomes on the one hand and the nutrition of young children on the others are often weak since child nutrition is only partly about food intake - health issues and a sanitary environment are at least as important.

Plenty of cases show that commercialisation can lead to **greater differentiation in rural societies** with widening gaps between those commercialising and their neighbours. This is more or less to be expected when the wide variations in access to land, capital and labour that greatly affect the ability to commercialise are considered.

Debates over differentiation, however, are dogged by two issues. One is how much concern there should be over widening gaps between rural households so long as those in the lower echelons are becoming less poor. While there may be considerable evidence of commercialisation leading to larger gaps in income there are far fewer confirmed reports of those at the bottom of the income distribution actually becoming worse off.

The other issue concerns time and dynamics. The initial phases of commercialisation are almost bound to see some households, already better off than their neighbours, gaining greater advantage than others. But does this imbalance

persist? Outside of Africa, in North Arcot, Tamil Nadu, studies in the early 1970s showed that opportunities afforded by the arrival of green revolution rice varieties and supporting public policy were taken up by a minority of farmers. When resurveyed in the early 1980s the new rice varieties had been adopted by the vast majority of farmers. Moreover, the largest proportionate gains in incomes accrued to landless labour thanks to strong multipliers from agriculture to the rest of the rural economy.

There are fears that commercialisation can increase **gender differences** since commercial opportunities are often more accessible to men who may use their advantages to pre-empt the resources of the household to earn income they can control. Examples can be seen in The Gambia when women have cultivated vegetables for export leading to men seeking to take over the gardens. In the same country attempts to irrigate rice have foundered when the fields were worked by women while men took the earnings. For commercialisation to increase gender differences further, however, there have to be unresolved tensions over roles already. That said, too many external interventions have been blind to potential impacts on gender roles and outcomes.

Commercialisation of small-scale farming can expose small farmers to **increased risks** both with prices in the market and in production. Although this could lead to calamity, including having to sell the farm to cover bad debts, such outcomes are rare. This is because the common response to risk is to diversify production, limit cash spending on the commercial crop and cope with economic misfortune by accepting low implicit returns to household labour. These responses have their downside: diversification sacrifices potential gains from specialisation; less investment means not applying optimal amounts of fertiliser or hired labour. The variance of returns may be reduced, but so too is the mean.

More commercial production could mean **greater harm to the environment** expanded production can harm the environment these impacts need to be set against what might otherwise have occurred. If instead of commercial production the rural population had to look to subsistence production for their livelihoods, chances are that they would use more land and push further into the extensive margin —converting valuable habitats and farming soils susceptible to erosion and degradation.

In some cases commercialisation has helped conserve resources. For example, in the 1940s before commercial crops were planted, Machakos a district in eastern Kenya saw widespread soil erosion and deforestation. Half a century later, the coffee, dairying and green beans of upper Machakos had justified widespread terracing, gulley stabilisation, tree planting and application of green manures, amongst other conservation measures. Similar improvements with intensification have been seen more recently in Burkina Faso.

It is one thing to observe outcomes at one time, another to see them later. Three things can happen over time to modify initial outcomes. One, positive feedback can increase and spread initial effects such as those arising through diffusion of innovations and linkages. Two, negative feedback can counter initial gains as applies with some environmental processes; or increased output pushes down price.

Three, above all there can be external shocks from abrupt switches of policy, falling prices on

world markets and more exacting demands in supply chains. For example, competition from a different variety of pineapple grown in Costa Rica caused a temporary loss of market in Europe for smallholders growing the fruit in Ghana, which led to a restructuring of production that omitted many former smallholder growers. The application of the highly demanding EurepGAP standards to export horticulture in Kenya and Senegal led to many small farmers losing an export market, although in Kenya they were able to turn to the domestic market, while in Senegal larger farms that could meet the standards hired in many poor labourers.

Policy

Policies to promote commercial small farming address two main areas: they promote increased productivity and production for sale, and they link farmers to markets in effective, efficient and fair supply chains.

Policies to stimulate productivity and production include:

- Ensuring a favourable rural climate for investment — a necessary precondition for investment and innovation
- Supplying public goods on which farmers depend, including roads, irrigation, education, health, clean water, research and extension. Such public spending pays off with returns higher than those for spending on private goods, such as subsidies on inputs. There may, however, be an exception to this in the very early stages of agricultural development when poorer smallholders may face insurmountable problems in getting access to inputs
- Addressing problems of imperfect competition and high transactions costs in supply chains. In some cases, especially densely-settled peri-urban areas, disputes over land tenure may need attention as well
- Use of subsidies and taxes to create incentives, which are undoubtedly powerful ways to boost production, but at heavy public cost
- Influencing strategic choices around farm exports and food production especially, where boosting the productivity of staples, may be a necessary pre-condition for some small farmers to produce more for the market — and. Priority policies are those that ensure a reasonable investment climate and the supply of rural public goods. These are necessary, if not always sufficient conditions for private investment and innovation. Other measures may be complementary, but there are dangers if their cost or administrative detracts from efforts on the first two points.

Although not entirely divisible from matters of production perhaps the most challenging part of promoting commercialisation by smallholders is **linking them to markets** so that they can access improved inputs, finance to invest both long and short term, advice on technical matters, information on markets, and so that they can sell their output reliably and to the standards and requirements of buyers. It is no surprise that much of the recent literature on commercialisation has been concerned with relations between small farmers and others in the supply (value) chain.

Where supply chains are decentralised public policy only needs to accomplish the basic conditions: a reasonable investment climate and public goods such as roads in decent condition. This may be supplemented by provision of market information although the public record in providing prices and market conditions to farmers is not that good partly since the incentives to get accurate and timely data are often lacking.

For the more centralised and integrated chains, however, transactions costs can be high and competition may be imperfect leading to underinvestment by both farmers and processors. Three responses are possible. One is to set up **government parastatal enterprises** enterprises to organise the entire supply chain. The record of these has often been disappointing as a result of being expected to achieve political and social objectives as well as run a business. Parastatals have often been inefficient since, often being monopolies, they lack incentives to keep down costs. Hence they have tended to be costly both to government and the farmers they serve. Not surprisingly many were wound up or severely cut back when African economies were liberalised from the mid-1980s onwards.

Another option lies with forming **farmer associations and co-operatives** to grain economies in marketing and input provision and to provide countervailing bargaining power to any monopolists in the supply chain. In Africa, however, they have often failed owing to lack of competence and honesty of their managers often in collusion with the leaders of the co-operatives. These problems have been exacerbated by forming co-operatives that have attempted to do too much and that have had too wide a membership making it difficult for members to hold leaders and managers to account. But if associations are restricted to simple and straightforward business tasks there are hopes for a new generation of more efficient associations.

The third solution lies in having **large private enterprise** run the supply chain. If there are private firms that have the competence and expertise to run the supply chain then why not simply link farmers to them? The private firm has all the incentives to run operations efficiently and if it depends on the small farmers for supplies, especially processing plants that need to operate at full capacity, then it also has the incentives to help farmers to overcome any limitations they face in working capital, access to inputs and technical knowledge.

Contract farming is the usual way in which such links are created. Contract farming may not need government intervention, but the government may wish to offset imbalances of power between farmers and enterprises by ensuring that farmers' land rights are secure, that farmers have access to information on technology and markets, and farmers are helped to negotiate a fair deal. Governments may further encourage contracting by facilitating contacts between farmers and processors that provide information including model contracts, supervising or regulating contracts. This may go as far as to underwrite promising schemes, guaranteeing returns to investors and farmers; providing key public goods such as roads; or even subsidising initial investments.

Political economy, administrative capacity and sequencing

It is easy to recommend policies to promote smallholder commercialisation, but much more difficult to realise them in practice. The political economy of decision-making, administrative capacity in the public sector, and sequencing of measures are as important as technical considerations of ideal policies.

Several aspects of **political economy** can leave small farmers at a disadvantage. A belief that larger means more efficient, despite much evidence to the contrary in farming, can lead to large-scale farming being favoured in policy — all the more so when large farmers dominate some national farmer organisations. Another problem regards populist policies perceived to distribute private goods to all farmers, but in practice large farms disproportionately capture

benefits usually at a heavy cost and the expense of investing in public goods. Governments are often tempted to control production and marketing through regulations, however, the results have usually either been ineffective since they have been difficult to enforce, or else have prevented farmers from taking advantage of opportunities. Overall it is surprising just how little influence on policy small farmers have despite their numbers.

Capacity in staff, funds and expertise is another limit to what public policy can achieve. Indeed, one reason for the popularity of advice to roll back the state as a condition for structural adjustment loans in the 1980s and 1990s was the perception that state agencies were often inefficient and incompetent. This may have overstated the case, but there was plenty of evidence of agencies that were ineffective and costly.

This has prompted debate over what ministries may reasonably hope to achieve in rural Africa with views ranging from favouring a return to days of large and seemingly powerful ministries with interventionist policies to favouring minimalist ministries that focus on oversight of a sector dominated by private enterprise. Much depends on the capacity of the state and the difficult question of how severe problems of high transactions and imperfect competition in rural markets are, and how the state should react, if at all.

For the moment, however, the key point is that policies and programmes have to be feasible when administrative capacity is limited.

Given limited budgets and administrative capacity, it is not possible to do everything to support small farmers at once. *Sequences* of policies need to be devised that would ideally tackle the tightest bottlenecks first of all before moving to tackle less pressing issues. Public action varies in difficulty, from relatively simple tasks with proven technical proposals and low risks, to things more difficult and complex (since technical proposals are risky and not proven); therefore sequences should begin with the former challenges and progress to the latter as capacity and confidence is developed.

Hence it has been proposed that policy starts with basics of providing rural public goods, above all roads to create links to markets, then look to kick-start the markets by addressing issues around seasonal finance, input supply, reliable output markets, which would lead to widespread effective demand from farmers for inputs and marketing of outputs. Following this the state would withdraw leaving private firms to enter the markets, however, whether states need to intervene to kick-start markets in the first place is questionable.

Given the varying challenges of public policy central government agencies, bound to follow bureaucratic rules designed for simple tasks, may not be suited to tackling the complex challenges. Some Non-Governmental Organisations (NGOs) and private companies may have the freedom to adopt more flexible approaches likely to be more effective in addressing complex challenges faced in the field.

In summary: policies can be seen as arrayed along a spectrum from necessary and basic policies, thankfully often administratively straightforward as well, to complementary policies that can become increasingly complex. In the former category are measures to improve the rural investment climate and provide public goods. Much can be achieved by working on this straightforward agenda. One of the fastest growing agricultures in Africa is Ghana, which

probably owes most of its progress since the mid-1980s to prioritising these measures.

Beyond these fundamentals are the challenges of reducing transactions costs and imperfect competition. This is an exciting area, but also troublesome: there are no general, simple answers to the questions posed. Progress will thus be made partly by trial and error, a process facilitated if existing experiences are documented and reviewed to learn the lessons.

Conclusions

By way of conclusion, the main strengths, weaknesses, opportunities and threats that smallholder commercialisation faces in Africa can be summarised as shown in Figure A.

The **strengths** seen in successful commercialisation consist of low costs of labour and often high quality labour, since the household labour force has incentives to work hard and well; local knowledge of physical conditions; and the ability to be quite flexible in production, since the household can tolerate, for a time, low returns in farming, especially when the household has diverse sources of income. All of these mean that small farms can be low-cost producers.

Weaknesses are equally apparent: limited access to inputs and capital since rural markets work imperfectly; limited ability to bear risk, lacking formal insurance, leading to risk-averse practices that forgo potential gains from commercial farming; and difficulties in meeting the demands of some high-value supply chains, especially those where credence characteristics matter so that small farmers have to incur high costs per unit to certify that their produce meets these.

Opportunities lie in the growth of the urban and non-farm economy, creating both rapidly growing domestic markets, with increasing shares for higher-value produce. At the same time, Asia is equally rapidly increasing its imports of animal feed and oilseeds, amongst other things. Faced by growing market opportunities, Africa also has some of the largest areas of underdeveloped, medium potential land: the Guinea Savannah, with 400M hectares or more of land that could be developed.

To these opportunities can be added the promise of technical advances made possible both by biotechnology and work on developing

Figure A: Small farmer commercialisation in Africa, a SWOT diagram

Strengths • Self-supervising, diligent labour • Knowledge of land and local conditions • Flexible production	**Weaknesses** • Limited access to capital, inputs • Risks in production and marketing • Meeting standards of some supply chains
Opportunities • Urban growth • Asian markets • Large areas of unused land: 'sleeping giant' • Technical advances, some already known, others likely in future	**Threats** • Climate change • Land alienation • Policy biases • Evolving supply chains with more demanding requirements

agro-ecological systems such as conservation farming, agro-forestry, etc.

Against these are ranged some potent **threats**. Climate change threatens to produce variable weather and consequently more variable harvests. There may be ways to adapt to this through more resilient farming systems and by using regional trade to balance out the variable harvests, but it represents a tough challenge. Those managing international, and some national supply chains, have no necessary interest in dealing with small farmers, preferring to source from large farmers in bulk lots with lower transaction costs.

Policy may be biased against small farmers, most particularly with the threat of allocating land to large-scale farms.

This last point prompts a major question: can some small farms in Africa successfully commercialise given the right conditions? But how many of the 33 million small farms on the continent will be successful small-scale commercial farms in ten or even twenty years time? And what will happen to the rest? In principle most would accept that not all small farms have the resources, above all land, to step up to more commercialised production. Most of those on farms lacking assets probably have better options in off-farm jobs, or in moving to the growing towns and cities. They may not all give up their farms; instead many will remain as part-time farmers, but increasingly their incomes will come from off the farm.

But where is the threshold that defines the minimum assets necessary to assure a future in full-time farming? In terms of land, is it two hectares, five hectares[1], or even more? This makes a difference to the policies needed and the trajectories for the development of the agrarian structure. Yet to our knowledge there is little study of this point.

To end, what are the major policy messages from this review? Three points stand out:

- Much of what is needed to help small farms commercialise are straightforward, simple measures: ensure a favourable rural investment climate — it does not have to be perfect, good enough will do; and supply public goods in rural areas as effectively and efficiently as possible. It is frustrating that this is not already the case across rural Africa: both sets of measures should be vote winners.
- This needs to be complemented by efforts to link small farmers to opportunities in rewarding supply chains. Farmer associations, contracting with agri-business, are ways to do this.
- Prospects for small farmers will be so much better if there is success with overall economic growth — if the urban economy grows creating jobs off the farm. There is no necessary contradiction between agricultural and urban development: China has not achieved what it has by walking on one leg, why should Africa?

1.Introduction

Small-scale farmers all over the developing world, and in Africa in particular, increasingly engage with markets. While for many smallholders self-provisioning remains an important goal —indeed, there are still relatively few farm households in Africa that do not devote much of their land and labour to growing crops and raising animals for their own consumption — increasingly produce may be sold while inputs to raise production such as financial services, information and advice are bought in.

In the past smallholders aimed first and foremost to produce food for the household even if they also produced small surpluses that could be sold on village and district markets to acquire other goods and services necessary to maintain the household. Over time small farms tend to become more commercialised. When farmers get access to larger markets than those of the village or the district — as cities grow and as farming areas become linked to them by passable roads, rail or navigation — they usually respond by producing more for these markets.

In most cases this has been voluntary, but sometimes states forcefully encouraged this often by imposing taxes on farming populations that could only be paid by selling produce. Sometimes small farmers have even been compelled to deliver produce to market, usually through imposition of a quota to be supplied to a state agency.

Since the early 1980s commercialisation has intensified under policies of more liberal markets and freer trade across borders that offer additional market opportunities to farmers, as well as obliging them to pay for inputs and services that in former times might have been provided by the state.

That said, impressive as recent changes may be, we should not lose sight of the remarkable transformations seen in the past. For example, the integration of the agriculture of the West African coast into the global economy in the last two decades of the nineteenth century[2] — a result of the reduced cost of ocean transport by steamships, and the links developed through the colonial adventures of the British and French — saw astonishing developments in local farm economies. Indigenous producers took to growing oil palm, cocoa, groundnuts and rubber with a will, clearing forest and bush, building roads and bridges, acquiring knowledge and planting material (Berry 1993, Hill 1986, Tosh 1980). In the process rural economies were transformed. More than half a century later the smallholdings of Central Province and the Ukambani in Kenya saw similar initiatives, once small farmers were allowed to plant coffee and tea. (Bates 1989, Leys 1975, Tiffen et al. 1994)

The commercialisation of small farms has, not surprisingly, attracted much interest. At the farm level it is a way for small farmers to raise their incomes; for the rural economy it may be a means to inject additional income, with multipliers potentially distributing incomes across the population; and for national economies small farm commercialisation may be central to agricultural development that in turn permits wider development of the economy.

That is not to argue, however, that smallholder commercialisation is the only way to agricultural development[3], and that this, in turn, is the only means to overall development. Far from it: successful small farm commercialisation and agricultural development are, in most

developing countries, preconditions for the development of manufacturing and services.

Commercialisation is often seen as involving specialisation, as farmers concentrate on a narrower range of crops and livestock; as well as innovation that is expected to raise productivity and efficiency (Jaleta et al. 2009). While in practice these are often seen as farmers commercialise the extent of specialisation may be limited — at least in the initial phases. Change, moreover, may be more incremental than transformational, with small changes made to existing practice — although these may form a series that in the medium term produces substantial change.

Since small farm commercialisation in low income, largely agrarian economies potentially affects large numbers of people, with major implications for national development, important debates surround its feasibility and desirability. From these debates policy recommendations are formed. The purpose of this paper is to review what is known about commercialisation, primarily in Africa but using insights from other regions as and when appropriate.

The paper consists of three main sections. The first looks at commercialisation and the issues it raises, the key things in debate and prominent hypotheses. The next reports the evidence to set out what is known that can inform the debates. The final section considers policy options.

This paper has been drafted by the first two authors, Wiggins & Argwings-Kodhek, but draws on an initial draft prepared by our colleagues, Jennifer Leavy & Colin Poulton.

2. Smallholder commercialisation: the issues and debates

2.1 Definitions

Commercialisation can be defined as increasing engagement with markets. It is about increasing fractions of crops and animal products being destined for sale. More inputs may be bought from the market —machinery and tools, seed, fertiliser, crop protection chemicals, veterinary drugs, animal feed, etc. — as well as buying in technical advice and market information. It can be about using the market to obtain other additional factors of production, most notably hired labour, land, and borrowing funds for investment and working capital from banks and other financial agencies.

> 'Smallholder commercialization … refers to a virtuous cycle in which farmers intensify their use of productivity-enhancing technologies on their farms, achieve greater output per unit of land and labor expended, produce greater farm surpluses (or transition from deficit to surplus producers), expand their participation in markets, and ultimately raise their incomes and living standards.' [Jayne 2011]

Some of the literature goes into more detail, often trying to define indices that might measure the degree of commercialisation seen. Table 2.1 summarises these.

Production for Market

Perhaps the most common definition of agricultural commercialisation is the **degree of participation** in the (output) market, with the

Table 2.1 Defining agricultural commercialisation

Definition	Detail and comment
Selling produce to the market	**Threats** **Can be measured as:** • Binary: sales or no sales • Absolute: amount of produce sold • Relative: fraction of output that is sold
Buying in inputs	As above: can be measured as binary, absolute and relative engagement with markets for inputs
Hiring in labour	Can be measured as above: by simple binary of whether labour is hired or not, the amount spent on hired labour, or the share of hired help in total labour. Potential pitfall here is that in some areas, machinery may be substituted for labour, so that a highly commercial farm might have low levels of hired labour, however measured.
Profit motivation	Assessed in comparison to competing goals, such as meeting household needs for staple food, minimising risks, or respecting cultural norms
Household integration into the market	Extent to which household income results from interactions in the market, compared to the value of its own production; or Extent to which the goods and services consumed by the household are bought in compared to those it produces.

focus very much on cash incomes (see, for example, Pingali (1997), von Braun (1995), among others)[4].

The degree of commercialisation can be seen as simple binary distinction of whether or not the farm sells any of its crop output. While simple, such a measure would treat most farms as commercialised since there are few that do not sell something, even if a small part of their output.

A more refined approach is to grade commercialisation by the absolute amount sold, either by volume or value, thereby producing a continuum of degrees of commercialisation. Thus, for example, Integrated Rural Development Programme (IDRP) studies in Northern Province, Zambia defined commercialised farmers as those who sold more than 30 bags of maize per annum (Sugiyama 1987; Kakeya & Sugiyama 1987).

Still more refined is to consider the percentage of crop production marketed by a farm or household. Thus, Strasberg et al (1999) suggest the following crop commercialisation index (CCI):

CCI = [Gross value of all crop sales/Gross value of all crop production] x 100.

Whilst it may be more difficult to estimate produce value there is no reason why this should not be extended to include livestock as well.

A value of zero for the CCI signifies total subsistence, whilst a CCI value approaching 100 indicates higher degrees of commercialisation that is a greater percentage of crop production marketed.

This index is open to criticism. One possible criticism is that it makes no meaningful distinction between a farmer who produces just one bag of maize and sells that one bag, and one growing fifty bags of maize who sells thirty of them. On the basis of the CCI the first farmer, with a CCI of 100, would appear to be more commercialised than the second who has a CCI of 60. There is some validity to this criticism as this caricature shows. However, for reasons that will become clearer below, in practice there are few tiny farms that sell all of their output — at least at lower levels of economic development — and similarly few large farms that do not sell most of theirs.

A related criticism concerns 'distress' sales: sales of food crops by poor households straight after harvest because they are desperate for cash, but who then have to buy in the same or often greater amounts of food later in the year when the price is much higher. Survey evidence suggests that 10–15 percent of southern and eastern African rural households sell a proportion of their food output soon after harvest yet also buy in since they are in net food deficit over the course of a typical year and nevertheless (Jayne et al. 2006; Poulton et al. 2008). In such cases the fraction of output sold could be quite high, but to see such households as 'commercialised' reminds us that this index is a measure of integration into —in this case dependency on — markets, rather than something that implies higher production, productivity, and farm incomes.

This qualification notwithstanding, the CCI does have the merit of indicating a minimum level to which households prioritise production of food for own consumption (the reasons for which are discussed later in this paper).

Other dimensions

Whilst the degree of participation in the output market lies at the heart of most definitions of agricultural commercialisation, some literature addresses other dimensions of commercialisation (see, for example, the discussion in von Braun & Kennedy 1994). Here three additional dimensions are briefly noted.

First, there is the **degree of participation in input markets.** As farms become more commercial they tend to rely less on own-produced inputs (e.g. manure and retained seed) and services from mixed farming systems (e.g. animal traction) and instead depend more on markets to supply their inputs (e.g. improved seed, inorganic fertiliser and crop protection chemicals) and services (mechanised equipment (either hired/rented or purchased) for ploughing, planting, weeding, harvesting etc.). Thus, on the input side we might define commercialisation as:

ICI = Value of inputs acquired from market/Value of agricultural production

As is well illustrated by Pingali (1997), increased use of purchased inputs is likely to

proceed in tandem with the degree of participation in output markets.

Second, as farms become more commercialised they often **rely increasingly on hired labour** with family labour focusing more on supervision and management. A common distinction drawn in studies is between farms operated very largely by the household, and those that depend more on hired employees.

An interesting case of reliance on hired labour at an early stage of agricultural development is provided by the top smallholder producers of cotton in Tanzania and Zimbabwe. These devote half to two-thirds of their land to cotton and typically rely heavily on hired labour for most tasks related to cotton cultivation. Family labour thus has primarily a managerial role in cotton. However, family labour represents the dominant labour input into the household food production activities, which occupies most of the remaining land on the farm. In this case, the total area of land cultivated is too great for the household alone to supply labour. At the same time attractive off-farm opportunities for family labour are limited so family labour is still supplied on the farm. The distribution of this labour between crops reflects intra-household decision making and division of labour arrangements, but also again highlights the significance of subsistence food production within agricultural commercialisation processes.

Increasing use of hired labour may be linked to the opening up of other opportunities for the family's labour elsewhere in the economy, with hired hands substituted for members of the household working off the farm. Of course if the driver in such cases is rising wages off the farm then hired labour may accordingly become expensive, and rather than hired labour it may be machinery that is deployed to save on labour (Pingali 1997).

Indeed when machinery is cheap enough, and able to carry out most of the tasks in farm production, then there may actually be a reduction in the fraction of the farm work force that comes from outside of the household; this is the experience of several OECD countries in the last few decades (Bruno 1996).

Third, some writing on commercialisation highlights **the profit motive** within the farm business as an indicator of commercialisation. Thus, Pingali & Rosegrant (1995: 171) state that:

> Agricultural commercialization means more than the marketing of agricultural output, it means the product choice and input use decisions are based on the principles of profit maximisation. Commercial reorientation of agriculture occurs for the primary staple cereals as well as for the so-called high value cash crops. On the input side, commercialization implies that both traded and non-traded inputs are valued in terms of their market value

This would distinguish commercial farms operated to generate returns from those where major motivations are household subsistence, minimising risk, or respecting cultural norms[5].

Broader concepts: the non-farm rural economy

Looking beyond purely the agricultural activities of a household, von Braun & Kennedy (1994) propose a measure of integration into the cash economy, which they define as:
ICE = Value of goods and services acquired through cash transactions / Total income
Alternatively, we might consider a household commercialisation index, where:

HCI = Gross income from all market sources / Total income

As can be seen, there is no single, commonly accepted precise definition of commercialisation. Yet the detail confirms that the general proposition of greater engagement of small farm households with markets, an engagement that takes place in several dimensions, captures the concept.

2.2 Three competing perspectives on smallholder commercialisation

Commercialisation, broadly defined, is thus about greater engagement with markets and for small farmers this usually involves interactions with larger-scale enterprises. Perhaps no aspect of commercialisation arouses more debate than how markets work for small farmers, how they engage with larger enterprises and the expected outcomes.

Strikingly different perspectives on expected processes and outcomes can be seen — Box 2A explains why this is so. Although there are numerous variants, positions taken can be grouped into three perspectives: differentiation, distinctive features of peasant economy and liberal economic approaches. These need to be set out since they have been so influential in thinking about small farmers and their future, and hence what policy-makers need to consider.

Differentiation and disappearance of the peasantry

Since at least the nineteenth century some have proposed that small farms would be subject to increasing differentiation under capitalism. Two variants can be identified. One is associated with Marx and those influenced by his thinking. Marx wrote in the middle of the nineteenth century, at the culmination of three centuries or more of enclosures in England that concentrated land and left many previous peasants landless — while at the same time seeing considerable increases in productivity: the agrarian revolution. It seemed that in agriculture, just as in manufacturing industry, capital and land would become concentrated in the hands of one class, while the majority of the population would become labourers whose only means of support would be waged labour in the factories and farms of the former. Later the same century, Lenin applied this conception to the Russian countryside and argued that the peasantry there would disintegrate under capitalism, a few to become large farmers, the rest to become landless labourers.

It was more or less taken for granted that as small farmers lost their land to larger farmers their welfare would deteriorate, since capitalists could hold down the wages paid to labourers while retaining the difference between wages and the value produced by labour.

The other variant accepted that a more commercial and productive agriculture would lead to greater division of land amongst the rural population, and that small farms would decline.

Box 2A: Why do perspectives differ so much?

Perspectives differ largely because people ask different questions about the subject. This in turn arises from the observer's academic discipline — agronomists are always likely to ask different questions about farming than anthropologists; and from the historical circumstances that lead to some questions being more important than others in public debate and policy-making at any given time — for example, when the cereals prices spiked alarmingly on world markets in 1973/74, the question of whether the world's population could feed itself became so important that minds were focused on how to generate new technology and encourage farmers to take it up, giving strong impetus to the early phases of the green revolution. Once questions have been set these then influence the things that are observed, the data collected and the analyses made.

When John Harriss reviewed ideas about rural development in 1982, he saw three major approaches, or paradigms, that sets of researchers had used. Geographers and ecologists tended to see rural areas as human and natural systems that interacted. They asked questions about how and why the systems worked the way that they did. The answers often revealed a logic to the system, although sometimes the answers were not that helpful to those seeking to change or improve the systems. However the insights did help explain why some interventions would probably be counter-productive.

Another perspective has often been adopted by sociologists, economists, political scientists and historians fascinated by the wider structures of economy and society and how those develop through time. Studies in this vein have been interested in both growth — the rise and fall of states and empires –distribution and poverty. Key questions include who controls resources, how production is carried out, and how the economy is co-ordinated. It is usually expected that once a system is formed it will persist until some crisis leads to transformation.

In contrast, agricultural economists have usually ignored the systems and focused on a key component: the farmer and his or her farm. Questions in this case have been about why a farmer would choose to plant a particular crop, which and how much of inputs to use, the returns expected from different enterprises and combinations of them. Within this a key issue has been the reasons for adopting new technology, or not. The more mundane and pragmatic questions of agricultural economists reflects that they have usually been employed to give advice to farmers, or to public agencies seeking to raise production.

Even within these the broad approaches there can be substantial differences of focus. For example, in looking at decision-making by small farmers Ellis (1993) picked out profit maximisation, risk aversion and drudgery-aversion as three driving forces that have led to rather different appreciations of why small family farmers might make their decisions. Giving priority to each of these forces leads to some quite different theories and expectations of famer behaviour.

But they differed in expecting those leaving farming to have better prospects off the land, and eventually on the land for those remaining as labourers, as overall economic progress raised real wages.

In both variants, then, to many observers at that time, it was clear that the days of small farmers were numbered and that the advance of capitalism would rapidly see them disappear as large farms, perhaps very large farms, would emerge and dominant agriculture.

Contrary to those expectations small family farms have proved remarkably resilient[6]. Nevertheless, the fear that incorporation into markets would dispossess small farmers and reduce their welfare has remained potent to current times.

In the 1970s these fears were revived amongst some students (see, for example, Bernstein 1979; Boesen 1979; Cliff 1977) of African agricultural development. Bernstein (1979) argued that typically peasants in Africa would be subjected to a 'reproduction squeeze', in which the real prices of their output would be forced down in the market by competing goods produced under more favourable conditions. Meanwhile attempts to intensify and improve productivity would lead to rising costs of production, decreasing returns to labour, or both, especially if peasants brought more marginal land into cultivation, or were unable to conserve their soils. This could become a downward spiral as shortfalls in production and income would lead to indebtedness, starvation rents, crop mortgaging, forced sale of assets, and so on, ultimately to destitution.

A distinctive feature was that these processes would take place without changing the structures of small farm production: land would remain in collective tenure and most labour would come from the household. Nevertheless, unequal relations in the market would see the African peasant exploited in similar ways to those of any worker employed in the factories of capitalists.

Bernstein's analysis, however, included a prominent role for the state. Since the African peasantry, having its own land and labour, was still independent of capital small farmers had to be cajoled into producing for the market and commercialising their production. State agencies, with monopolistic pricing and marketing arrangements, often regulating what was grown and how, had a key role. Their efforts were supplemented by cultivation by-laws, compulsory land improvement schemes, and credit and extension schemes. This analysis, largely historical and empirical, saw continuity between colonial efforts to control the peasantry and extract labour from them — for example, through hut taxes and labour recruitment for settler farms (see Leys 1975 for the case of Kenya) — and those of the newly-independent states that also wanted to extract a surplus from small farmers.

Marxian concerns over differentiation died down in the 1980s and 1990s, but they have been come back with the doubts expressed over the effects of globalisation and liberal economic orthodoxies. Contemporary work may be less academic than in the past, but the anger at what unfettered markets might do to farmers is real and widely shared.

The non-Marxian variant is also alive, most notably in recent essays by Collier (Collier 2008; Collier & Dercon 2009) that argue that large-scale farms — taking those in Brazil as exemplars — have the know-how and access to inputs and capital to raise productivity above what most small farmers could achieve. It is worth repeating the concluding argument from the 2009 essay:

> The forces which have propelled commercialization in Brazil are that modern agriculture is intensive in new technology, in finance, and in international logistics. Each of these is ill-suited to tiny, self-employed enterprises in which the heads has no wealth other than land and little education. African smallholders have not chosen to be entrepreneurs. They are in this activity by default. Having the single most important sector of Africa's economies almost exclusively run by these reluctant micro-entrepreneurs is a recipe for continued divergence of the sector from global agricultural performance. While there is a strong poverty-based case for trying to assist smallholder farmers, the agenda for African agricultural growth should surely be to introduce commercial agriculture on a competitive basis. The approach of consciously excluding commercial agriculture a priori, which has been pursued for the past four decades, has come at a cost. It could better to let commercial agriculture compete in factor markets against smallholders, while co-operating with them in output markets. (Collier & Dercon 2009)

Hence they argue that it would better to let factors of production — which include land —go to large-scale farms[7] which could make better use of them. Progress, in this perspective, lies with many small farmers ceasing to farm.

This perspective has become highly influential since 2008, since it provides much of the intellectual underpinning for large-scale land acquisitions ('grabs'). The land deals may result from the self-interest of large-scale corporations, but when investors apply to public authorities for land, they justify their claims in terms of production, productivity and progress.

Peasant economy: a distinctive logic

Not everyone in the 1970s thought that small farmer engagement with markets would lead to their effective incorporation into a capitalist economy as a disguised proletariat. A different take was that small farmers were engaged in a distinctively peasant economy.

An early proponent of this was A. V. Chayanov (1925), an agricultural economist who studied the Russian countryside of the late nineteenth century. Chayanov disagreed with Lenin's analysis: he observed that households were differentiated not by class, but by the life-cycle of households. Poorer farmers with less land were likely to be young households, recently formed, while the richer 'kulak' households were those headed by older couples who had accumulated land and assets through their life cycle.

Equally important, Chayanov argued that the peasantry were less likely to lose their land to economic forces than larger farms employing wage labour, since the main cost they incurred in production was that of household labour. When prices were low the household could accept a lower implicit return to their efforts; the peasant farm could survive low prices, or bad harvests in ways that a commercial farm could not. Survival might be through self-exploitation, but it was nevertheless effective.

The idea that peasant farms may not react to a purely commercial logic has endured, not least since empirically small farms have survived all manner of shocks and still continue to dominate the African countryside.

If Chanayov sees peasant farms as potentially productive and the basis of a thriving rural economy, others writing in the same tradition see peasant farming as an obstacles to progress. For example, in Africa, Hyden (1980, 1987) argued, largely for the case of Tanzania, that small farmers operated within an 'economy of affection' which prevented the accumulation of wealth and investment.

> '[Communal relations] place definite limits to the ability of African countries to develop by dissipating already formed capital, and encouraging and enforcing individual household strategies that go against the objective of improving productivity on the land.' (Hyden 1987: 665)

If there was poverty in the countryside it was not the fault of capitalism capitalist forces were effectively held in check by a peasantry reluctant to engage in fully commercial relations. He went on to argue that the nation state was unable to 'capture the peasantry'[8] since they were able to survive within the economy of affection.

A more recent proposition within this tradition is Sara Berry's hypothesis (1993) that custom and the market act jointly to influence processes of commercialisation, growth and social differentiation. African farmers, she argues, have always relied on both market transactions as well as social relations to gain access to productive resources. Commercialisation has not changed this. During colonial times, efforts to keep order involved codifying custom, which intensified local debates over what this was. To win points locals had to invest in social relations which gave status in the debates. Independence has not changed the value of social ties in gaining access to both state and local resources.

Neoliberal economics: the dominant contemporary perspective

From 1980 onwards, neoliberal economics has become the dominant framework for approaching development issues, even if it is at times fiercely challenged. A set of propositions dubbed the 'Washington Consensus' (see Kanbur 2009 for a discussion) has set the framework for policy discussions. These stress the importance of macro-economic stability, open trade, and freeing up markets, with minimal restrictions and regulation. The state for its part needs to refrain from intervening in markets or providing private goods instead it should focus on macro-economic policy and on providing public goods effectively and efficiently.

Applying these principles, it is argued, should allow farmers to prosper by investing and innovating — so long as they are assisted by the state supplying public goods in infrastructure, education, health, water, research and extension. Since much improved technology for farming is scale-neutral, then all farmers can gain, including smallholders. Even the more marginal small farms should benefit, since agricultural development will create jobs on farms and in the supply chain, and through demand for locally-produced goods and services that will generate additional jobs in the rest of the rural economy (see section 4.1 below).

Market failures in rural economies: a contemporary bone of contention

The principle qualification to this account comes from market failures. At least three forms of market failure[9] are commonly thought to hit small farms hard: insecure land tenure; high transactions costs in exchanges with deferred terms, leading to chronic inability to obtain inputs, financial services and insurance; and exploitation by monopolists.

Insecure land tenure can potentially lead to under-investment. This has been a particular concern for some observers of Africa, where typically any plot of arable land is subject to two sets of norms: the longstanding collective arrangements for the usufruct by households of land considered to belong to the community as a whole for the wellbeing of future generations; and the provisions of formal national laws that typically see freehold title of demarcated and surveyed lots registered in the name of one (usually male) individual as the legal basis for land possession.

Some have seen collective tenure as inherently insecure, deterring both investment in the land and in conservation of soil and water, and preventing land being pledged as collateral against credit contracts. As a consequence, several countries have embarked on costly programmes to survey and register land in smallholding areas — one of the most prominent cases being that of Kenya where from 1954 and the Swynnerton Plan, titling land was seen as an essential measure to encourage cash cropping.

High transactions costs probably apply in some rural markets, above all where credit is involved. These costs arise since participants in the market lack information about products, returns to enterprises and the character of other parties to the deal. To expand: inputs may not be stocked locally in sufficient quantity since dealers know too little about farmers' potential demand, while farmers know too little about the inputs to express that potential demand. On both sides the problem may be exacerbated by failures in credit markets. Bankers often know too little of the character and competence of farmers or input dealers, but cannot find this out since for so many small operators it would be too costly to do so. Hence they are reluctant to risk offering credit to them. For similar reasons, formal insurance is usually not on offer to small farmers, since insurers knows too little about the risks to be covered and moral character of those wanting cover.

Some argue, most notably researchers formerly from Wye College (now at the School of Oriental and African Studies (SOAS), London) that private investors in the newly-liberalised economies of Africa have not responded to opportunities in agriculture and its supply chain, owing to failures of information (Kydd 2002; Poulton et al. 2006). To the problems of lack of inputs and credit, they add the information impasse that arises when investors contemplate ventures in rural Africa: for the former the question is whether the farmers will supply the processing plant, and for the latter, the question is whether the processor will buy their output. If there are doubts then investors, and farmers, may simply not be prepared to take the risk. They argue that these problems are substantial and widespread in contemporary Africa, and that they explain why agricultural development in the liberalised markets of the last twenty years or so has been so hesitant, and frankly disappointing.

Some see these failures are so severe as to constitute poverty traps: if small farmers are too poor to afford to buy inputs needed to increase their production, and cannot obtain credit to overcome their lack of liquidity, then they cannot raise production and remain poor, even when the technical means are known (Sachs et al. 2004; CPRC 2008). This can hinder commercialisation both directly, and also indirectly: if farmers cannot raise food production through the use of improved technology, they may not be able to allocate land and labour to produce commercial crops.

The third form of market failure that can arise is when **traders have market power**, so they can dictate prices to farmers and thereby exploit them and extract rents, and in the process reducing the stimulus to produce. Small farmers are acutely aware of their weak position in bargaining, given that farmers are many and traders who provide inputs and buy up crops are fewer, exacerbated by the latter often having enough liquidity to walk away from deals while farmers often cannot afford not to sell produce, or have to obtain seed or fertiliser. The suspicion is that the traders use their market power to sell dear and buy cheap; a suspicion often fuelled when farmers travel to central places and see the prices of farm output and inputs.

Debates over the extent of severity of these market failures have increased since most African economies were liberalised in the 1980s and 1990s, thereby giving a greater role to markets. Divisions between observers have become one of the main dividing lines in contemporary discussions over policy priorities for agricultural development in general and smallholder development in particular. On this point hinge arguments about how much markers can be trusted to deliver efficient outcomes, or how much government needs to intervene to correct such failures.

Summarising the perspectives

These three broad perspectives, within which at least two variants can be identified, lead to very different expectations of what may happen to small farmers as they participate in markets. Table 2.2 summarises the arguments.

These views need to be kept in mind since they are so influential in framing debates and underpinning policy propositions. To the historian, a remarkable feature is their longevity: at any given time, some views have become more or less prominent in debates, but often old views can resurface later in new guises. A good example is the first on the list, where markets are seen as likely to differentiate small farmers, with the poor losing out both relatively and absolutely. In Africa, this view was common in the 1960s and 1970s, but had apparently been superseded by other views in the next two decades. Yet in the 2000s the same perspective has been reborn in the writings of those critical of globalisation.

Evidence to support these propositions will be reviewed in Chapters three and four of this review, although to anticipate that argument, it will be argued that some propositions are difficult to test and hence debates cannot easily be resolved by evidence.

2.3 Question posed by commercialisation

Questions about small farms and their commercialisation can be divided into three sets: change and processes; outcomes; and policy implications and lessons.

Table 2.2: Perspectives on small farmers in markets

Perspective	Expected processes in markets	Expected outcomes
Differentiation, Marxian and anti-globalisation	Small Farmers (SF) face falling prices for output and rising prices for inputs, thereby suffering a squeeze on their earnings Likely to be exploited by monopolists in markers.	SF are exploited, made poorer, likely to sell up land or be expropriated by Large Farmers (LF) or larger SF ('kulaks'). Numbers of SF decline, become landless, rural society increasingly divided between landlords and landless.
Differentiation, non-Marxian	SF lack economies of scale, access to finance and know-how that LF have and hence are less productive and earn less	SF sell land to LF and become agricultural labourers. They may become better off since highly productive LF generate higher returns and compete for labour.
Distinctive peasant economy: Chayanovian	SF have advantages in use of households: they can withstand shocks of poor harvests or low prices through self-exploitation. Differentiation is primarily through the age cycle.	SF resilience can form the basis of a smallholder economy that is productive and resilient.
Distinctive peasant economy: economy of affection	Within the 'economy of affection' capital is dissipated in transfers to family and friends. The need to establish rights in formal and informal jurisdictions can also dissipate capital.	SF can survive, but unproductively. Loss of capital slows investment, innovation and growth in agriculture and economy
Liberal economy, Washington Consensus	Markets offer opportunities to sell produce, acquire better inputs and technology. Linkages and multipliers across markets spread incentives and benefits.	Markets encourage investment and innovation, hence growth and prosperity.
Liberal economy, but market failure	Ditto, but rural markets prone to failure, including insecure tenure, high transactions costs and monopoly power that hit SF particularly hard blocking access to credit, inputs, increasing risks, and reducing returns.	SF invest and innovate less than expected and growth is slowed Can be so severe that SF are trapped in poverty.

Note: SF = small farmers; LF = large farmer

Processes of small farmer commercialisation

- How do small farms commercialise? To what degree, and how specialised do they become?
- What have been the drivers of commercialisation?
- Which farmers commercialise? What happens to other small farmers?
- How do commercialising small farms interact with larger-scale businesses in farming and the supply chains? What is the scope for complementary outcomes, through contracting and other forms of co-operation?

Outcomes

- What are benefits of commercialisation?
  - How much benefit do small farmers gain from commercialisation?
  - What linkages may be created by commercialisation to create additional jobs and incomes in the rural economy for those not commercialising?

These are the most important questions of all about commercialisation. It may be expected that commercialisation will see farmers achieving higher gross margins from land and labour used for their commercial enterprises, compared to their former use, and hence their incomes should rise. Indeed, some see this as the main way in which farmers will prosper:

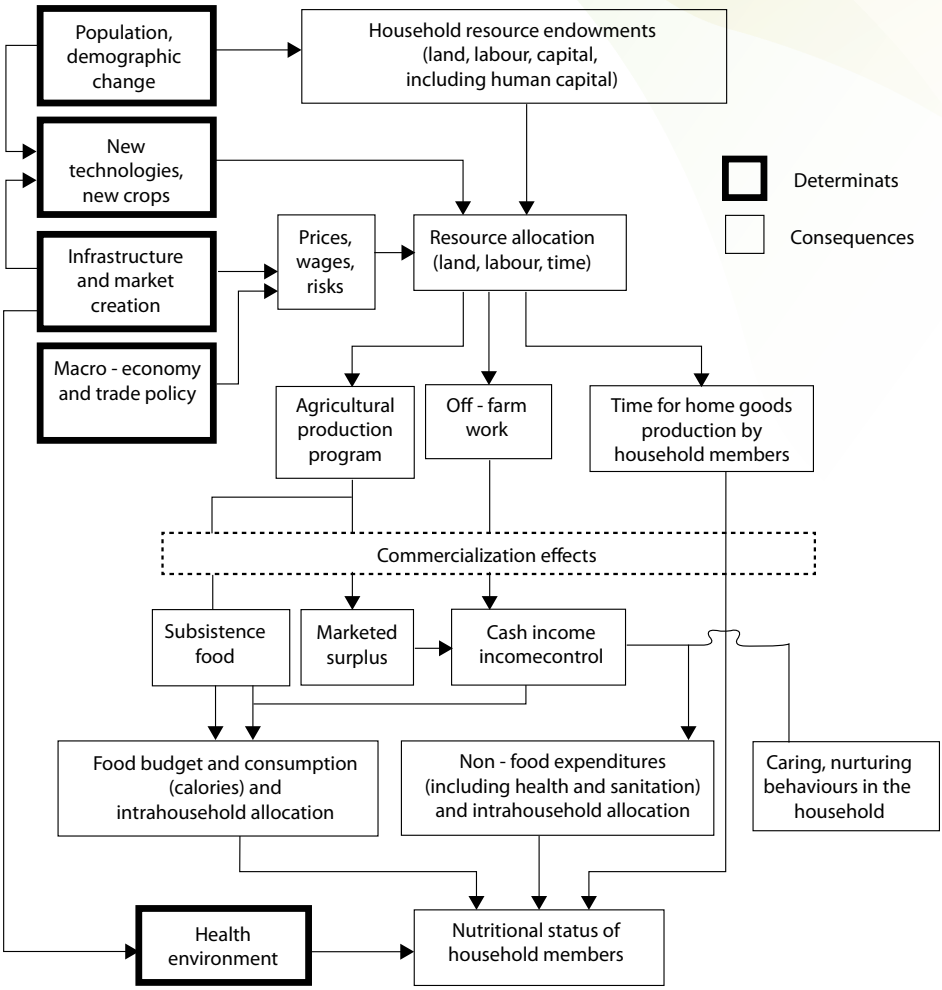
> As long as agriculture in West Africa remains at a relatively small-scale, and is essentially un-mechanised, it is safe to assume that the opportunities to generate reasonable levels of income from production are unlikely to be associated with cereal grains and other basic food crops.
>
> Rather, the future has to be with the production of relatively high value commodities-fruits, vegetables and other speciality items-for domestic or international markets or with value added activities. Thus, it will be through enterprise agriculture, such as the examples of tomato production explored here, that certain rural areas will become (or remain) dynamic, interesting, viable places for people to build their livelihoods, with enterprise agriculture vying for capital and labour with a variety of farm and off-farm opportunities.' (Okali & Sumberg 1999: 127, paragraphing added)

As farm incomes increase, that should allow farming households to consume more and better food and hence improve food security and nutrition; an effect that would be enhanced if some of the additional income were spent on health care, safe water and sanitation.

Furthermore, linkages in production and consumption should lead to extra jobs being created in the local rural economy, to the benefit of the landless and marginal farmers unable to take full advantage of the opportunities of commercialisation (see Jaleta et al. 2009).

All these benefits may be realised given the right conditions, yet at all steps in the reasoning there are qualifying conditions. These include: that farmers have access to markets, preferably those that are growing in size and have consumers prepared to pay for higher value products; that there are competent traders in a reasonably competitive marketing chain so that farmers can deliver to markets without being

Figure 2.1: Determinants and consequences of small farm commercialisation



Source: Annex 6, Jaleta et al. 2009, adapted from von Braun et al. 1991

exploited; and that farmers can get access to farm inputs, for which they may also need working capital, as well as to technical advice and market information when needed. These conditions are unlikely to be fulfilled unless the economy is reasonably stable, government policy predictable and otherwise setting an encouraging rural investment climate and a state that can supply public goods.

The complications are well illustrated in Figure 2.1 showing factors that can lead to

commercialisation and the consequences for nutrition, derived from von Braun et al. 1991.

With so many factors to consider undesirable outcomes are also possible, some of which have been seen in the expectations from the perspectives outlined in the previous section. Concerns can be summarised as the following questions:

- Does more commercial production lead to less food and nutrition security?

An understandable concern when small farmers produce more for the market is that they may neglect to produce food for their own households, while the additional cash income is not spent on making up any difference. The links from more production for the market to food security, in the sense of the availability of food within the household, are several. A few more steps are needed to show the impacts on nutrition (see Figure 2.1). That said key concerns can be set out as follows:

- Producing cash crops reduces the production of staples for home consumption — for this to make the household insecure in food, the next proposition then has to apply;
- Additional income from sales of produce is not spent sufficiently on food to make up for any lost home output; nor is it spent sufficiently on health care, water and sanitation that could help improve the nutrition of young children; and,
- Growing cash crops increases work of the household, making it more difficult for those charged with care of children — almost always women — to prepare weaning and snack foods for under-fives, the most vulnerable to malnutrition.

- Does commercialisation lead to concentration of land and assets, and widen inequality? Do the poor become even poorer?

Commercialisation is commonly suspected of widening gaps between small farm households, since it is the better off with more assets who are often best placed to take advantage of commercial opportunities. More worrying, those gaining from commercial farming may be able to take advantage of less fortunate and less well-resourced farms to buy up their land, so raising the possibility that they lose not only relatively but also absolutely.

- Does it exacerbate gender inequalities?

Might commercialisation exacerbate differences between men and women? The fear here is that commercial opportunities will be more accessible to men — since they may have capital and better links to traders and processors — who will use their advantages to pre-empt the resources of the household to earn income they can control.

- Does commercial farming leave small farmers exposed to higher and unacceptable risks?

Commercialisation of small-scale farming can raise risks, most clearly that of prices of output being lower than expected in the market. When perishable crops are grown there is the risk of disruption to transport leading to losses. Commercialisation often means more use of purchased inputs, so their costs may rise or supply be interrupted.

Physical risks may increase: more specialised production may be more vulnerable to drought,

pest or disease. Furthermore, there may be hazards in production, as may apply when a commercial crop requires heavy chemical applications.

The marketing of cash crops may expose adults who do the trading to higher risks of disease and assault when returning with earnings.

- Does more commercial production mean greater harm to the environment?

Producing more involves either extending the farmed area with possible deforestation and loss of biodiversity and greatly increased emissions of greenhouse gases from cleared forest and bush. Or existing use is intensified with potential for increased soil erosion and degradation, over-drawing of water sources, a build-up of pests and diseases, pollution of land and water-courses from the run-off of fertiliser and crop protection chemicals, and more emissions from fertiliser and manure.

Policy lessons and implications

- What policies and programmes have been effective in promoting commercialisation with desirable outcomes?
- What should government, in collaboration with civil society and private sector, do to promote commercialisation with desirable outcomes?

In addition, for most of these questions, it is probable that the answers will vary, depending on:

- Size of farm and by gender of head of households
- Crop type: level of demand, quality standards and processing needs
- Location: access to markets; natural resources; population density; supply of public goods;
- Time, since some outcomes only become clear after a few years have passed.

The questions are several and substantial. In the following chapters each of these sets of questions will be addressed, although in some cases the answers will be brief since the issues go well beyond those of commercialisation and invite discussion of agricultural and rural development in general.

3. Processes of commercialisation

3.1 How do small farms commercialise and to what degree?

Processes of commercialisation vary by degree of change. At one extreme, there are cases where the farming system is transformed: large areas are switched to a cash crop, new techniques of production are learned, and novel external inputs are applied. This may take place under two sets of conditions.

This scenario can arise when a large agro-enterprise enters an area of small farms, intending to draw supplies from the existing small farms for its processing and marketing operations. The enterprise takes care of providing the novel inputs, training the farmers and guaranteeing the farmers a sale, which will occur all under some agreement or contract (section 3.4 discusses contract farming).

The other condition for such rapid transformation is seen when farmers migrate to a new

area, unused for agriculture, clear the land and cultivate a cash crop or raise livestock for sale. Examples of this have been frequent in Ghana's modern history, starting with the colonisation of the tropical forests of Akwa-Apim in the last decades of the nineteenth century to grow cocoa. This has been mirrored in recent decades by similar migration and forest clearance for cocoa groves in the Western Region of Ghana (Hill 1986; Awanyo 1998).

At the other end of the spectrum commercialisation may involve few changes in the farming system with some portion of a crop previously grown for home use is now directed for sale. But often a few more changes occur as greater areas are devoted to the crop for sale, as production is intensified through use of improved seeds, application of fertilisers, crop protection chemicals, or more labour for weeding. Novel crops may be added to the current system with new techniques and inputs to match.

Much, perhaps most, commercialisation of small-scale farming takes place within existing farming systems, within existing land tenure forms, carried out by households that apply longstanding norms of allocation of tasks and distribution of benefits to the new activities. A review of village studies drawing on work by Snrech (1995), Turner et al. (1993), and Wiggins (1995; 2000), stated:

> … changes within farming systems tend to be marginal, and build upon the structure of farming by households working smallholdings on land held under communal systems of tenure, rather than being revolutionary and involving changes to such structures. In response to forces of population pressure and market demand, farmers change their cropping patterns, redeploy household labour and intensify such work, and make small capital investments in inputs, draught animals, some tools, and, in some cases, in simple means of irrigation.
>
> New techniques are generally adopted by making small changes to existing systems. Given time, the accumulation of successive changes can transform farming, landscapes and society: but such transformation is thus generally seen in the medium to long term, as applies in the case of Machakos. (Wiggins 2005)

Limits to rapid change: land tenure and management of labour

Why does change tend to be incremental rather than transformational? Two things limit the degree of change usually seen. One is land tenure. While processes of commercialisation may see some changes in tenure with more successful farmers able to acquire some additional land; however it is rare to see wholesale changes in tenure whereby the successful small farmers expand their holdings beyond the scale that they can operate for the most part with household labour, and where large numbers of the less successful farmers lose or give up their plots to the more successful. Such cases are exceptional[10]. Why does this generally not happen? After all, farmers who have been able to raise incomes and capital from commercialisation have the abilities and means to expand their operations. Land, however, may

not be that easy to come by: the less successful farmers are likely to be extremely reluctant to part with their land, no matter how attractive the price or rent offered. Acquiring land that cannot be farmed by the household unit, in some societies, will also offend norms that grant usufruct to the tiller, but not to the rentier landlord. This is often the case in most societies where land is vested in the community, and allocated to members on the basis of their ability and need to work land.

But even where additional land can be obtained by converting unused forest, bush or swamp to fields, taking over more land than can be operated by the household may not be attractive: the second limit to expansion of small-scale commercial farms. Successful commercialising farmers will realise that expanding their holdings would mean moving to a system where they would have to supervise large numbers of hired hands, which is not an entirely comfortable prospect in some rural societies where labour may not be easy to recruit, supervise or discipline. When land to convert to fields is available this usually means that labour for hire will be scarce since most farmers can clear their own fields and have no need to work for others. Indeed, in West Africa successful farmers often increase their holdings as they expand the household they control — in the process forming households with multiple wives and sons or daughters-in-law that number dozens of residents[11]. But this is usually the limit to the managerial capacity of the farmer; few then take the next step to farming larger areas with hired labour[12].

The household, it seems, has formidable advantages as a unit: the multiple strands of affiliation within the household generate sufficient trust that most household labour is diligent and self-supervising. Individuals often accept meagre direct and immediate rewards for their efforts when there are benefits for all, including themselves, in the longer run. This is not to ignore the differing interests, relations of power and potential exploitation — and consequent tensions — that often exist within the household: yes, these exist. But compared to the strains of relations with most persons beyond the household, those within the household are usually of a lower order (see, for example, the discussion in Hunt 1991).

Where, of course, the main tasks can readily be mechanised, and where small farmers can get machines on credit, rental or loan, then these limits may be overcome. But the combination of additional land and machinery both being available is not that common. Exceptions include, for example, small farmers with tractors in Damongo in northern Ghana, where bush has been converted to maize fields that can readily be worked by machinery — once tree stumps have been removed. [Personal observation, 1992, Ghana] Outside of Africa this may be more common: for example, family farms growing soybeans in San Pedro, eastern Bolivia, where supplier credits have allowed small farmers to obtain machinery and till tens of hectares each (PNUD 2005).

Exceptions aside, these thoughts lead to one working hypothesis:

Most changes to a more commercial farming are marginal, gradual, incremental; taking place within existing structures of land tenure and household forms of production, only occasionally leading to their transformation.

To what extent do small farmers specialise as they commercialise?

Increasing production for the market might be expected to lead to more specialisation of production, as farmers concentrate their resources on those crops or animals in which they have advantages. Crops grown for home consumption might give way to these with produce bought in from the market. These are the expectations from economic history where 'gains from specialisation are a key driving force in economic growth' (see North 1991; cited in Heltberg 2001).

Yet in the early stages of development specialisation of production is not necessarily observed: indeed, commercialisation may well be associated with diversification. For example, Leavy (2007) on Zambia and Sharp et al. (2007) on Ethiopia provide examples of households deliberately diversifying their market-oriented crop and livestock enterprises, rather than expanding a single enterprise, when they accumulate the resources to do so. In Kenya, in areas that have grown coffee for export since the 1950s, it was still the case in the 1980s that as little as 10–20 percent of the land was under coffee, the rest being devoted to diverse food crops, despite the returns to coffee being far higher than those to staples (Haugerud 1988). In the same country Tiffen (1992) reported the same reluctance to depend on markets for staple foods in Machakos District in the late 1980s and early 1990s.

Two reasons explain this: an aversion to higher risks that could arise from relying on a single crop for income; and the importance for many small farmers of continuing to produce a large share of staples for home consumption. As Heltberg (2001:3) puts it, the tendency to add cash crops to existing food production activities can be attributed to the ...

> '… urge for food self-sufficiency in environments of large transaction costs and high risks found in many sub-Saharan African countries'.

This suggests that specialisation will not occur until risks fall or can be offset, for example, by off-farm earnings[13] , or until food markets can be relied upon for regular and affordable staple foods, which is not usually the case in rural Africa.

Some worry that the lack of specialisation implies some loss of efficiency. Heltberg concludes:

> 'Commercialization and diversification are therefore associated, at least at initially low levels of commercialization. This implies that smallholder agricultural commercialization may not yield the expected gains from specialisation and economies of scale, and that it will not, in itself, be a prime engine of agricultural productivity growth. Nevertheless, commercialization is important as a livelihood strategy, source of cash income to farmers, and export revenue to the country, and worth promoting on those grounds.' (Heltberg 2001: 3).

In similar vein, von Braun and Kennedy (1994:3-4) write:

'Subsistence production for home consumption is chosen by farmers because it is subjectively the best option, given all constraints. In a global sense, however, it is one of the largest enduring misallocations of human and natural resources, and, due to population pressure and natural resource constraints, it is becoming less and less viable.'

These fears may be exaggerated. It is not clear that lack of specialisation impedes economies of scale, leastways not in farm production. Indeed, it could be argued that when small farms add extra commercial activity to their systems they exploit economies of scope —meaning that skills, knowledge, equipment, land acquired to grow food for domestic consumption serve equally well to produce commercial crops. The returns to producing staples for home consumption, moreover, are commonly underestimated since the value of foods consumed at home is not their value in sale, but rather their cost of acquisition were they not produced at home. In many rural areas there is a major wedge between these two valuations, thanks to transport costs to markets (see Low 1986).

On the other hand some believe that specialisation is taking place and fear the consequences for household food security (evidence on this is reviewed in section 4.2).

Are there pathways for commercialisation?

If change tends to be gradual but also incremental then it may be thought that small farms, and indeed, entire farming systems, progress from subsistence to commercial production in a series of steps. For food production systems, Pingali & Rosegrant (1995) drew on Asian experiences to classify farmers' level of market orientation at three levels: subsistence, semi-commercial and commercial (see Table 3.1). Each step has different farmer

Table 3.1 Characteristics of food production systems with increasing commercialisation

Level of Market Orientation	Farmer's Objective	Sources of inputs	Product mix	Household income sources
Subsistence systems	Food self-sufficiency	Household generated (non-traded)	Wide range	Predominantly agricultural
Semi-commercial systems	Surplus generation	Mix of traded and non-traded inputs	Moderately specialised	Agricultural and non-agricultural
Commercial systems	Profit maximisation	Predominantly traded inputs	Highly specialised	Predominantly non-agricultural

Reproduced from Pingali and Rosegrant (1995)

objectives, sources of inputs, product mix and household income sources, echoing the multiple dimensions of commercialisation.

The steps may be seen as paths along which farmers progress over time, from subsistence through a state of semi-commercialisation to a commercial system with clearly defined characteristics along the four criteria. The transition is described thus:

> '... as economies grow, households shift away from traditional self-sufficiency goals and towards income and profit-oriented decision making, so farm output is accordingly more responsive to market trends. The returns to intensive subsistence production systems that require high levels of family labor generally decline relative to production for the market with predominant use of hired labor. The proportion of farm income in total household income declines as family members find more lucrative non-agricultural employment opportunities.' (Pingali & Rosegrant 1995: 172–173).

Is this a fair representation of processes of commercialisation? No doubt it applies in some circumstances, but it is questionable as to how clear the patterns implied by the framework are clear. The problem is that it omits differences among small farmers in access to inputs, credit, knowledge and markets that mean that while some farms may progress through the levels shown; others may not. Indeed, some farmers may increasingly depend on non-farm activities, on wage labouring for others, or even migrate out.

In particular it appears to apply to farming systems dominated by small farms — a 'unimodal' form of tenure. Bimodal tenure where small farms exist alongside much larger units, as seen in much of Latin America and parts of Southern and Eastern Africa, may see marked differences in levels of commercialisation across farm scales.

Hence rather than producing a broad pattern commercialisation may produce a patchwork of differing impacts, with uneven change amongst farms, between villages and districts. The point here is practical: if for a given area it was the case that most farms followed a defined pathway then appropriate policy for the area might be unitary. On the other hand, if the reality is the patchwork then a menu of policy may be needed to suit the different farms and their varying circumstances.

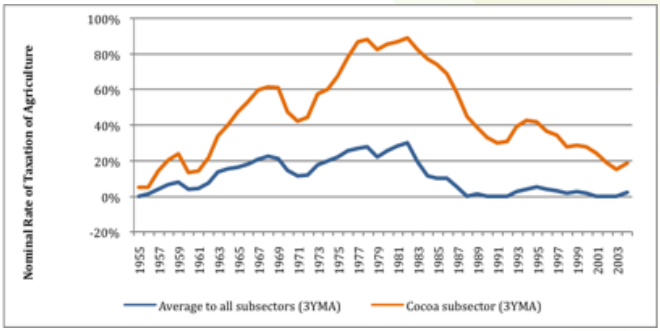
3.2 What drives commercialisation of small farms?

Two factors stand out in the literature as encouraging commercialisation: on the demand side, higher prices and better access to markets; and on the supply side the diffusion of improved technology — both of which may be the result of public policy and public investment.

Prices and market access

These two elements are dealt with in the same section since both affect farmers in the same way: they transmit demand to the farm gate as an incentive to market and produce more. Better market access, in any case, usually results in higher prices being offered at the farm gate.

Figure 3.1: Taxation of Ghana's agriculture, 1955 to 2003

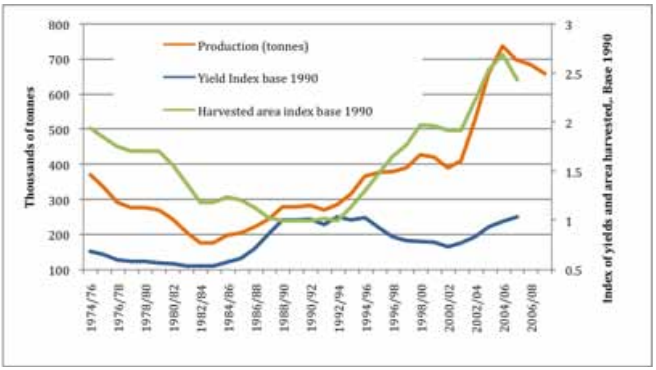


Source: CIES Database of Distortions to Agricultural Incentives. http://cies.adelaide.edu.au/agdistortions/database/report/.

Higher prices may arise as a result of policy changes. For example, by the 1980s across much of the developing world prices paid to farmers were pushed down below levels expected from supply and demand in markets. Net taxation ('negative protection') of farming resulted partly from explicit taxes, but more strongly from indirect policies such as overvalued exchange rates, protection of domestic manufacturing, and passing on the costs of inefficient public marketing agencies to farmers in the form of lower prices (Krueger, Schiff & Valdés 1991). Generally the net taxation was heavier for export crops and less for food crops produced for the domestic market.

The degree of price repression was in some cases quite extraordinary. In Ghana by 1981 agriculture was being taxed at the rate of more than 20 percent. This was thanks largely to a wildly overvalued Cedi and a cocoa marketing board that ran up huge costs that were deducted from payments to cocoa farmers. As can be seen in Figure 3.1 the effective taxation of cocoa producers by the early 1980s was more than 80 percent.

Figure 3.2: Ghana, cocoa production, 1974/76–2006/08



Source: FAOSTAT dataset.

The disincentive to production was strong; it was reflected in declining cocoa production throughout the 1970s (see Figure 3.2). [14]

During the 1980s and 1990s many of the causes of net taxation were removed. Developing world governments devalued or allowed their currencies to depreciate, also protection of manufacturing was relaxed, and many of the costly public marketing agencies were closed down, or had their remits and monopsony rights curtailed. These measures reduced the implicit taxation of farmers, particularly those with export crops, so that farm gate prices often rose sharply giving a strong stimulus to increased production and marketing. Cocoa in Ghana is an outstanding example: the effective taxation had been so heavy that production boomed from the second half of the 1980s onwards, despite international prices falling, an effect that was more than compensated by the reduction of taxation so that farmers experienced a rising price for their cocoa.

As explained below not all small farmers in the developing world who benefited from less taxation after reforms in the 1980s and 1990s were able to respond: some were stymied by supply-side limits.

In some cases it is not national policies that lead to rising prices that spur commercialisation: improved market access can be the cause. In a review of 26 cases of agricultural development at village or district level in Africa from the mid-1970s to the late 1980s, Wiggins (2000) identifies better market access as the most common and powerful driver of expanded agricultural production. In many of the cases the market that stimulated production was domestic or regional rather than an export opportunity. Some West African examples include:

> In West Africa, the violet onions of the Maggia valley of Niger produced for the Nigerian market, pumpkins from villages in North Bank Division of the Gambia shipped to Dakar, early yams from selected areas of northern Côte d'Ivoire for the markets of Abidjan, tomatoes from villages in Brong for Kumasi—the list is long. One recent case from the 1990s reports how settlers have opened up 6,000 hectares of irrigated rice in the Sourou valley of south-east Mali within a mere five years, using indigenous techniques and resources (Woodhouse et alia 1997). [Wiggins 2000]

Better market access entails not only physical access, but also reduced costs of transport that should, all other things being equal, result in higher prices being offered by traders at the farm gate. It can come about in several ways. Most obviously access improves when roads and bridges are built or improved. New markets can also be created locally as populations grow and urbanisation takes place so that emerging district and regional centres come to constitute significant markets for farm surpluses.

Finally, markets can be created as deliberate public policy when the state offers to buy up particular crops at a guaranteed price, often set equally across the country ['pan-territorial' prices]. This was frequently policy in eastern and southern Africa in the 1970s as parastatal cereals agencies that offered farmers seed, fertiliser and other inputs on credit, also promised to purchase all grains offered at a stated price, wherever the

farm was located. The predictable result of these policies was that remote regions with potential to produce surpluses, such as the Northern Region of Zambia and the Southern Highlands of Tanzania, increased their marketed output by leaps and bounds — thereby condemning the state agencies to costly transport of fertiliser in and maize out.

Although the power of domestic markets is often greater than that of export markets, the latter can be an equally powerful force to stimulate additional production and commercial sales. Indeed, in the early stages of development when domestic markets may be limited exporting can provide a 'vent for surplus'.

From the last quarter of the nineteenth century onwards a combination of the burgeoning demand in the cities of Europe reduced transport costs with steamships and in some cases the possibility of moving perishables long distances with refrigerated holds, led to new effective demand for farm produce across the tropics. So, for example, in coastal West Africa farmers planted oil palm and later cocoa; while in the drier parts of the same region groundnuts for oil were planted. Across the highlands of Latin America coffee bushes were established; while in Asia tea, rubber, oil palm and cocoa were planted. These became substantial new tropical exports to add to the sugar that had been grown for several hundred years in Brazil and the Caribbean basin. By the middle of the twentieth century coffee and tea were planted by small farmers in east Africa; while bananas became a major export from the Caribbean and Central America.

Technology

The other main driver of commercialisation has been technical advances that have improved productivity, or have removed a severe technical obstacle to producing crops or raising livestock in particular environments — or reduced the physical risks faced by farmers.

Examples of major technical innovations are many. The best-known innovations have emerged within the green revolution whereby high-yielding improved varieties of some of the main staple crops were bred allowing farmers to double or treble their former yields, so long as they could add nutrients with fertiliser, ensure optimal water regimes, and protect their crops against pest and disease. The technology package was largely neutral with respect to scale although initially it was the larger farmers that were able to take advantage due to their access to credit and information; within a decade of the innovations entering suitable areas most small farmers had also adopted the package (Lipton & Longhurst 1989; Hazell & Ramasamy 1991).

But there are many other examples. At the end of the 1990s the International Food Policy Research Institute (IFPRI) asked more than 1,100 specialists in African agriculture to nominate up to three examples of success, producing 253 nominations from 118 replies (Gabre-Madhin & Haggblade 2001; Haggblade et al. 2003). From these they selected 11 cases for more detailed study; most of them concerned technical advances these included: a cattle vaccine; soil fertility measures; farmer organisation and research capacity; and seven related to specific commodities, including maize, cassava, bananas, cotton, horticulture, floriculture and rice..

These reports tend to stress the contribution of formal innovation, emerging from research stations and diffused by extension services. But there are equally innovations that owe more to practices developed by farmers themselves. A good example would be the planting pits ('zai') and stone bunds deployed on the Mossi plateau of Burkina Faso to retain soil and water (Reij & Smaling 2008). Not only have these contributed to rising yields of cereals in Burkina, but also the innovations have been adopted in other parts of the Sahel, notably in Niger, after farmers from these areas visited Burkina.

Two points stand out about the impact of technical progress on commercialisation. One is that new techniques are generally adopted by making small, incremental changes to existing systems. So, for example, new seeds are tried, perhaps with more fertiliser and crop protection chemical, but usually without any more dramatic changes to the system. Given time the accumulation of successive changes can transform farming, landscapes and society. But such transformation is thus generally seen over a decade or two, as applies in the case of Machakos District, Kenya (Tiffen et al. 1994).

The clearest exception applies when irrigation is introduced which often entails a change of crop, more intensive use of fertilisation and crop protection, more intensive weeding, and new forms of social organisation to manage water and maintain the irrigation infrastructure. Irrigation may also entail mechanisation through the use of pumps also generating new jobs for mechanics to maintain them in the process.

The other point is perhaps more of a working hypothesis: technology does not of itself lead to enhanced production and commercialisation, unless there is a market opportunity that makes it worth using the technology. By and large, farmers respond to the commercial opportunity then look for technical improvements. Without the former techniques that would improve output may be ignored. This may seem perverse — particularly to extension staff. However the logic is clear: most technical advances involve greater applications of external inputs, more labour or both. Farmers will not adopt unless they can see benefits, such as increased sales, that will compensate them for the added expense or work. Such benefits may not always have a direct impact on commercial production: a more costly but more productive technique may be used on food crops consumed at home, the improved technology raising yields and allowing land to be switched to a cash crop.

Obstacles to commercialisation for small farms

These two sets of drivers apply to agriculture as a whole, not only to small farms. This prompts two related questions. One is whether large farms may be better placed to respond to these forces; the other is whether small farms face particular obstacles when considering responding.

Are large farms better placed to take up opportunities than small farms?

It might be thought that larger operations have economies of scale that give them greater returns when commercialising. Yet evidence of such economies in farming is scant: indeed, there may be diseconomies of scale that apply when farms reach a size and most of the labour has to be hired in (Hayami 1996; Lipton 2005; Poulton et al. 2005).

There are exceptions. Historically when market opportunities opened for exports to

Europe and North America plantations and estates sometimes produced the export crops. This applied where land was abundant and the population sparse, where crops need rapid processing, and where there were economies of scale in processing (Hayami 2000). It also helped if governments were willing to offer generous grants of land to large corporations or colonial settlers, as typically applied in territories governed by colonial invaders.

Even so, most of the so-called plantation crops can usually be grown by small farmers. Indeed, in some cases, once the lightly-settled land suitable for these crops came to be populated by squatters looking for small plots, smallholder production sometimes superseded the estates: the best-known case being rubber production in Indonesia and Malaysia.

In more recent times, economies of scale can arise when supplying international and other demanding markets for high-value produce. Meeting standards, certifying quality and production methods, and delivering uniform large lots to a strict schedule confer advantages to large-scale suppliers. Furthermore, as the demands for certification and for ever-leaner logistics have intensified in the last ten years or so, these demands have multiplied. So much so, that across the world — with examples, from Ghana (pineapples), Guatemala (snow peas), Kenya and Senegal (both horticulture) presented in section 4.2—there are cases of small farmers losing access to markets that they had only recently begun to serve.

Do small farms face particular obstacles to commercialisation?

If rural markets fail in the ways noted — insecure land rights, high transactions costs, monopoly power — these are likely to hit small farmers harder than large and thus constitute obstacles to the former commercialising. What, then, is known about the extent and severity of these failures?

Insecure land tenure. Most small farmers in Africa do not have freehold title to their land. Instead most have rights that are derived from membership of a community, where the land is considered to be held collectively, with rights given by elders and chiefs to members of the community for usufruct — although not usually allowing sale of the land. Evidence that communal tenure in Africa deters investment and conservation is scant; when the proposition has been tested it has usually been rejected (see Besley (1995) on Ghana or Place & Otsuka (2002) on Uganda).

That does not entirely invalidate the argument for titling if it is thought that being able to pledge land as collateral might improve access to credit; although there have to be questions about encouraging farmers to bet the farm on credit contracts that depend on the vagaries of the weather and prices in unstable markets.

A more sophisticated argument is that African farmers have to spend time and effort in complying with the obligations of both longstanding collective norms and formal national laws to ensure their access to land, and in the process use up disproportionate amounts of capital to the detriment of more productive uses (Berry 1993). This is an intriguing hypothesis, but not one that can be readily tested and we not aware of an attempt to do so.

By and large, the consensus on land rights in Africa (see, for example Quan et al. 2005) is that collective tenure of arable land usually gives

farmers enough security to make long-term investments on their fields; therefore allocating freehold rights is neither necessary, nor, given the high costs of mapping and registration, desirable. [15]

High transactions costs. In support of their argument the SOAS authors, Kydd, Poulton and Dorward, offer case studies) that, amongst others, include cotton production systems in half a dozen countries including Ghana, cashews in Tanzania, and maize and other food crops in Malawi (see also Dorward et al. 1998). In these cases lack of credit and inputs has led to stagnating production at levels well below the apparent potential. It is clear from these studies and others that in many parts of rural Africa good quality seed, fertiliser, crop protection chemicals and other inputs may be difficult to obtain without making a long journey — or only at a very high price. Numerous surveys show that very few small farmers obtain working credit or investment capital from banks and other private formal agencies. Formal insurance is hardly ever available to small farmers.

Most smallholders then have limited access to inputs and credit, but this may not necessarily be a result of high information costs. Other reasons include high costs of transport that greatly raise local prices of inputs, which are notably higher in Africa than in other comparable areas of the world (Livingston 2011); or lack of demand since farmers do not see a sufficiently attractive return on such investments, which in turn could stem from low prices paid for marketed products; or from uncertainty over returns to investments as may apply when government policy is unpredictable.

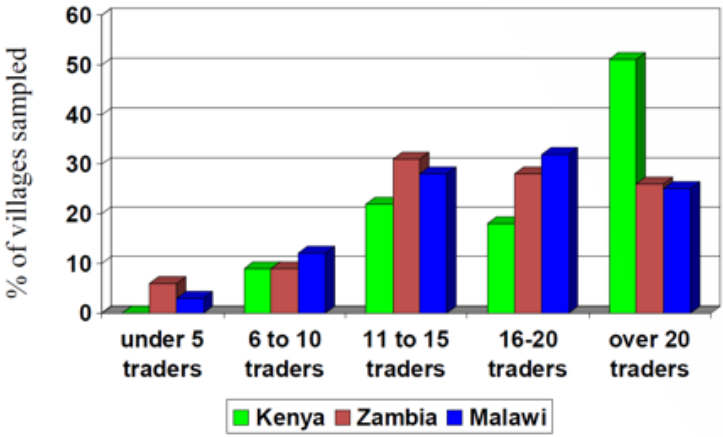
Moreover, there are plenty of cases of commercialising small farmers who have managed to produce and sell more despite little or no access to formal credit or insurance, and limited use of external inputs(see cases in Wiggins 2000, for examples). That does not mean that farmers could not sometimes make good use of credit, insurance and inputs were they easier to obtain, but suggests that their limited supply may not be so severe an obstacle.

The extent and severity of market failure due to high transaction costs remains in debate; to date there have been few studies that have been able to put this hypothesis to test. Indeed, measuring the effects of transactions costs is not straightforward as isolating these from other factors presents challenges for data collection and analysis.

How much do traders exercise any monopoly power they may have? It is common to observe large differences between prices in the village and in distant cities. Less apparent to observers, however, are the sometimes high costs of trading: in transport, storage, credit and payment of taxes formal and informal[16] when moving produce. Similarly the risks that traders run when information is scarce can be underestimated: few notice when a trader makes a long but wasted journey to find produce that is not there, or when the price paid in the village turns out to be less than that in a central market where prices fluctuate.

In a large continent there must be examples of this. Barrett (2008) reviewing the participation of small farmers in markets in eastern and southern Africa reported evidence of imperfect competition, as follows:

Figure 3.3 Number of traders buying maize from farmers in village, Kenya, Malawi, Zambia 2009

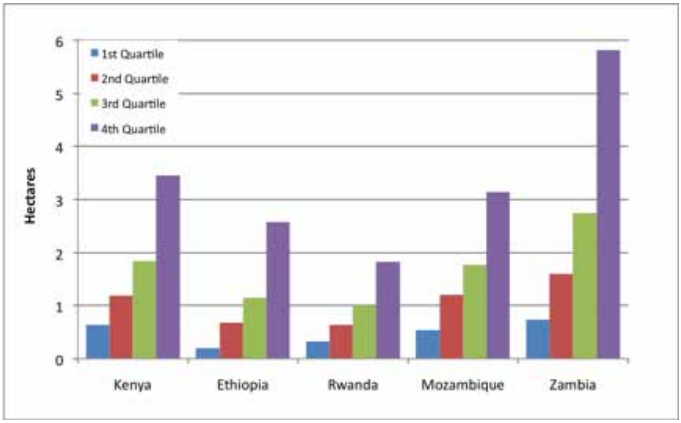


Source: Chapoto et al. 2011

Competition among traders is related to, but distinct from, issues of spatial price transmission, price risk and the costs of arbitrage. When markets are spatially segmented and marketing costs are substantial and involve a significant fixed or sunk cost component, the minimum efficient scale of arbitrage may create natural oligopsony or monopsony. Thus, Bernier and Dorosh (1993) found that only 29 percent of rice farmers in Madagascar had access to more than one crop buyer and outside the central highlands – home to the nation's best infrastructure – that figure fell to only 6 percent. Barrett (1997) similarly finds that in spite of massive entry into low-entry cost niches of food marketing channels post-liberalization in Madagascar, high entry costs into wholesaling, interregional transport and interseasonal crop storage sharply limit competition and boost intermediary profits in those functions.

Further reinforcing the impression that imperfect competition may be an issue in at least some settings, Moser et al. (2006) find evidence consistent with excess marginal profits to rice arbitrage at regional scale in Madagascar. Osborne (2005) likewise finds that imperfect competition among traders in grain markets in Ethiopia inflates their profits and drives down prices paid to farmers. [Barrett 2008] [17]

Figure 3.4: Land holding by quartiles in smallholder areas, Eastern & Southern Africa, 1996–2002



Source: Jayne et al. 2005, Table 2

Notes: Surveys included only agricultural households. Dates: Kenya 2000, Ethiopia 1996, Rwanda 2001, Mozambique 2002, Zambia 2000.

Against this can be set other studies of the margins earned by rural traders that show modest returns to trading (see, for example Fafchamps et al. 2003; Idris & Larson 1988; Sandford 1983; Mutabazi et al. 2010). [18]

Monopoly power usually depends on there being few traders; other recent survey evidence from eastern Africa suggests that farmers may have multiple options for selling crops. As Figure 3.3 shows, almost all maize farmers had more than six traders coming to the village to buy grain after harvest in three countries of eastern Africa.

How severe are these brakes on forces that would otherwise encourage small farmers to commercialise? A firm and general answer cannot be given for lack of more evidence. But as can be seen there are reasons to wonder to how widespread and severe the problems are. Commercialisation, moreover, can take place even when one or more of these problems apply, so they are not necessarily absolute brakes. They may, however, limit the extent of commercialisation in some cases. Perhaps more pertinently they may limit the extent of participation in commercialisation within a farm population since some small farmers have the means to overcome such impediments in ways that others do not — a topic to which this review now turns.

3.3 Which farmers are able to commercialise?

Processes of commercialisation are uneven: although higher prices, improved market access and agricultural innovations may allow commercialisation in a particular zone, the response to these stimuli will vary across individual farms. This should not surprise, since

even within areas where smallholdings dominate, there can be substantial differences between farm households in access to land, capital, labour, and to knowledge and skills — that is, variations in assets, broadly defined. Access to these assets, and their implications, are now discussed in turn.

Land

Land, even within areas dominated by smallholdings, is often distributed unequally. Jayne et al. (2003) present evidence from five countries of southern and eastern Africa — Ethiopia, Kenya, Mozambique, Rwanda and Zambia— of land holding patterns amongst smallholder households in the 1990s, based on nationally representative rural household surveys. Average land holding sizes per household have fallen by one third to one half since the 1960s, as populations have risen (see also Ellis 2005). Contrary to expectations of relatively egalitarian land distribution within communal tenure Jayne et al. (2003) found considerable inequality within land holdings, see Figure 3.4: at least as great as in Asia at the onset of the Green Revolution.

Only about a third of this inequality can be explained by variations between villages, such as differences in agro-ecological potential and local population densities; the remaining inequality lies within villages. Observable household variables, such as demographic structure and livestock holding (see below) explain a further 12–20 percent of total observed variation. Jayne et al. suggest that 'institutional and governance factors operating within local systems for allocating land' may account for some of the remaining inequality (Jayne et al. 2003:267). Thus, for example, the first clans and families to settle an area commonly receive larger land allocations than later arrivals, whilst other studies indicate that those related to the chief responsible for land allocation receive larger allocations than those without such links.

These surveys show that around 25 percent of households in all five countries have access to less than 0.1 hectares of land per capita: they are near landless. They also show that income per capita rises sharply as land holding rises from this level to 0.25 hectare per capita (and more gradually thereafter). In other words, whilst households with lower land per capita obtain a higher share of their income from non-farm sources than households with a greater land endowment[19], this is insufficient to compensate for lower land holdings in a predominantly agricultural economy.

The authors comment:

> '… the poor generally lack the land, capital and education to respond quickly to agricultural market opportunities and technical innovation.' Jayne et al. (2003:254)

Small land sizes restrict commercialisation in two ways. One, most clearly, is that they have less land to devote to commercial farming. Two, in the absence of reliable food markets households try to produce much of their own food: with small farms they are obliged to use much of their land for relatively low value staples with little scope to plant crops for sale.

These points are illustrated by Table 3.2, derived from action research carried out in Siaya and Vihiga Districts of western Kenya in

2001–2005. Land holding sizes in these districts are tiny, such that in a 2005 survey the 75th percentile household only had access to around 0.6 hectares, albeit land that could be farmed in two seasons per year. (This works out at 0.18hectares per capita – below the threshold of 0.25 hectares per capita highlighted by Jayne et.al. 2003). Table 3.2 considers possible outcomes from agricultural intensification efforts that permitted an intensification of maize production in the long rains season, so as to permit diversification into other crops in the short rains. In the project in question, intensification of maize production was being promoted through provision of technical advice plus a credit scheme that assisted households to acquire improved maize seed and inorganic fertiliser. Production of soybean was being promoted for cash, food and soil fertility benefits, whilst planting fast-growing "improved fallow" trees on small parcels of land helps restore soil fertility as well as producing firewood, poles or fodder. Kales provide additional cash income. In the best case scenarios shown in Table 3.2, maize and bean yields for the 75th percentile farm are double those recorded by the actual 2005 project survey.

According to Table 3.2, the 75th percentile farm household could satisfy all its maize requirements at these enhanced yields (per

Table 3.2: 'Best Case' Agricultural Incomes for Representative Farm Households in Western Kenya

Cropping Pattern (ha)	75th percentile Farm		25th percentile Farm	
	Long Rains	Short Rains	Long Rains	Short Rains
Maize/Beans (intercrop)	0.42	0.12	0.2	0.2
Soybean	0.06	0.24		
Kales	0.12	0.12		
Improved Fallow		0.12		
Total (ha)	0.6	0.6	0.2	0.2
Assumed Yields (t/ha)				
Maize (intercrop)	3.0	1.5	1.37	0.7
Beans (intercrop)	0.6	0.4	0.29	0.2
Soybean	1.5	1.5		
Kales	5.0	5.0		
Family Size	6.5		4.0	
Maize Production per person p.a.	222kg		104kg	
Net Income per person / day:				
KShs	16.63		3.78	
US$ PPP (current)	0.47		0.10	

Source: adapted from Poulton & Ndufa (2005)

capita consumption requirement is about 140kg per person per annum) and devote 80 percent of its land area to crops other than maize during the short rains season. However, its income per capita from farming activities alone would still only be around half of the international poverty line of US$1 (Purchasing Power Parity terms), meaning that it would require non-farm activities to take it out of poverty. Meanwhile, with lower expected yields, as very poor households are rarely early adopters of new technological packages, the 25th percentile farm household would not satisfy its maize requirements, so would be likely to continue devoting most or all of its land to maize and beans for home consumption.

Hence it may be expected that it will be the larger amongst small farms that will be first to grow crops for sale and that will have the largest sales.

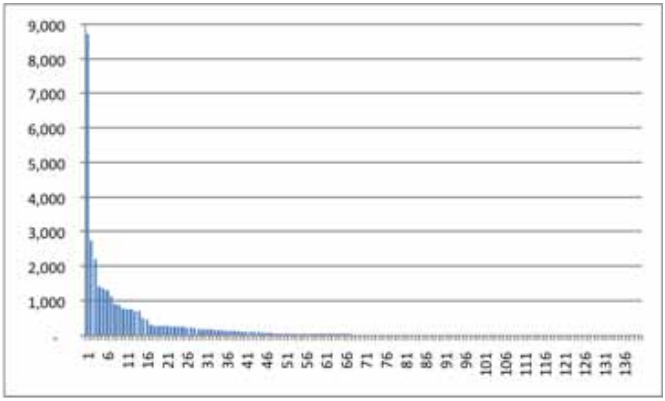
Land is not limiting in all cases: there are still parts of the developing world where settlement densities are low, where there remains arable land that has not been brought into cultivation. In these cases, the limits to the size of family farms lies in capital and labour, to which factors the review now turns.

Capital and physical assets

As with land, there are often wide variations within rural communities in capital stocks — usually seem in ownership of tools, buildings and livestock. Figure 3.5 shows the distribution of the values of productive assets owned in a sample of 140 farms growing irrigated onions in central Tanzania. The average value was US$230, but the median was only US$27. The top quartile of farmers had assets valued on average at US$818; the bottom quartile's assets were on average worth just US$7.

Household surveys often show that ownership of tools, buildings, livestock, and indeed household goods and housing, generally

Figure 3.5: Productive assets, estimated value in US$, 140 farms in four villages in central Tanzania, 2009



Source: Mutabazi et al. 2010

correlate — and are related to the ability to deploy working capital as well.

Households with such capital may be expected to commercialise earlier and to a greater degree, partly since they have the means to invest in new ventures, and partly since they can usually bear the risk of any failure.

An asset that greatly assists smallholder households to respond to market opportunities is animal traction: oxen, donkeys, buffalo, etc., drawing ploughs, seeders, weeders and carts. Animal traction allows farmers to plough quickly after the first rains, which in areas with restricted rainy seasons can make a big difference to yields. Draft animals may also allow more land to be cultivated where available. In addition, livestock ownership can provide manure for soil fertility, to the benefit either of staples intensification or of cash crop productivity.

West African cotton sectors provide an excellent example of a virtuous circle of cash crop production and animal traction investment, with profits from cotton being reinvested in animal traction to the benefit of both food and cash crops (Savadogo et al. 1998). Historically, cotton policy in West Africa has promoted animal traction with the result that 30–40 percent of farm households are fully equipped for animal traction, used for weeding as well as planting. By contrast, on southern and eastern African cotton farms, fewer households are equipped even to plough with their own equipment. Top end producers in the different regions achieve similar yields, but the much greater proportion of producers with animal traction in West Africa goes a long way towards explaining the much higher average yields achieved there as compared with southern and eastern Africa.

Labour, knowledge and skills

Farm household surveys often show that it is households with more working members that commercialise more than others. This probably arises partly since a large labour force allows a greater volume of activity on the farm. But it may also reflect a correlation between size of household, access to land and productive assets — and sometimes to the age of the household head. This reflects the peasant household cycle and demographic differentiation proposed by Chayanov (1925) in the late nineteenth century for Russia, but also seen in southern African farming systems, as reported in Low (1986).

Similarly it is to be expected that households that have members with relevant knowledge and skills in farming and marketing are likely to commercialise more. Levels of formal education may not, however, correlate with commercialisation since these assets may have better returns in jobs off the farm, above all in salaried positions.

Adoption and differentiation

Given varying access to assets necessary to commercialise, it is to be expected that some small farmers will commercialise more, and probably earlier, than others. What does this imply for the prospects of their less well positioned neighbours?

This is a contentious point: some fear that commercialisation will be the means by which inequality widens in rural communities, and worse, that the poor and disadvantaged may

actually lose assets and incomes. It is easy to see how commercialisation could lead to different outcomes.

On the one hand, successful commercialisation by some farmers may benefit the rest of the community. This could be directly by demonstrating how it may be done and thereby encouraging others to follow suit. Or it could be indirectly, through linkages in production, (for example, hiring in labour) and consumption as extra earnings are spent locally, thereby creating opportunities in the non-farm economy.

On the other hand, early movers may take up opportunities and pre-empt others imitating them. This could happen when the markets served are limited, so that demand can be met by a few farmers — as may apply with some niche markets such as organic produce. If entry requirements are sufficiently demanding of capital, land or skills that they impose threshold economies of scale, others may not be able to follow. It can also happen when early movers manipulate the rules so that others cannot follow. Freeman (1985) found cases in coffee[20] and pyrethrum in Kenya where official quotas and ordinances restricted the planting of these crops by small farmers.

Moreover, successful commercialising farmers may use their initial advantage to expand their holdings by buying up or renting land off others, thereby potentially undermining the livelihoods of their neighbours.

The evidence on these points will be reviewed in the next chapter on outcomes.

3.4 How do commercialising small farms interact with larger-scale businesses in supply chains?

What do we know about the supply chains that link farmers to inputs, services and produce markets? The main story is one of diversity. Supply chains and the links between farmers and others within them show varying degrees of integration and sophistication.

For example, in Ghana shipping yams and tomatoes out of Brong-Ahafo to the markets of Kumasi and Accra works effectively by farmers selling their harvests at the farm gate, soon after harvest, to small traders with pick-ups and lorries who transport to wholesale markets. Transactions are cash, quality inspection is visual. Similar arrangements apply to squash farmers in The Gambia who sell to traders running their produce to Dakar. Onions from central Tanzania reach Dar es Salaam, Zanzibar, Malawi, Zambia and even the Comoros by the same means (Molony 2008; Mutabazi et al. 2010).

On the other hand, cotton production through the Sudan-Guinea zone of West Africa depends on parastatal companies that provide inputs on credit, and who buy, grade, process and export the lint. In Kenya, smallholder tea production, processing and export is organised down to the last detail by the Kenya Tea Development Authority (KTDA). In Guatemala, the snow peas boom of the 1990s depended on the abilities and initiative of a co-operative. Sugar production in western Kenya by small farmers depends on contracting by the large companies running the mills and operating nucleus estates. Indeed, for some observers, such as Poulton et al. 2008, smallholder commercialisation almost always needs small

farmers to connect to large-scale enterprises that have the capacity to process at low cost and to high quality, and to ensure that produce meets the standards demanded by retailers and importers.

So what makes the difference in the degree of integration and the arrangements ruling these different supply chains? Schematically, two models can be seen, as follows:

Decentralised, fragmented, competitive supply chains.

These are often seen to link farmers to domestic markets for goods that are perishable and little processed, for example, onions, tomatoes, and milk. Farmers deliver to small-scale traders, usually with freedom to choose from among more than one trader, in deals that are spot transactions, in cash. Traders deliver to wholesalers, small retail stores, or even directly to consumers. Produce is neither stored nor processed in the chain.

These chains work well enough when: farmers can produce to standards that are clear to immediate inspection by sight, feel, smell and taste; traders can bulk up small lots from many farmers and deliver regularly to their customers in quantities needed; and working capital requirements are modest. They probably also work well when decent returns can be made from farming — as so often applies when farmers can deliver higher value, perishables to relatively affluent urban consumers.

Costs in these chains are often low: indeed, keeping them down is often key to success so that farmers consequently get a large share of the price paid by the consumer.

Costs in these chains are often low: indeed, keeping them down is often key to success so that farmers consequently get a large share of the price paid by the consumer.

Centralised, integrated supply chains that may also be monopolistic.

These chains are organised primarily by a dominant large-scale organisation that buys from farmers then transports, processes or packs, stores and distributes to wholesalers, exporters, or retailers — with many of the supply chain functions directly run by the central agency. The end sellers of produce usually have demanding requirements for quality, standard bulk lots, timing and conditions of production. The organiser of the supply chain, or 'champion', may be a government enterprise (parastatal), a private company, or a farmer association or co-operative; however ownership is not the issue, scale is. The enterprise needs to be large enough to have working capital, expertise and capacity. Since these agencies are large, there may be just a few or only one operating in a given region, so they have powers of oligopoly or outright monopoly.

These arrangements are found when: processing has to be at large scale to achieve threshold economies (as applies for sugar) or when processing is critical to quality (as applies to tea); working capital requirements are onerous for small farmers; when quality may not be immediately apparent, for example, requirements for pesticide residues or aflatoxins; and when the form of production on farm matters either for quality of product, or for certifying conditions of production.

Costs in these chains will be higher than in decentralised chains, meaning farmers will get a lower share of the consumer price, but(and it is big 'but') this may still be attractive since generally the product delivered to wholesalers or retailers is high unit value.

An increasingly common form of this chain is found with contract farming where a private company enters into agreement with farmers to supply produce. These schemes can link small farmers to traders or processors, with the latter providing the farmers with inputs, technical assistance and marketing, in return for an assurance of getting regular supplies from the farmers. This assumes that the traders or processors have access to sufficient capital to advance inputs or provide technical advice on the grounds that they have low transactions costs with banks and hence can get credit from them. [21] Both parties to the contract are locked into the arrangement with incentives to make the deal work. (Minot 2011) Some examples may help illustrate the possibilities.

In Madagascar, Minten et al. (2011) describe how smallholder farmers under micro-production contracts have received extensive farm assistance and supervision to help them meet the high quality standards and food safety requirements demanded by European supermarkets. Under the scheme more than 9,000 vegetable farmers in Madagascar are now producing for this market.

The contracting farm households tend to be better educated than the average Malagasy household, having often completed primary schooling. Otherwise they are small farmers with a hectare or less of land. Each contract is restricted to 0.01 hectare, but given relatively short production cycles there can be several on the same plot over the course of the year, while different household members have may have own contracts. Even so, it is rare for a household to have much more that 0.05 hectares planted to green beans.

Benefits of the scheme include higher welfare, greater income stability and shorter lean periods. However, local supermarkets do not demand the same high quality and are reticent about contracts that emphasise higher quality standards.

On a much smaller scale, smallholder farmers in South Africa have been supplying a local SPAR supermarket, while SPAR supports and maintains market access. The initiative is underpinned by South Africa's Agricultural Black Empowerment (AgriBEE) Policy, introduced in 2004. Classified as emerging farmers, these smallholders meet 30 percent of the store's demand for fresh produce, supplying cabbages and spinach and other vegetables. However, its reach is limited in that this amounts to only 27 farmers in total (Louw et al. 2006), especially given that there are about 3 million small-scale farmers in South Africa, mainly settled in communal areas and farming only 14 percent of agricultural land, compared with 46,000 commercial farms who produce 95 percent of marketed surplus on 86 percent of agricultural land (Sautier et al, 2006: 9). Participation of small scale farmers in contract farming is still very limited.

An empirical analysis of the impact of a contract-farming programme (ARB) in Senegal examines poorer community members' access to contracts and the programme's impact on participants' incomes (Warning & Key 2005). Contracting farmers' incomes significantly

increased, which not only raises the standard of living of growers, but the authors suggest this may also create positive multiplier effects for economic growth, infrastructure and employment in the region. The study also finds no significant difference in wealth levels between contract and non-contract farmers, and therefore does not seem to favour 'wealthy' farmers over their poorer neighbours. The programme focuses on producing a traditional cash crop, peanuts, rather than non-traditional crops that have limited markets locally that all farmers in the locality have grown before and already have the agricultural inputs to cultivate. So not only is there less uncertainty around producing the crop, no new large capital investments are needed to participate. This creates more of a level playing field between larger and smaller farmers.

Plenty of examples exist beyond Africa. In Cambodia, for example, Angkor Kasekam Roungroeung (AKR), contracts rice farming. A family business that mills and exports fragrant rice, AKR gives farmers a special variety of seed and provides technical assistance on rice as well as on feeding fish, cows and natural fertilisation through more than 100 field workers. It promises to buy up the output at a guaranteed price with a subsequent bonus depending on market conditions at time of milling. By 2008 around 45,000 farmers with an average holding of 1.7 hectares, organised in groups, were contracted (Cai et al 2008; ACI/CC 2006; interviews by Wiggins 2008).

Three issues arise with contract farming: the differing forms and nature of the contracts; the conditions under which contracts succeed or fail; and whether, and under what conditions, small farmers benefit, or are just exploited.

The provisions of contracts vary, above all in what the contractor is prepared to offer the farmer, and in the requirements for delivering produce to the trader or processor. Contractors may offer inputs in kind — typically seed, fertiliser and crop protection chemicals, technical advice, machinery hire, labour gangs at peak periods, and cash credit. However there are wide variations in the comprehensiveness and generosity of what is offered. Obligations of farmers may be merely to sell a set quantity of output to the contractor, at which point the cost of inputs can be deducted from payments made; or alternatively, there may be quite demanding requirements of selling all output to the contractor to given quality standards and to a strict schedule.

Degrees of commitment by both parties can thus vary: some contractors are just trying to get some additional supplies through contracts, while they are producing their own supplies or using the spot market as well. In other cases, the contractor's business depends on supplies from contracted smallholders. As might be expected, contracts are less demanding in the former case than the latter.

Success in contracting depends on:

- There being a good business opportunity — the green beans from Madagascar and the rice exports from Cambodia are good examples, both being high quality produce destined for premium markets so that the processors make money while being able to pay farmers an attractive price. The opportunity, of course, needs to be one that neither party could easily seize without the participation of the other;
- Both parties are committed to the contract. On the farmers' side, it helps if there is little

scope for selling on the side — and thereby avoiding repayment of input costs. For contracting processors or traders, it helps if supplies from smallholders are essential to their business: if they can get supplies from large farms or the spot market, there may be temptations to default — even if inputs have been advanced to contracted farmers. That leads to the next point;

- When contracts include a guaranteed or fixed price for the produce, it helps if the market is reasonably stable and the promised price is in line with the spot market. If the agreed price is a long way from that on offer in the market at time of harvest or produce delivery, there can be very strong incentives to default on the contract. The existence of a signed agreement often counts for little in such cases: taking the defaulting party to arbitration or court is often costly, with little chance of getting commensurate compensation. [22]

Failures can arise for the reverse of the conditions for success, but they can also occur owing to risks in production. For example, in northern Ghana a brewery contracted farmers to grow sorghum; however the farmers were poor and inexperienced in the demands of the brewery, so research stations and an NGO were included in the arrangements. The variety thought suitable, not a local landrace, had a panicle ideal for midges that were in full reproduction just as the panicle formed. The NGO involved in assisting the farmers did not realise the dangers and the farmers with failed harvests ended up in debt (Kudadjie-Freeman, Richards & Struik 2008).

Do farmers benefit from contracts or are they exploited? The potential for exploitation mounts when farmers have little or no chance of selling the crop on the side; in this case the contractor can dictate prices and conditions to the farmers taking full advantage of monopoly power. When farmers are both organised and well informed they have more of a chance to bargain with the contractor.

The answer to this question depends on particular cases. By and large, the literature reports cases where contracting has benefited farmers. For example, Grosh (1994) reviews cases from Kenya where in the 1980s as many as 250,000 farmers (15–20 percent of all farmers) were under contract in tea, sugar (Buch-Hansen & Marcussen 1982; Kennedy & Cogill 1987), tobacco, horticultural crops, barley and oilseeds. By the mid-1980s, 45–50 percent of the value of marketed crops may have been grown under contract.

Generally, contracted crops in Kenya have high gross margins, farmers gain in income, and use more inputs. It can be argued, moreover, that the returns to contracting have allowed some farmers to retain their land and to remain in their villages. However it has not all been plain sailing: horticultural contracting had seen notable instability, thanks to cowboy air-freighters and volatile spot markets encouraging defaults.

To conclude, contracting can work. In most countries the share of farmers who are under contract, however, is less than one in ten; with Kenya the outstanding exception where as many as 20 percent are believed to have contracts. But if contracts can resolve the pervasive issues of lack of access to inputs, working capital, technology and marketing, then why are there not more schemes?

The answer probably goes as follows. Risks of default when either the farmers or the contractors do not depend on one another are high. Dependence arises from some monopsony power, that derives either from the crop needing processing that is beyond the means of farmers and most businesses as well — think of a typical sugar mill, where there is a high threshold for reaching the scale necessary for volume economies; or from know-how in marketing that allows the contractor to access a premium market. Moreover, there are many situations where crops and products can be processed and marketed on small scale by all and sundry, where transactions costs are not so high so farmers can get the inputs they need to produce, and thus are not obliged to tie themselves into deals with contractors.

4. Outcomes from commercialisation of small farms

4.1 Benefits from commercialisation of small farms

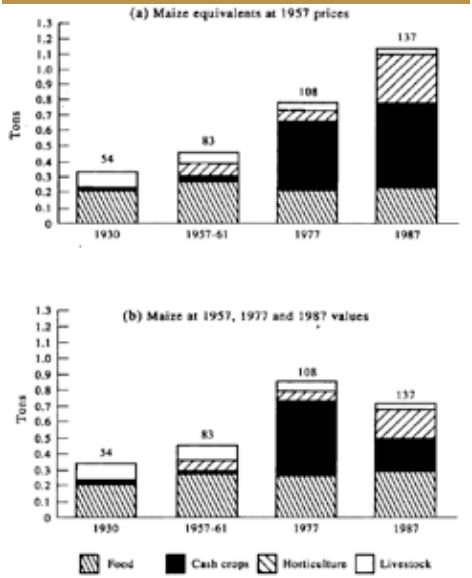
What does the empirical record suggest about the benefits? Clearly, there are so many experiences that might be used to answer this, that any sample would potentially be biased. Nevertheless, there are many cases documented where commercialisation has led to higher incomes for small farmers. Here are some examples that illustrate the diversity of conditions under which this can occur.

Central highlands of Kenya: in response to the Emergency declared in 1952, the colonial government staked the future on the country on transforming the small farms of the African reserves — previously seen as being places where the indigenous population could subsist while providing temporary migrant labour for the larger, settler farms. The strategy envisaged in the Swynnerton Plan of 1954 was to encourage small farmers to grow cash crops, above all coffee and tea. Technical assistance would help them do this, while the state would organise provision of inputs and marketing either through co-operatives in the case of coffee, or through a parastatal in the case of tea. Surveying, registering and titling of land was seen as critical to give farmers the incentives to invest in their farms (Bates 1989 Leys 1975).

The Swynnerton Plan succeeded in its broad aims: the uptake of commercial crops was widespread, creating for Kenya major exports of beverages while boosting farmer incomes. The northern hills of Machakos were typical of the central highlands where much coffee was planted from the 1950s onwards. Gross margins of coffee were much higher than grains and pulses and incomes rose correspondingly for the farmers planting the new crops (Tiffen et al. 1994). In this area, as indeed over much of Central Province plus Embu and Meru Districts, the introduction of cash crops was accompanied by intensification of food crops, such as maize using hybrids, thus sparing the amount of land that had to be planted for home consumption. The first round of commercial enterprises was later followed by others, including intensive small-scale dairying and production of vegetables. Thanks to commercialisation and intensification, farm incomes rose — even at a time when rapid population growth threatened impoverishment as the land was divided into ever smaller plots.

Figure 4.1 shows how farm output measured in maize equivalents and averaged over the District, rose from 1930 before the introduction of cash cropping, through to 1987. The first part

Figure 4.1: Farm output per head, Machakos, 1930 to 1987



Source: Figure 1, Tiffen & Mortimore 1994

of the diagram (a) values produce at 1957 prices in maize equivalents and thus is effectively a physical production index. The second part (b) shows the effects of changes in the relative returns to different crops: value is still measured in maize equivalents to give a production index, but this time the relative values of different crops to maize are set at 1957, 1977 and 1987 levels. On this reckoning, output per head fell between 1977 and 1987, since coffee prices on world markets fell sharply in the first half of the 1980s — even though there was rising physical output per caput.

In Ibarapa District, south-west Nigeria, between the 1960s and 1980s there was expansion of cash cropping to market cassava, maize and tomatoes to the growing cities of the region. Returns to farm work over the two decades rose by 25 (Guyer 1992). Interestingly, tractors and rotation had been adopted for cultivating the old crops of maize, melon and cassava; while the old methods hand-clearing and heaping were applied to the new commercial crops of tomatoes and peppers (Guyer & Lambin 1993).

Tomatoes have become a popular cash crop for small farmers in Brong-Ahafo Region of Ghana. Okali & Sumberg (1999) describe the management of very small plots of 0.3 hectares irrigated by hand to grow tomatoes for sale. Net returns from these fields, even assuming low yields and poor prices, were in excess of US$300 a hectare — much higher than food crops in this region. Berry (1997) reports similar findings for Kumawu, a village in Ashanti Region further south.

Similar cases can be seen in other parts of the developing world. For example, in Guatemala in the 1980s, it became possible for small farmers to export vegetables during the North American winter, snow peas in particular, as the Cuatro Pinos co-operative organised smallholders. During the 1980s, the returns to family labour employed on snow peas was estimated at US$5.51 day, compared to less than US$2 a day for producers growing maize and other food crops (von Braun et al. 1989). These differences were reflected in increased spending by households that were members of the co-operative and growing the vegetables, compared to those who were not. As will be explained below, however, these gains have not been sustained.

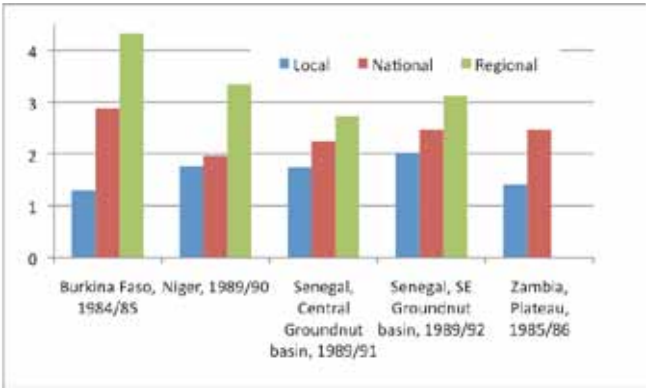
Benefits across the rural economy through linkages

Linkages can multiply success in smallholder farming with three main channels evident. The first two links arise in farming in terms of rising demand for labour and other inputs, and in more jobs downstream of the farm in processing, trading, transport and storage. Crops grown for sale can have high labour requirements. In Machakos, Kenya small farms with coffee, fruit and vegetables were typically hiring in the equivalent one full-time worker for each hectare cultivated (Tiffin 1992). In the Guinea savannah of northern Nigeria in the 1980s maize production for sale boomed, encouraged by urban demand and the spread of improved varieties. Labour demand on fields rose, raising wages and drawing in migrants to the zone (Goldman & Smith 1995). Outside of Africa export snow peas in Guatemala required 600 days of labour per hectare meaning that growers were hiring in more hands to cope (von Braun et al. 1989).

The third common linkage arises through consumption, in terms of jobs created when small farmers with additional incomes spend on locally produced goods and services — including furniture, entertainment, food and drink, and house improvements. Some estimates of multipliers in rural Africa are high: Delgado et al. (1995) report estimates as high as 4.3 to 1 (see Figure 4.2). Most of the effect comes from consumption rather than production. The high indices reflect the high fractions of additional income likely to be spent locally.

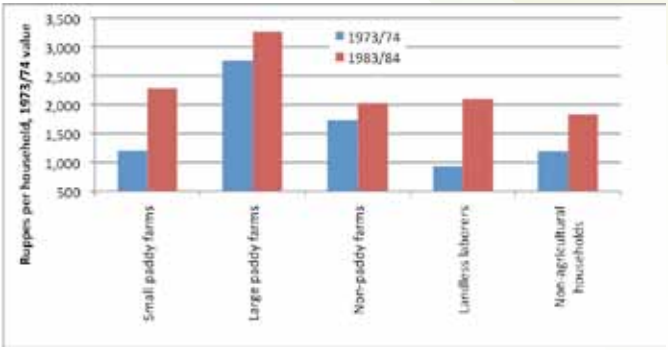
Beyond Africa, one of the most remarkable observations of the power of these linkages comes from North Arcot District, Tamil Nadu during the 1970s. In this case modest increases in the produce from irrigated farming, as improved varieties of rice were adopted resulting in production rising by the equivalent of one percent a year over the decade, led to a doubling of real incomes and welfare of the poorest in the surveyed villages, including landless labourers (see Figure 4.3).

Figure 4.2 Growth multipliers for rural Africa, mid to late 1980s. Impact of extra income from farm tradables



Source: Delgado et al. 1994. Note: Different estimates relate to degree of tradability of marketed farm produce

Figure 4.3: Changes in incomes, resurveyed villages, North Arcot District, Tamil Nadu, 1973/74 and 1983/84



Source: Delgado et al. 1994. Note: Different estimates relate to degree of tradability of marketed farm produce

It seems that increased production of rice, plus the advance of dairy cattle, led to more demand for workers in input supply, in processing and marketing of produce, and in local services and manufacturing to meet the demand of farmers with additional incomes. Small farmers apparently withdrew from the rural labour market as their more productive farms now absorbed household labour, while income rises made working for low pay off the farm unattractive. The combination of reduced supply of labour and increased demand for workers meant more paid days and increased wages for landless labourers (Hazell & Ramasamy 1991).

How much do small farmers benefit from commercialisation? A caution

Although generally studies show that farmers who have commercialised more have higher incomes than those who have not, surveys often show that the total value of marketed production is quite low.

Look back, for example, at the estimate of farm incomes in Machakos in 1987: these are expressed as maize equivalents per head, in 1957 terms, reporting an average of less than 1.2 tonnes of maize. Hence, for that to lift people out of dollar-a-day poverty the value of the maize would have to be more than US$300. In 1957 maize on the world market was worth around US$400 a tonne, in 2007 dollars.[23] Hence the average household in Machakos would escape extreme poverty, but not by that much, and would fall well short of the US$2 a day.

In Madagascar in the early 2000s more than 9,000 small farmers were contracted to grow green beans for export to Europe. Yet their contracts were limited to just 0.01 hectare—although many households had more than one—and the total price paid for the beans off this small plot was just US$20, out of which US$5 had to be paid back for fertiliser, seed and chemicals advanced by the company. On average the contracted households had a net income of US$45 a year from their

vegetables (Minten et al. 2011). For very poor farmers this helped them get through the lean season, but it is hardly enough to lift them out of poverty.

In sum, small farm commercialisation can be a route to higher incomes for both the farmers selling on the market, and their often poorer neighbours. As explained in the previous chapter, however, there is nothing assured about such outcomes; undesirable outcomes are sometimes also reported, as the next section explains

4.2 Potential drawbacks: food insecurity, inequality and increasing risks

Food insecurity and malnutrition

Reduced production of staples, failure to spend increased incomes on food, and too little time to prepare weaning foods are ways in which commercialisation might reduce food security.

Does producing more cash crops mean cutting back on production of staples for home use? As set out in section 3.1, one of the most robust generalisations is that small farmers rarely specialise in the commercial crop, rather they add this to the enterprise mix. Most smallholders are wary of depending on the market for staples, fearing that there may be times of shortage and high prices. [24]

Indeed, the link may the reverse: growing cash crops may boost staples production at the same time. This applies when the cash incomes allow better seed, or fertiliser, to be bought for the staple crop. Oyugi et al. (1987) reported that farmers in South Nyanza growing tobacco did not cut back on food production instead they used earnings to invest in food crops. On contract farming schemes a common observation is that some of the fertiliser and chemicals supplied to grow the cash crop is diverted to staples; For example, in northern Ghana where part of the fertiliser supplied by companies was switched to food crops (Dorward et al. 1998). In other cases, fertiliser applied to an annual cash crop planted in rotation with staples may confer some residual benefits to the staple grown the year after. This has been seen for maize and sorghum after cotton is grown in the Sahel (Bassett 1988), as well as for rice sown on plots previously under green beans in Madagascar (Minten et al. 2011).

In other cases, higher yields from fields of staples has tended to promote cash cropping, sometimes as pre-condition for this to take place. In Kenya, the spread of coffee and other cash crops in densely settled central parts of the country was boosted by the introduction of hybrid maize that made it possible to feed the household off a smaller maize plot (Tiffen et al 1994). Studies that allow comparison of volumes of marketed produce with volumes of staples produced across different households, commonly report that the two correlate positively, not negatively. For example, in Zambia in the 1980s, surveyed farmers were categorised according to their maize sales into subsistent, emergent or commercial: the most commercial households had the largest farms — although family holdings of less than 5 hectares on average, still planted the largest area to food crops, and retained more staple food than the other farms (see Table 4.1).

Table 4.1: Food production and availability, northern Zambia, mid-1980s

Farmer Category:	'subsistent'	'emergent'	'commercial'
Average family size	6	6	6
Average number of dependents	2	2	2
Farm area (ha.)	1.94	2.72	4.51
Farm area (ha.) devoted to food crops	1.57	1.66	1.80
Average quantities of food retained by households			
Bags of maize	4	7	11
Finger millet (kg)	13	17	18
Beans (kg)	106	279	420

Source: IRDP (Serenje, Mpika, Chainmail), reproduced in Moore & Vaughan 1987

This did not, however, mean that the children of commercial farm households were better nourished, as will shortly be seen.

At a national level, countries that produce more cash crops also tend to be produce more food crops as well (Maxwell & Fernando 1989).

Is additional income from agricultural sales spent on food, health, water and sanitation? The fear here is that most produce is sold by men who then spend the money on things other than the basic needs of the household, at worst drinking and gambling away precious funds. The dangers are greatest when incomes from sales come in large lumps, exacerbating the temptation to spend unwisely. The Mummies sugar cane scheme in western Kenya began by paying its contracted smallholder growers an annual sum, but then changed this to smaller, more frequent payments to avoid this danger.

There is not much readily available evidence on the propensity of commercialised small farmers to spend additional funds on non-essentials. Reports from the 1980s on the marginal spending of small farmers in Burkina Faso, Niger, Senegal and Zambia show that more than half of additional income was likely to be spent on food and drink. More detailed breakdowns for Burkina Faso show that most of the food spending, and more than half of all marginal spending was on cereals (Delgado et al. 1998). While this evidence is thin, it suggests that most of the marginal earnings by small farmers go to buy in essentials such as staple food.

Does commercial farming raise workloads to the detriment of child care? Producing commercial crops, and livestock enterprises, on small farms nearly always raises the total amount of labour used. That does not necessarily, however, mean that members of the households work longer or harder: hired labour may take the strain, and indeed, the additional income may encourage some households to take some of their gains in less time worked in the fields or stables.

But it can mean more effort, as one women interviewed in Machakos poignantly reported:

'My father could sing and dance, but I have no time.' (Tiffen et al. 1994,: 175)

It is perhaps not the amount of the work that matters, but who gets additional work: if it falls to women, then there are concerns that children may lose out.

This has been a persistent problem in northern Zambia where women are expected to take care of children but also do much of the farming of food gardens — in the past this has been exacerbated by the men migrating to work in the copper mines, so that many households have been headed by females with little male labour to help. In the 1940s it was observed that meals were infrequently prepared, to the detriment of young children who need frequent meals. Maize commercialisation, even with oxen, in the 1970s and 1980s used more female labour. Studies showed increased child malnourishment with commercialisation despite households having more staples of all kinds (see Table 4.2). The most likely explanation of this surprising outcome was lack of female labour to prepare food and especially weaning foods (Moore & Vaughan 1987).

What evidence is there on the overall nutritional impacts of commercialisation?

In the late 1980s and early 1990s, the International Food Policy Research Institute (IFPRI) (von Braun 1995) carried out surveys designed to investigate the links between commercialisation and nutrition in the Gambia, Guatemala, Kenya, the Philippines and Rwanda. This was complemented by reviews from India, Malawi, Papua New Guinea, Sierra Leone and Zambia. The key findings from these studies were:

- Generally smaller farms participated less in commercialisation schemes, but when they did their degree of participation was often higher than larger farms
- In most cases, commercialisation increased staple food crop production either by bringing in new land or increasing yields
- Generally returns to land and labour under new crops were higher than for the staples
- Commercialisation usually meant more work in the fields with corresponding increases in the use of hired labour. In some cases it also meant more off-farm work as well. Much of

Table 4.2: Under-five nutritional status by farmer category, northern Zambia, mid 1980s

Farmer category	No. of 90 kg bags of maize sold to Provincial Marketing Union	adequate nutrition	mild malnutrition
'subsistence'	0	70	26
'emergent'	1-30	52	41
'commercial'	30 +	50	44

Source: IRDP (Serenje, Mpika, Chinsali), Reproduced in Moore & Vaughan 1987

Sample consisted of 205 households containing 166 children aged 6 to 60 months.

the work with the commercial side was 'men's work'

- Income increased in most cases for participants, whilst the demand for hired labour often spread the benefits of increased output. Overall household income increased by much less than crop income, given the importance of off-farm earnings for most households
- In almost all cases higher income meant better child nutrition, although the response of nutrition to higher incomes was low. . There was hardly any evidence, Sierra Leone the exception, of nutrition getting worse under commercialisation.

Hence the key finding from these cases is that commercialisation does not usually impair food security and nutrition; but the low response of nutrition to higher incomes reminds us that child nutrition is only partly about food intake, the health and sanitary environment are at least as important.

To the best of our knowledge, no subsequent studies have contradicted or qualified those conclusions.

Inequality and social differentiation

Some cases report widening inequality under commercialisation. For example, while many households in Machakos, Kenya have undoubtedly benefited from an increasingly commercial farming, social differentiation has risen (Rocheleau et al. 1995). The detail can be seen in Murton's work (1999) based on surveys in one village in upper Machakos,[25] supported by rapid appraisal for other villages. Landlessness in this community is uncommon, but 55 percent of the land is held by the upper quintile of farmers, a fraction that has increased since the 1960s, apparently because the larger farmers have been able to buy in land. Forty percent or more of households have not had the capital to invest in cash crops of coffee and French beans. Most of these households cannot produce enough staple food to feed themselves and depend on seasonal work on their neighbours' fields for their subsistence. When such work is scarce these households go hungry. Thus Mbooni Location, although one of the most naturally favoured areas in Makueni District, has higher levels of malnutrition than other parts.

Inequality in Ndueni existed before cash cropping became common, but over three decades it seems to have become worse. The question in this case is what would have been the fate of those with little land had cash crops not been taken up? Population density almost trebled between 1965 and 1996, so that in the absence of some paid work on the more commercialised farms, the poor would have been in worse condition.

How generalised are such findings? While evidence is patchy, there are enough reports of widening gaps associated with commercialisation that they are not exceptional. Here are some further examples.

The success of cotton in western Burkina Faso, reports Bélières et al. 2002, has brought with it differentiation of farmers, some able to adopt the package often being those able to access loans. Having a pair of oxen makes a clear difference to the area tilled — an average of nine hectares compared to 3.8 hectares for those with manual labour.

In Bénin in the 1990s, the government moved to revive oil palm production, distributing selected oil palm plants. These have been taken up by small-scale planters — family farmers, retired civil servants, some traders — who have developed specialised plots of five hectares or so. They have also benefited from development agencies disseminating mechanical presses and mixers for processing, a technology that becomes viable with 70 tonnes of oil palm for which seven hectares of selected palms are needed. In the process, the traditional oil palm sector — in which naturally occurring palms within diversified smallholdings are harvested, the nuts then being processed manually by women — is in danger of being marginalised (Bélières et al. 2002).

Reviewing 26 cases of growth of smallholder production across Africa from the 1970s and 1980s, Wiggins (2000) also sees forces for differentiation:

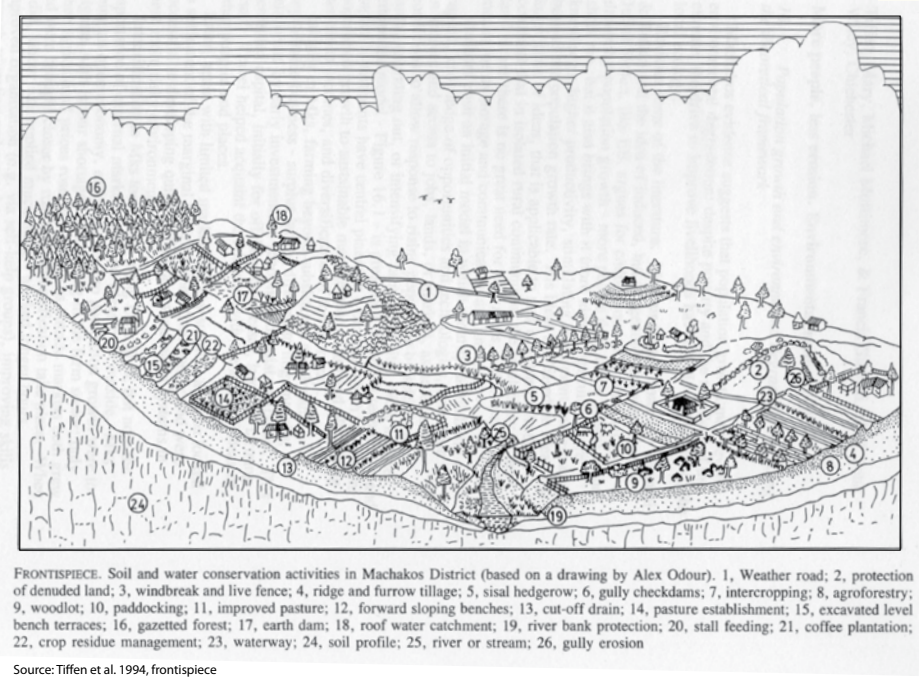
> Social differentiation amongst the peasantry is no longer a fashionable area of inquiry, so case studies published during the last decade tend to be weak on such differences. What is reported, though, confirms our worst fears: differences are substantial. When and where farm economies blossom, it seems that that the great bulk of the marketed surplus comes from a small fraction of the farmers. For example, in the early 1990s half the sales of maize in Chivi were made by just 10 percent of farmers, whilst 40 percent hardly ever sold any maize (Scoones 1996).

> Differences in African farming are not usually the result of lack of access to land and other natural resources—land hunger arises in perhaps half-a-dozen of the cases, and even then is a muted theme (compared to its role in Asia and Latin America). What does divide farmers is their differential access to capital and labor, and the associated ability to bear risk. Capital rarely comes from formal lending; so most farmers have to depend on informal financial systems, and, above all, on their savings. These in turn can often be traced back to non-farm earnings, the proceeds of a successful temporary stay in a city, or recruitment to a government job (Wiggins 2000).

Debates over differentiation, however, are dogged by two issues. One is how much concern there should be over widening gaps between rural households, so long as those in the lower echelons are becoming less poor. While there may be considerable evidence of commercialisation leading to larger gaps in income, there are far fewer confirmed reports of those at the bottom of the income distribution actually becoming worse off.

The other issue concerns time and dynamics. The initial phases of commercialisation are almost bound to see some households, already better off than their neighbours, gaining greater advantage than others. But does this imbalance persist? In the case of North Arcot, Tamil Nadu, studies in the early 1970s showed that opportunities afforded by the arrival of green

Figure 4.4: Environmental conservation in upper Machakos



FRONTISPIECE. Soil and water conservation activities in Machakos District (based on a drawing by Alex Odour). 1, Weather road; 2, protection of denuded land; 3, windbreak and live fence; 4, ridge and furrow tillage; 5, sisal hedgerow; 6, gully checkdams; 7, intercropping; 8, agroforestry; 9, woodlot; 10, paddocking; 11, improved pasture; 12, forward sloping benches; 13, cut-off drain; 14, pasture establishment; 15, excavated level bench terraces; 16, gazetted forest; 17, earth dam; 18, roof water catchment; 19, river bank protection; 20, stall feeding; 21, coffee plantation; 22, crop residue management; 23, waterway; 24, soil profile; 25, river or stream; 26, gully erosion

Source: Tiffen et al. 1994, frontispiece

revolution rice varieties and supporting public policy were taken up by a minority of farmers. When resurveyed in the early 1980s, the new rice varieties had been adopted by the vast majority of farmers. Moreover, in this case the largest proportionate gains in incomes accrued to landless labour (see above, section 4.1).

Against cases where benefits have spread socially through time, there are other reports where the conditions of access to commercial opportunities have narrowed. For example snow pea production by small farmers in Guatemala has been severely curtailed in the 1990s, partly owing to much stricter demands on pesticide residues (Calogero et al. 2009). In Ghana higher quality demands from processors have made it much more difficult for small farmers to participate in the commercial production of palm oil and pineapples (Folds 2009; Whitfield 2010). These cases will be explored in the next section.

Gender differentiation

The Gambia has cases that illustrate what can happen. During the 1980s the chance to grow irrigated vegetables for domestic, regional markets (specifically Dakar and European markets) arose. Women, who had adopted

shorter-season varieties of rice to counter ever-shorter rainy seasons, raised their production of irrigated vegetables in the dry season.

Although vegetable production is associated with higher incomes, better nutrition and welfare, it also involves more work, more individualised returns, with less interest in collective tasks, and undermines the role of elders in favour of the young (Barrett & Browne 1989; 1995). Above all, the additional work falls for the most part on women.

Furthermore, the vegetable gardens that are on land nominally owned by the men have become the scene for a struggle over that land with men planting trees to assert their rights, to the detriment of the women's vegetables. (Schroeder 1993; 1994)

Accounts such as these are sometimes used to argue against commercialisation. An alternative interpretation is that struggles over gender roles play out in whatever arena they arise, so that it is not commercialisation itself that has led to increased differences or unfairness. In Gambia, for example, disputes between men and women over land, labour and control of returns to production arose with the several attempts to irrigate rice — a food crop — in the dry season; disputes that contributed to part or total failure of the schemes (von Braun & Webb 1989; Carney & Watts 1990). In one of the more recent projects, the Jahally-Pacharr rice scheme, the design of the programme led to a situation where women were expected to do the work, while men took most of the benefits, leading unsurprisingly to disputes and women refusing to co-operate. For Carney & Watts (1990), the scheme shows how the conflict between capital and labour becomes located at the domestic level.

Two conclusions may be drawn from these cases: one is that commercialisation can lead to further gender differentiation, but that this depends in large part on there already being unresolved tensions over roles. The other, of course, is that those promoting and encouraging commercialisation need to be aware of such conditions, and design interventions[26] in ways that do not exacerbate existing unfairness.

Increasing risks

Price risks are often reported, above all for perishable crops where gluts on markets often arise, that can only clear by dramatic reductions in the price offered. Technical risks are also recorded, as was seen in the case of a new variety of sorghum to be grown in northern Ghana, when the susceptibility of insect attack was underestimated (Kudadjie-Freeman et al. 2008). Physical risks in marketing are also noted: selling cash crops may expose adults who do the trading to higher risks of HIV infection (Jaleta et al. 2009; Shah et al. 2002), if they have to travel far from home and especially if they have to spend a night away from home.

Farmers take higher risks than before when commercialising: some will therefore experience calamity. A particular concern is that small farmers take out credit to finance intensified production for the market, then, as hazards strike, cannot repay the debts. At best this may lead to the farmer being banned from further credit, at worst it may involve sale of assets to cover the debt, including loss of land where this has been pledged as collateral against the loan.[27] The tragic stories of cotton farmers in India

committing suicide (Gruere et al. 2008) remind us how serious unpaid debts can be.

But there is another potential consequence of risk, one that is probably more common in Africa: taking countervailing precautions. Common responses to price risk include: diversifying production — the case of the tomato producers of Pamdu and Kumawu in Ghana (Okali & Sumberg 1999; Berry 1997), and livelihoods; limiting cash spending on the commercial enterprise; and using primarily household labour who can accept lower implicit returns when prices of output or inputs move against the household enterprise, or when harvests fail.

These responses, of course, have their downside: diversification is at the expense of the gains from specialisation; limiting cash spending may be at the expense of applying optimal amounts of fertiliser, hired labour, and so on. The variance of returns is reduced, but the mean is also brought down.

Encouraging environmental degradation

Different crops and enterprises entail varying types and degrees of environmental impact. By and large, making greater use of natural resources is likely to increase environmental impact and some of this may be harmful. It is thus not hard to observe increased environmental degradation when farms are commercialised.

But that there are two points that need to be borne in mind, as Stockbridge (2006) indicates in his review of the potential of commercialisation to exacerbate environmental damage. First, environmental impacts from commercialised farming need to be set against what might otherwise have occurred. If instead of commercial production, the rural population had to look to subsistence production for their livelihoods, chances are that they would use more land and push further into the extensive margin — converting valuable habitats and farming soils susceptible to erosion and degradation. With Asia in mind, some ask the question, how much land might have been converted to producing food crops had the green revolution of intensified production not taken place?

Second, sustainable intensification in African farming systems often depends on the crops and enterprises being valuable enough to bear the cost of terracing, planting more trees and hedges, applying organic manures, and so on. Thus it is perhaps not surprising to find accounts of commercialisation associated with intensification and conservation of resources. Machakos, Kenya (Tiffen et al. 1994) is one of the best documented accounts. In the 1940s before commercial crops were planted the district saw widespread soil erosion and deforestation. Half a century later, the coffee, dairying and green beans of upper Machakos had justified widespread terracing, gulley stabilisation, tree planting, application of green manures etc.(Figure 4.4 illustrates).

This is not the only account of intensification going hand-in-hand with conservation: in the Sahel, and above all the central plateau of Burkina Faso, the use of planting pits and stone bunds has increased with intensification, as has planting of trees, keeping livestock and applying their manure (Mazzucato & Niemeyer 2001, Reij & Smaling 2008). Binswanger comments:

> Thirty years ago a World Bank sector report estimated that land losses in Burkina Faso amounted to something like 2 percent of GDP per year. Today the land supports nearly twice the population than in 1980 and Kabore and Reij (2004) have documented how this was achieved.
>
> The change is visible to the naked eye: On a recent visit crops looked greener and healthier than the visitor had ever seen them before, crop livestock integration had happened in many parts, degraded arid lands were being recuperated via traditional and new techniques, and a number of new crop varieties had been introduced, there were more trees on the land. [Binswanger & McCalla 2008, paragraphing added]

Commercialisation can lead to environmental decline, but not inevitably so: indeed, the reverse may also apply.

4.3 Sustaining benefits through time

Effects through time clearly matter, although since most studies observe systems at one moment, these effects are not as well-known as they deserve to be. They are not always, moreover, simple to predict. Changes to systems that result in clear outcomes at one point, may later produce very different outcomes, as slow-moving processes work through the system.

To simplify a complex topic, there are three overall ways in which time may affect outcomes: through positive feedback loops that increase and spread initial effects; through negative feedbacks that counter initial effects; and by shocks to the system, exogenous events that can modify initial effects in all kinds of ways — although the ones that gain attention tend to be those that stymie the initial effects.

Positive feedbacks associated with commercialising smallholder farming arise through diffusion of innovations, and through linkages. Both were seen strongly in the case of North Arcot District, Tamil Nadu (Hazell & Ramasamy 1991): the new varieties of rice initially taken up by the richer farmers were later adopted by almost all farmers; while the linkages through labour markets and consumption were exceptionally strong, so that the landless gained more, proportionately, than any other social group.

It is reasonable to suspect that positive feedbacks are not unusual, after all, the history of economic development across the world during the last several hundred years shows what increased production and reinvesting some of the gains can do; it also shows how technical advances can spawn innovations in other areas, and how, in general, progress can inspire imitation. Indeed, so strong have been these forces that one might argue that this has formed a hegemonic paradigm in which growth and progress are seen as synonymous.

Negative feedbacks, however, do arise. They can be seen in environmental problems (see previous section) that expanded or intensified production may bring about. Sometimes markets that presented an initial opportunity may be sated as supply outstrips demand, prices fall, and the opportunity disappears. Sometimes

those gaining from early opportunities find ways to prevent others from accessing them.

Exogenous shocks include those from abrupt policy changes, changes in world markets, or changes within the supply chain — sometimes with more than one of these acting in combination.

For policy-makers, the main concerns arise from negative feedbacks and exogenous shocks, since these have the potential to stifle promising developments. Here are some cases that illustrate just what can happen.

Pineapples in Ghana (Fold 2008; Whitfield 2010)

Inspired in part by the success of neighbouring Côte d'Ivoire, plus the advantage of low tariffs on backhaul air-freight, Ghana developed exports of pineapple to Europe in the 1980s and 1990s. From negligible exports in the 1980s, by 2004 the country exported 70 Kilotons (kt) of fresh pineapple. Most of the fruit came from small farmers on the Akwapim ridge north of Accra.

But in 2005 a crisis occurred. Del Monte developed a pineapple variety in Costa Rica called MD2 that was suitable for long-range shipping, presenting an attractive fruit on delivery in distant Europe. Ghana's Smooth Cayenne variety might have competed, but producers and exporters failed to get the quality and consistency in shipped pineapple to match the MD2. Consequently Ghana lost market share, then reacted, but did so by restructuring the business to the disadvantage of many of the small growers:

> However, from 2005 Ghana's pineapple export industry went into crisis, total exports decreased and the industry was restructured. Just before the crisis, pineapple production for export was split between approximately 12 large farms (300–700 ha), about 40 medium farms (20–150 ha) and possibly as many as 10,000 smallholders (0.2–10 ha) (NRI 2010). The crisis led to the exit of smallholder producers from production for export and to the collapse of many medium and large producer-exporters. In 2009, total exports began to rebound, but production had become concentrated among a handful of very large farms. (Whitfield 2010: 8)

Production shifted heavily to plantations owned by large companies, including Dole, leasing land from chiefs a little further west. Some smallholders still grow on contract, but conditions are stringent and few are able to take advantage. Attempts are under way to get some pineapples from small farmers graded as fair trade.

Whitfield's account is fascinating: she argues that the supply chain in Ghana had been developed just enough to do the job, but not that well, largely since the local entrepreneurs glanced sideways at the Côte d'Ivoire and saw little better there. They were thus taken by surprise by Del Monte's initiative. Of course, the reservations of time remain for this case, since the shock is very recent. It would be a brave observer who would confidently predict where

Figure 4.5: Snow pea prices in Guatemala, 1978 to 2005

Source: Figure 3 from Carletto et al. 2009

the Ghanaian pineapple industry may be in ten years time.

European supermarket standards and vegetable production in Kenya and Senegal (Ashraf et al. 2008; Maertens & Swinnen 2009)

Kenya has developed an export horticulture industry that in 2004 shipped 30kt of green beans to Europe, 60 of this to the UK. Kenya benefits from the airport hub of Nairobi, as well as African, Caribbean and Pacific Group of States (ACP) preferences and firms that are able to arrange supplies to international standards.

It seems, however, that small farmers are increasingly being excluded from exporting as standards become ever tighter. In 2005, a hammer blow was dealt to smallholders as the Good Agricultural Practices (GAP) protocol was introduced by the Euro-Retailer Produce Working Group (Eurep). It is worth detailing these requirements in detail:

> Exporters must be able to trace production back to the specific farm from which it came in order to ensure safe pesticide use, handling procedures and hygiene standards.
>
> Export growers have to be certified, either individually or as a group. Certification is obtained during an on-farm inspection and has to be renewed every year. A SHG that seeks certification has to be registered with the Ministry of Culture and Social Services. SHG members have to draft a group constitution and sign a resolution stating their desire to develop a Quality Management System and to seek EurepGap certification.
>
> The Quality Management System involves the construction of a grading shed and a chemical storage facility with concrete floors, doors and lock and proper ventilation as well as latrines with running water. In addition, they need to keep written records for two years of all their farming activities, both at the group and individual level, including the variety of seeds used, where they were purchased, the planting date, agro-chemicals used, exact quantities and date of application. Spraying equipment must be in good working condition and the person doing the spraying must wear protective gear. Farm chemicals must be carefully stored under lock in a proper storage facility and in their original containers. The water used for irrigation must be periodically checked. Finally, every grower's

> produce needs to be properly labeled. (Ashraf et al. 2008)

The cost of all this has been estimated at US$580 per grower, about three-quarters in the cost of infrastructure that will last seven or eight years; the other quarter in annual operating costs. Needless to say this high cost to smallholders has only been met when donors have stepped in to cover some or all of the costs. But most small growers simply could not afford to meet these requirements. The DrumNet scheme set up to link small farmers to exporters, providing finance, intermediation and information, collapsed.

A similar account comes from Senegal (Maertens & Swinnen 2009). Horticultural exports have grown sharply in the last two decades, and especially since the late 1990s. During this time, standards have become ever stricter involving compliance with Sanitary & Phytosanitary Standards (SPS), following Hazard analysis and critical control points (HACCP), and traceability. On top of those imposed by the EU, there are private standards such as EurepGAP which is especially strict on tracing products back to producers.

As in other cases, compliance with standards makes vertical integration more valuable so the industry is moving from contracting small farmers to running more vertically integrated operations with larger-scale direct production. Smaller firms unable to meet EurepGAP requirements are dropping out, while the role of the largest bean exporters is rising from less than half the share of the market in 2002 to more than two-thirds by 2005.

The main exporters are also establishing closer relations with their buyers in Europe. As they do so, to comply with standards and to get the logistics of timing and size of shipments right, they are drafting ever tighter contracts with small farmers …

> ... more elaborate production contracts and tighter coordination within those contracts. Contracts signed with small family farms are typically specified for one season—lasting from November to April—and indicate the area to be planted—usually 0.5 or 1 ha—all technical requirements, and the price. As part of the contract, the firms provide technical assistance and inputs to the farmers; especially seeds and chemicals, sometimes also cash credit. Some firms go as far in contract-coordination as the complete management of fertilizer and pesticide application and daily or weekly inspection of the farmers' fields. Also field preparation, planting and/or harvesting can be coordinated and financed completely by the contractor firm. (Maertens & Swinnen 2009:164)

... or else setting up estates, mainly grounds of quality; by buying or renting land from existing large farms or getting uncultivated state land.

Again, in both of these cases, the initial effect of the application of EurepGAP standards has been the exclusion of small farmers. The longer term impacts are less predictable. In the Kenya

case, small farmers may have lost the premium export market, but there is a growing domestic market for their produce, so not all is lost. In Senegal, Maertens & Swinnen tell how the larger operations hire in much labour and thereby the benefits of the operations spread quite widely.

Snow peas in Guatemala (Carletto et al. 2009)

Although outside of Africa, this Guatemalan case is sufficiently interesting to recount in detail. The boom in export vegetables in the central highlands began in the 1980s, engaging with many small farmers organised in the Cuatro Pinos co-operative. But by the 1990s the initial gains were being undercut by:

- Falling soil quality and rising pest resistance to insecticides
- Falling prices as new competitors entered the market:

  > Between 1992 and 2002, total value of exports of vegetables from Central America and the Caribbean more than doubled from $956 million in 1992 to $2.2 billion in 2001. Although for Guatemala the increase in the total value of exports was even larger, from $14 million to $44 million, over the same period the total volume exported went from 42,000 to 271,000 tons, indicating a dramatic decline in average prices (FAO 2007 quoted in Carletto et al. 2009)

Price falls were extraordinary (as Figure 4.5 shows):

- Import bans by the US concerned over residues

  > Along with the price declines, frequent import bans from the United States in the 1990s over product quality issues led to growing price uncertainty. Furthermore, growers were also saddled with the prohibitive costs of pesticide residue spot checks that were required if the producers wanted to continue to export to the United States. (Carletto et al. 2009)
- Support from Cuatro Pinos has deteriorated with management problems, defaults on credit, and poorer technical assistance the issues.

This led to mass abandonment of growing snow peas. Of the small farmers surveyed by Carletto et al. (2009), 80 percent had grown snow peas at some point since 1979, but 72 percent of these had ceased growing by 2005.

As can be seen, this is a case of a negative feedback in soils and pests, coupled with no less than two major exogenous shocks: increasingly tough checks on pesticide residues, and a dramatic fall in prices that has cut the real price to less than one quarter of what it once was. On top of that, the co-operative has had its failings. Given this much adversity, perhaps the high rates of abandonment should be little surprise.

Inconclusive and indeterminate outcomes

The main impression from this review of outcomes is just how varied they can be. It would require additional analysis beyond the scope of this review to try and establish with nay rigour the conditions that lead to favourable and unfavourable outcomes.

Three initial working hypotheses for that study might as follows. One, when public policy provides a reasonable investment climate and provides rural public goods, better outcomes follow — since these give farmers the best chances of maximising their returns and hedging against risk — including by having non-farm jobs and businesses that allow them to risk more specialised and commercialised farming.

Two, when the initial distribution of assets, incomes and indeed power, between and within rural households is equitable, then more favourable outcomes are more likely. Several of the potential drawbacks from commercialisation arise since some farmers, or some individuals within households, were already at a disadvantage, so that the increased opportunities of commercialisation allowed the fortunate to exploit their advantages.

Three, the role of exogenous forces can be strong and unexpected. The best defence against unpleasant shocks is to have some resilience in the system, above all the ability to react promptly. The policy conditions from the first hypothesis, of course, help such adaptation.

With these tentative conclusions in mind, it is to policy that the review now turns.

5. Policy for promoting commercial small farming

This chapter will review policy for smallholder commercialisation, addressing two main areas: promoting increased productivity and production for sale; and linking farmers to markets in effective, efficient and fair supply chains. In each case, the evidence of what has worked to date will be reviewed, to inform consideration of policy options.

5.1 Policy to promote increased productivity

Policies to stimulate smallholder production for sale can be categorised as follows, in a scheme that runs from overall policies affecting the economy as a whole to more specific interventions:

- Ensuring a favourable climate for investment;
- Supplying public goods on which farmers depend, including roads, irrigation; education, health, clean water; research & extension;
- Addressing market failures in competition, transactions costs and property rights;
- Use of subsidies and taxes to create incentives; and,
- Influencing strategic choices, especially food production and farm exports.

A favourable climate for investment

The elements of this are well-known: peace and order; macro-economic stability with inflation contained and a competitive exchange rate; property rights respected; and, predictable and modest taxation, with tax reinvested in public goods (Poulton et al. 2008).

A decent investment climate may not in itself be enough to stimulate production; but it is a necessary condition. When these elements are not in place, farmers and others in the supply chain will not invest, innovate and strive to produce more. Africa in the 1970s and 1980s saw many countries where these conditions were grossly lacking: for farmers rampant inflation and heavy over-valuation of the domestic currency often meant that there was

no incentive to produce more exports — their value in local money was low, and often there were few consumer goods on offer to buy. Ghana in the late 1970s was one of the worst cases (Alpine & Pickett 1993): as incentives fell, so did cocoa production, while farmers who could smuggle their product out through neighbouring Côte d'Ivoire and Togo did so.

The IMF and World Bank, with good reason, stress the importance of a climate favourable for investment: few governments would disagree. The issue in practice, however, is how good does the climate have to be to allow investment; or, put otherwise, how bad can it be before investors are deterred? This matters: developing countries rarely have the administrative capacity, and perhaps also the political ability, to get an ideal investment climate. There is a debate on 'good enough governance' (Grindle 2004, 2007) and the minimal conditions for progress (Moore & Schmitz 2009); largely inspired by East Asian examples where heavy investment and rapid economic growth have been achieved despite clear imperfections in the investment climate and governance.

At first sight this comment causes dismay: but it should not. Governance is more art than science — some elements such as leadership are more or less impervious to generalised prescription — and Asia shows that much progress can be made with modest improvements.

Supplying public goods for farmers

Spending on public goods in rural areas pays off: that is clear. For example, Fan et al. (2000) report the following estimates of returns to public spending on agriculture in India during the time the green revolution was being rolled out:

As this shows, during the green revolution in India, there were very high returns to agricultural research and roads, and good returns to education and irrigation. India was not exceptional. Similar analyses for China, Vietnam, Thailand and Uganda (Fan et al. 2007) show common trends, even if there are differences across the countries. Their conclusions are worth reporting in detail:

1. Agricultural research, education, and rural infrastructure are the three most effective types of public spending for promoting agricultural growth and reducing poverty.

Table 5.1: Returns to spending on agriculture in India, 1970 to 1993

	Sector Returns in Rupee per Rupee Spending	Numbers of Poor Reduced per Million Rupees
Research & development	13.45	84.5
Roads	5.31	123.8
Education	1.39	41.0
Irrigation	1.36	9.7
Anti-poverty programmes	1.09	17.8
Soil & water conservation	0.96	22.6
Health	0.84	25.5
Power	0.26	3.8

Source: Fan et al. 2000 data, presented in Fan et al. 2007

2. Limited evidence from China and Uganda indicates that it is often the low-cost types of infrastructure that may have highest payoffs in terms of growth and poverty reduction per unit of investment. In the case of China, rural road investment not only contributes to rural growth and poverty reduction, but also to urban growth and poverty reduction.
3. Regional analysis conducted for China, India, Thailand, and Vietnam suggests that more investments in many less-developed areas not only offer the largest poverty reduction per unit of spending, but also lead to the highest economic returns. In Africa, however, such regional trends are not as prevalent, with most regions having comparably high returns in terms of poverty reduction regardless of development status. This implies an overall underinvestment of public resources in Africa.
4. Government spending on irrigation played an important role in promoting agricultural growth and reducing poverty in the past, but today this type of spending has smaller marginal poverty and growth returns for many Asian countries. Instead of increasing investment in irrigation, the efficiency of the current public irrigation system should be improved by reforming public institutions and governance.' Fan et al. 2007

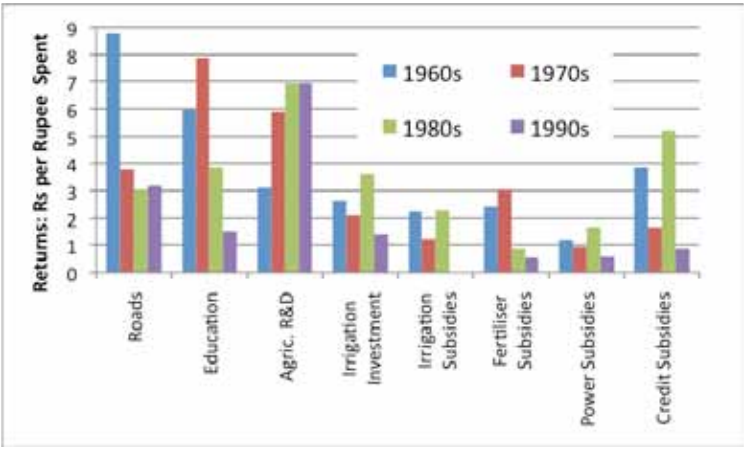
Similar studies estimating returns to public spending arrive at another striking conclusion: while spending on public goods usually pays off; spending on private goods generally does not (Fan & Rao 2003). In Latin America, de Ferranti et al. (2005) lament that between 1985 and 2000, for nine countries in the region, more than 54 percent of public spending in rural areas was on private goods and transfers. At the margin, a 1 increase in share of rural spending on public goods led to a 0.23 percent increase in farm output: compared to just 0.06 percent return to the 1 percent increase in total spending with no change in composition. Clearly there are great gains to be had from switching funding from private to public goods in rural Latin America.

There may be an exception to this finding. In the early stages of development subsidising inputs may be a way to overcome the combination of farmers' lack of capital and failures in credit markets that can make inputs unaffordable, and so kick-start development; but these returns may be short-lived, as Indian experience shows (see Figure 5.1). During the 1960s there were appreciable impacts on rural poverty of subsidies on irrigation, credit and fertiliser — those on power had notably lower returns; but these benefits fell through time and by the 1990s they had little impact.

Addressing problems with markets

Issues of high transactions costs and imperfect competition arise in interactions with

Figure 5.1 Changing returns to government spending in India



Source: Dorward et al. 2004, using data provided by Fan

the supply chain, and hence are dealt with in the next section. A third potential problem is that of insecure tenure, although in section 3.2 it was argued that fears that collective land tenure deters investment are overplayed and hence surveying, registering and titling land may be a costly exercise for little reward. There are, nevertheless, exceptions: land rights on particularly valuable land, especially that in peri-urban areas, may be fiercely contested to the point where the costs of formal adjudication are worthwhile.

Moreover, protecting the rights of those who use land seasonally, or those whose rights are seen as secondary to the primary owner — as often applies to female farmers using fields considered to belong to husbands or male relatives — raise issues of fairness. The latter becomes highly problematic when the husband dies, and relatives seek to take over the land overriding the rights of the widow; this problem is sharpened by the impact of HIV/AIDS (Aliber et al. 2004).

Policy to address these issues is less than straightforward and a full discussion is beyond the scope of this paper. That said, formal titling would not help. What is probably needed here is work with communities to ensure that processes that determine land access are fair, including that the rights of women and others often at a disadvantage should be respected. A combination of national statutes and work with local leaders, such as chiefs and councils of elders, may make progress.

Subsidies and taxes as incentives

Using subsidies and taxes to raise prices or reduce input costs can increase returns to farm enterprises and so stimulate production. Higher prices for a product almost always, all others things being equal, lead to more being produced (as Table 5.2 shows).

Table 5.2: Output responses to price changes

Crop	Percentage change in output with a 10% increase in price	
	Africa	Other developing countries
Wheat	3.1 – 6.5	1.0 – 10.0
Maize	2.3 – 24.3	1.0 – 3.0
Sorghum	1.0 – 7.0	1.0 – 3.6
Groundnuts	2.4 – 16.2	1.0 – 40.5
Cotton	2.3 – 6.7	1.0 – 16.2
Tobacco	4.8 – 8.2	0.5 – 10.0
Cocoa	1.5 – 18.0	1.2 – 9.5
Coffee	1.4 – 15.5	0.8 – 10.0
Rubber	1.4 – 9.4	0.4 – 4.0
Palm oil	2.0 – 8.1	…

Source: World Bank 1986, from Askari and Cummings, 1976, Scandizzo and Bruce, 1980

There are concerns, however, that supply response for any one commodity comes at the expense of others, so that the aggregate response to an overall increase in farm prices may not be anything like as strong. Estimated elasticities of aggregate response are often below 0.25 (Schäfer 1987).

On the other hand, when farm prices are driven down by negative protection, agricultural growth suffers, see Table 5.3. The apparent contradiction may well be explained by dynamic effects of higher or lower prices to farmers (Chhibber 1988, Binswanger 1990, Schiff & Valdés 1992). Depressed prices result in lower investment in both agriculture and agricultural innovation. Hence not only do low prices inhibit movements along the supply curve, but also of the supply curve itself. For Argentina, for example, Cavallo (1988) reports a supply response to prices of just 7 percent over one year, but this rises through time to become a weighty 178 percent after 20 years.

Subsidies in inputs can be expected to have similar effects to prices: they should raise returns and stimulate production. Malawi provides a graphic example of what they may achieve. Fertiliser subsidies on a large-scale were reintroduced in 2005/06, after having been suspended in the early 1990s; by 2008/09 as many as 1.5million small farm households were receiving subsidised fertiliser and maize seed (Dorward & Chirwa 2011) (Figure 5.2 shows the change in maize output before and after the subsidies). Harvests have subsequently risen handsomely exceeding the estimated national requirement of around 2.4million tonnes. While some of the production increase may be the result of favourable rains it would be hard to deny the impact of the subsidies.

Table 5.3: Negative protection and agricultural growth

	High	Low
Nominal protection rate, %	-8.3	-46.2
Annual agricultural growth rate, %	5.2	2.7

Source: Schiff & Valdés 1992

Changing the prices of outputs and inputs will usually stimulate smallholder farming. The policy question, however, is at what cost, and can this be justified? Governments that pay farmers a premium for their output or subsidise their inputs pay heavy costs.

In the case of Malawi, the input subsidies cost as much as US$200 million during 2008/09, 16 percent of the total government budget

Figure 5.2: Malawi: maize production, 1990 to 2009

Source: USDA data

— although this was inflated by the rise in world prices for fertiliser at the time. In Asia, India subsidises electricity, fertiliser and irrigation water to its farmers: the cost of those subsidies has in recent times been greater than spending on education (Wiggins & Brooks 2011). The opportunity costs of these programmes can be alarmingly high.

Influencing strategic choices

Governments can also try to influence strategic choices: two of which are especially relevant to smallholder commercialisation — production of food and exporting.

Attention to food crops. Precarious rural food markets mean that farm households will, with good reason, prioritise feeding themselves over selling their crops, even if growing other crops for market would yield a higher return in a normal year. As section 3.1 indicates, small farmers are reluctant to depend on markets for supplies of food staples.

The upshot is the expansion of commercial agriculture usually needs to be supported by investments to increase the productivity of food staples. This should have two useful effects: it means that commercialising small farmers can grow their own food on a smaller area, allowing more land to be used for cash crops; and it is likely to reduce domestic prices of food, to the benefit of smallholders who are prepared to depend on the market, and the rest of the population.

Exporting. Governments may wish to promote farm exports to earn foreign exchange, as well as to steer farmers to producing for higher-value markets. The prime policy for this is to ensure that the exchange rate is valued competitively and not over-valued, which would penalise exporters. But governments can also facilitate contacts with foreign buyers and provide information on the standards needed to export.

On the other hand, governments may prefer to stress domestic market opportunities given the size of domestic markets, boosted by both population growth and urbanisation (estimated at US$50 billion compared with a combined total of just over US$8 billion for agricultural trade during 1996–2000 (Diao & Hazell 2004). Moreover, quality standards and requirements may be much less demanding within domestic markets.

To conclude, this brief review of policies to stimulate productivity suggests that priority policies are those that ensure a reasonable investment climate and the supply of rural public goods. These are necessary, if not always sufficient, conditions for private investment and innovation. Other measures may be complementary, but there are dangers if their cost or administrative detracts from efforts on the first two points.

5.2 Policy to link farmers to markets in effective supply chains

Although not entirely divisible from matters of production, perhaps the most challenging part of promoting commercialisation by smallholders is linking them to markets. This enables them to access improved inputs, finance to invest both long and short term, advice on technical matters and on markets, and so that they can sell their output reliably and to the standards and requirements of buyers. It is thus no surprise that much of the literature on commercialisation in the last twenty or so years has been concerned with interactions of small farmers along the supply (value) chains.

In section 3.4 a simple dichotomy of marketing chains was proposed. Where decentralised, fragmented and competitive supply chains are appropriate for the produce and market, then public policy only needs to accomplish the basic conditions these being a reasonable investment climate and public goods such as roads in decent condition. This may be supplemented by provision of market information, although the public record in providing prices and market conditions to farmers is not that good partly because the incentives to get accurate and timely data are often lacking.

For more centralised, integrated chains, transaction costs between small farmers and large enterprises that dominate the chains can be high — so much so that they deter both farmers and the organising enterprise from investing and setting up the chain in the first place. Similarly, when the monopoly power of dominant enterprises is unduly exercised, farmers may be deprived of incentives so that the chain is underdeveloped or collapses.

How can governments stop these market failures from ruining opportunities? And how can they otherwise promote the development of these centralised chains where they make sense? Three approaches have been taken: public marketing boards, farmer co-operatives, and contract farming.

Public marketing boards and parastatals

A direct response to market failure is for the state to take over the role of the large organising enterprise through a parastatal with a specific mandate for the product in question. There is a long history of using marketing boards to these ends in Africa. Yet these have often disappointed. Parastatals have been set up with the best of intentions: to ensure an adequate geographical and seasonal distribution of services and products, to equalise returns from different markets, to cushion the impact of fluctuating prices and to offer farmers higher prices. In practice, however, all too often they have proved costly to operate. They have suffered from heavy overhead expenses, absence of competition, lack of aptitude and expertise in marketing, and the imposition of non-economic responsibilities such as creating jobs to increase equity. They have furthermore often been charged with operating pan-territorial and pan-seasonal pricing for equity and administrative convenience, but with high resulting transport costs.

Moreover, state monopoly organisations have often had to contend with heavy pressure and lobbying from powerful politicians, companies and traders. This can result in facilities being built in the wrong places, excessive, excessive expenditure on buildings, machinery and transport, and over-staffing. Nepotism in

appointing staff and corruption can aggravate these problems.

Costly and ineffective operations by state agencies not only have wasted public funds, but also have implicitly taxed the users of the goods and services they provided. Particularly for sub-Saharan Africa public monopolies have too often taxed farmers excessively, largely to cover their high operating costs (see Ellis 1983 for examples from Tanzania).

Not all such public agencies have been so flawed — KTDA is an honourable exception — but in general the experience has been so poor that by the 1990s the conventional wisdom was to abolish them or to cut back their functions and powers.

Co-operatives and farmer associations

An alternative to state agencies is co-operatives or associations, owned by the farmers themselves. Potentially these can gain economies of scale that individual farmers would lack, in obtaining information, technical assistance, credit, inputs and in selling produce. Being owned by the farmers, they should respond well to their needs, free from political control, with any profits being redistributed to the members, the farmers themselves. They can be run on business lines at no public cost. They may be able to offer their members the additional benefits of advocacy in policy debates. They may also provide some welfare benefits to members.

Nevertheless, experiences of farmer co-operatives have been mixed. Too often, farmer co-operatives have failed owing to lack of competence and honesty of their managers, often in collusion with the leaders of the co-operatives. These problems have been exacerbated by forming co-operatives that have attempted to do too much, and that have had too wide a membership making it difficult for members to hold leaders and managers to account (Johnston & Clark 1982).

For example, from Latin America comes the example of CORACA, a farmer organisation founded in the 1980s in Bolivia. When the first general assembly was held in Uyuni in 1989, the following faults were recognised:

> The problems detected were: little participation from the grassroots, bureaucratisation, corruption, debts accrued without cover, falsification of data, constant interference by political parties, use of resources for union work, personal spending by leaders and technical staff, and lack of control and supervision of the work of the technical staff.
>
> Moreover, it was established that CORACA did not take on concrete tasks that its activities were not established within a national overall strategic plan, and that projects were planned and implemented from the top down. (Muñoz Eisner et al. 2004: 62–63, translation Wiggins)

Although co-operatives now have a bad name (sufficient for most advocates to prefer the term 'farmer associations') there are those who hope that mistakes can be avoided, and the potential of co-operatives can be achieved. After all, in Scandinavia farmer co-operatives have been formidably effective over more than a century of service to their members.[28]

The lessons are fairly clear: managing economic functions requires skill and entails risks so begin with simple functions. For example, do not overburden infant organisations with too many, or over-demanding functions; and build capacity on local structures rather than impose models (Biénabe & Sautier 2005). Following Best et al.'s (2005) recommendations it is also important to consider key sequential stages in the formation of the organisation:

- Interest group formation and characterisation of a territory
- Organisation of farmers
- Identifying markets and chain analysis[29]
- Developing a strategy and a business plan with chain actors
- Strengthening support services for selected market chains
- Advocating for policy changes

(Best et al. 2005:23)

Contract farming organised by private enterprise

Some will be impatient with recommendations for farmer organisations; arguing that if there are private firms that have the competence and expertise to run the supply chain, then why not simply link farmers to them? The private firm has all the incentives to run operations efficiently and if it depends on the small farmers for supplies, especially processing plants that need to operate at full capacity, then it also has the incentives to help farmers to overcome any limitations they face in working capital, access to inputs and technical knowledge.

As seen in section 3.4, contracting can work for high value crops and where transactions costs would, without the scheme, be too high to allow the supply chain to function.

What should be the role for public policy in this? Can such schemes be left to private initiative? Contract farming may not need government intervention, but there are three things that government needs to consider:

a) Contract farming will only succeed when the preconditions for agricultural development are in place: these being a reasonable rural investment climate and the provision of rural public goods — although some enterprises running contract farming schemes may be so large-scale that they can supplement public provision by helping maintain feeder roads, providing schools and clinics, and funding private research and extension on the crops relevant to the scheme.

b) Such schemes bring together small farmers with large businesses, and the inevitable imbalance of resources, information and sometimes political influence can be abused. Hence a useful public role — for government and NGOs — is ensuring that farmers' land rights are secure, that farmers have access to information on technology and markets, and farmers are helped to negotiate a fair deal (Vermeulen & Cotula 2010).

c) Governments may further encourage contracting by facilitating contacts and providing information including model contracts; they may also choose to monitor, supervise or regulate contracts. Governments may go as far as to underwrite promising schemes guaranteeing returns to investors and farmers; providing key public goods, such as roads; or even subsidising the initial investments.

Conclusions on policy for supply chains

What needs to be done publicly to promote effective supply chains is clearly highly specific to the crop, the producers, and the key intermediaries— and to the local circumstances in general. Government policy accordingly may range from merely providing the basic conditions for private actors to go about their business perhaps supplemented with information, to facilitating links to private firms, fostering farmer organisations, or going the whole hog and organising the supply chain through a parastatal. All these have worked — and failed — depending on specific local circumstances.

5.3 Political economy, administrative capacity and sequencing

It is easy to recommend policies to promote smallholder commercialisation, but much more difficult in practice. Three things in particular make it difficult to realise the ideals: the political economy of decision-making; administrative capacity in the public sector; and sequencing.

Political economy

Policy is about politics, about power, and reconciling different interests and aspirations. Part of the art of policy-making is to find proposals that are politically feasible: that are acceptable to stakeholders and that they will not obstruct.

Theories of political economy of agricultural policy making are not strong and unified: several competing models exist (see Birner & Resnick 2010) that will not be rehearsed here. Instead, the discussion picks out three key issues in political economy, as follows:

Biases to large farmers and enterprises. An obstacle to getting support for smallholder commercialisation is a persistent tendency to see large-scale farms and enterprises, especially those using high technology, as preferable to small-scale equivalents. For some, it is almost axiomatic that bigger means better: that modern technology must be more appropriate than alternatives and that access to capital will solve all problems. Africa has been cursed by this bias for half a century or more. Time and again, policy-makers have favoured large over small, not to say grandiose over sensible, and pumped in vast sums to large-scale ventures that have been miserable failures. The groundnuts fiasco in Tanzania in the late 1940s was no deterrent to this thinking; it has been succeeded by many other similar failures, with large-scale irrigation schemes prominent (Wiggins 2009).

It gets worse. Once large farms are in place they have often proved adept at lobbying for privileges that are often then foreclosed and denied to small farmers. The settler economies of Africa were plagued by special support for large farms (Leys 1975 on Kenya, for example). When smallholders have been given the same conditions and chances as the large farms, they have often shown that they can perform just as well; for example, the rapid spread of coffee and tea farming amongst small farmers in Kenya following the abrupt change to colonial farm policy set out in the 1954 Swynnerton Plan. Another example is the dramatic increase in maize sales from the communal areas of Zimbabwe from 1980 to 1987 when the ministry of agriculture was obliged to offer small indigenous farmers the same services as they gave to the larger-scale settler farmers (Eicher 1995).

Populism. Several threats may arise for commercialising smallholders from populist policies. The most obvious is trying to reduce the cost of food to urban consumers by keeping down prices paid to farmers, for example, through price controls or compulsory deliveries of staples to state agencies. Another temptation is to tax export crops heavily to generate state revenues: it is administratively simple to do so and exporters may be seen as rich and able to bear the tax. Both these measures are likely to reduce marketed output.

Populist policies can hinder development even when apparently helping farmers. Ministers are tempted to use public spending to deliver immediate benefits to farmers through supply of what are often private goods: as seen in subsidies on inputs; low-cost credit to farmers and debt forgiveness, guaranteed prices at high levels, tax breaks and direct payments. While such spending may stimulate production, evidence suggests that these have less effect on production, especially in the long run, than providing public goods (see section 5.2 on public spending above).

These may, moreover, be tied into the political fabric, so that electoral support depends on them. India as an electoral democracy with a very large population of small farms illustrates what can happen. The subsidies on power, water and fertiliser introduced in the 1960s and 1970s to get the green revolution started, have remained in place long after the higher-yielding varieties were adopted. Their cost, moreover, has increased as farmers intensify their production. A 'kulak lobby' has been created, whereby politicians maintain the subsidies to secure the farm vote. Debt cancellations are a favourite campaign promise for State elections in India playing havoc with the development of financial institutions.

In Latin America, populism allies with a large-farmer bias to produce the worst of outcomes: public spending skewed to private goods that favour only the privileged minority of large farms that could operate without them — cheap farm credit is a favourite —. This can leave states with next to no funds to invest in the rural majority (de Ferranti et al. 2005).

Bates' (1989) account of Kenyan agricultural policy contrasts the Kenyatta era of investing in growth, including smallholder development, with the redistributive policies of his successor, Moi whose policies helped bring Kenyan agricultural growth to a near standstill.

Government control and interference in farming and agricultural markets. Across much of Africa, colonial policies were heavy-handed using controls and regulations rather than incentives to achieve ends. [30] Departments of agriculture thought they could get small farmers to build terraces, cultivate to stated norms, or destock pastures by decree (see Tiffen et al. 1992 for examples in Machakos, Kenya). These measures rarely succeeded, but were bitterly resented by small farmers. Trade in farm produce was often similarly subject to controls on movements and on who was allowed to trade.

Independent governments have been tempted to use similar instruments to influence production on farm or the marketing of produce. The results have usually either been ineffective, since they have been difficult to enforce, or else have prevented farmers from taking advantage of opportunities.

It is surprising just how little influence on policy small farmers often have, despite their numbers:

> '… the relative lack of influence that small farmers have had on policy-makers. Despite their numbers, they have often been taxed disproportionately and have seen little public investment and services in return.' (Wiggins et al. 2010, drawing on Birner & Resnick 2010)

Only in Asia does it seem this tendency has been reversed as politicians try to get rural support.

> ' … previous net taxation of small farms has been replaced from the 1970s onwards by strong public investment in rural infrastructure, social services, agricultural research, extension and support for credit systems' [ibid.]

Administrative capacity: making good use of ministries of agriculture

Capacity in staff, funds and expertise is another limit to what public policy can achieve. Indeed, one reason for the popularity of advice to roll back the state as a condition for structural adjustment loans in the 1980s and 1990s was the perception that state agencies were often inefficient and incompetent. This may well have overstated the case although there were too many agencies that were ineffective and costly.

This has prompted debate on what governments can reasonably hope to achieve in rural Africa given limited capacity. Although ministries of agriculture are only one of several agencies important for small farmers, it is worth considering their role. Cabral & Scoones (2006) identify three possibilities:

> One sees the return of the hey-day of the sectoral ministry with capacity and policy clout – to address the major constraints of agriculture, it is argued, what is required is a strong, well-funded line ministry, and the challenge today is to rebuild such an organisation.
>
> A second – at the other extreme – sees such sectoral ministries taking on a minimal role, focused on oversight and regulation, as the private sector takes on a more substantive role in a 'free-market' environment.
>
> A third, perhaps less stridently articulated than the other narratives, sees an important role for the state – and the ministry of agriculture, together with other state agencies – in addressing the coordination and intermediation roles of getting markets to work effectively, while ensuring at the same time public efforts are targeted to poverty reduction. (Cabral & Scoones 2006:4)

The first possibility is something of a pipe dream, about a return to a past that may never have existed. Yes, the ministries may have had more resources in the past, and perhaps also a

sense of mission, which was nothing less than bringing progress to the countryside. But when did any ministry of agriculture in Africa ever have that much political influence in cabinet? As Headey et al. 2009 report for Ghana and Uganda, agricultural ministries were seen as lacking influence, with both ministers and senior civil servants regarding the ministry as a temporary home rather than an agency to be led and directed with passion:

> In Ghana as well as Uganda people stated that senior civil servants and Ministers of Agriculture saw their positions in the ministries as "bus stops" – i.e. just a means of getting somewhere else, because the MOA had such a poor reputation and was so weak politically. A number of interviewees argued that Ministers did not push hard for reform, were not vocal when funding was insufficient, and generally displayed apathy or, at worst, incompetence.

That leaves the debate between the second and third possibilities, a debate that turns around the capacity of the state and the difficult questions posed by rural market failures: how severe are they? And how should the state react, if at all? The resulting debate includes options that have minimal role for the ministry …

> One leaves very little for ministries of agriculture to do – under the conventional liberalisation package ministries of agriculture are mainly regulatory agencies with some role in research and development of agricultural technology, although with increasing reliance on private sector and NGO operators through partnership or outsourcing arrangements. (Cabral & Scoones 2006: 15)

or a more active role in resolving problems of high transactions costs in supply chains, buy for example carrying out studies to identify bottlenecks, providing initial grants to allow innovative marketing, or underwriting private investments to reduce some of the risk; or even a frankly interventionist ministry with …

> … a substantially more extensive mandate for ministries of agriculture as providers of insurance, credit, extension, input subsidies and intermediation and coordination between market parties (such as private businesses and farmers organisations), as well as implementers and back-stoppers of structural reforms, including of land and land tenure. (Cabral & Scoones 2006, 15)

Given experience and what is known, about the effectiveness of spending on public goods compared to private, the last position is not easily recommended (see in section 5.1).

Setting a clear and inspiring role for ministries of agriculture has to deal, moreover, with a depressing context in which good staff were lost to structural adjustment cut-backs, in some countries to HIV/AIDS Cuts have also led to a loss of sense of purpose and demoralisation of

staff with poor work habits (Cabral & Scoones 2006; Headey et al. 2009).

Policy to support smallholders has to fit with such limited capacity.

Sequencing of farm policy

Considerations of limited budgets, administrative capacity, and quite possibly limited political capital, means that it is not possible to do everything to support small farmers at once. Sequences need to be devised that would ideally tackle the tightest bottlenecks first of all before moving to tackle less pressing issues. Sequences also need to do the simple and straightforward early on, and then take on more difficult challenges as capacity and morale develops.

What then might be the sequences of policy to support commercialising smallholders? There is not a lot of guidance in the literature, even if the idea of stages of growth goes back many years, most notably to Walt Rostow (1960). More recently, Dorward et al. (2004) propose three stages of policy for agricultural development in general:[31]

1. Establish the basics such as roads, irrigation, research and extension, possibly land reform, which create the conditions for profitable intensification
2. Kick-start the markets with seasonal finance, input supply, reliable output markets, which would lead to widespread effective demand from farmers for inputs and marketing of outputs
3. Withdraw the state as effective private sector agents enter the markets.

This is a useful way to organise thoughts, although the second stage, where the state intervenes to kick start the markets, requires much thought as to precisely what state interventions can effectively and efficiently solve the market failures and how they may link to private solutions. An alternative here is to look to farmer associations or links to large private firms (see above) to kick-start the markets. This would avoid the tricky business of trying to decide at what time stage three needs to begin.

This sequence respects the logic of the objective; but what would a sequence look like that stressed the second desirable condition, that of beginning with things simple to implement, then moving to more difficult matters? One way to think about this posits that public action varies in difficulty, from tasks that are relatively simple with proven technical proposals, low risks and consensus about how to carry out the tasks — to those things that are more difficult since technical proposals are not proven, are risky and may need considerable adaptation to context i.e., complex problems. Table 5.4 illustrates examples, dividing public action between policies and investment programmes.

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Table 5.4: Tasks in agricultural development, from simple to complex

Approach	Policies	Investment programmes
Simple relatively straightforward; proven; low risk; widely agreed	Stable macro-economy Modest taxes on farmers whether direct and explicit or indirect Commitment to improving the investment climate Inclination towards more open trade both with the world and especially with neighbouring countries	Agricultural research Roads Rural education Primary health care Irrigation, especially when small-scale and locally operated
Complex more difficult; high risk; complex; disputed; needs innovation and adaptation	Extent to which development needs kick-starting by offering additional support to farmers, such as subsidies on inputs and credit, or by protecting some activities from competition from imports Setting development strategies, in fragile states when needs are many, resources few and capacity low	Balance public investment between higher and lower potential areas Deal with market failures, including those of high transaction costs and coordination failures, countering monopoly power, through institutional innovation Promote rural financial systems Conserve natural resources Promote more equitable gender relations Protect land rights, promote tenure that is both fair and efficient Promote the rural non-farm economy Reducing risks faced by poor rural households

Table 5.4 illustrates examples, dividing public action between policies and investment programmes.

This approach suggests that public action starts with the simple then progresses to the complex. Fortunately, there is a close correspondence between the tasks in the simple

cells and the basics proposed in the first phase above.

What this table adds, however, is the awareness that administration that carried out simple tasks effectively, may not work quite so well when presented with complex tasks. It has long been argued that simple tasks, being well understood and entailing few risks, can be implemented to a blueprint, with careful advanced planning followed by strict implementation; while the complex cannot be tackled in the same way, being more amenable to learning processes (Korten 1980: Brinkerhoff & Ingle 1989).

One potential implication is that central government agencies, bound to follow bureaucratic rules designed for simple tasks are not suited to tackling complex challenges (see Handy 1993). These are better left to organisations that can employ the systems and structures of 'task cultures'. Some non-governmental agencies and some private companies may have the freedom to adopt such approaches to administration; and hence be more effective in devising working solutions to complex challenges faced in the field.

That in turn may imply that in sequences, the number and variety of actors charged with public functions expands from an initial phase where central government agencies dominate, to subsequent phases when local government, NGOs, farmer associations and mixed ventures with private enterprise play an increasingly important role.

5.4 Summarising on policy

Policies can be seen as arrayed along a spectrum from necessary and basic policies, thankfully often administratively straightforward as well, to complementary policies that can become increasingly complex. Hence in the former category we have measures to:

- Improve the rural investment climate including law, order, macro-economic stability, competitive exchange rate, relatively low interest rates, permissive and encouraging business regulations (e.g. how long does it take to register a company?), modest taxes, etc.
- Provide public goods such as physical infrastructure, human development (education, water, and health), research and extension.

Much can be achieved by working on this straightforward agenda. Almost all the progress seen in one of the fastest growing agricultures in Africa since the early 1980s that of Ghana, can be attributed to prioritising these measures (Leturque & Wiggins 2010).

Why is it that not more countries have done the same? The first hypothesis must be that matters of political economy have prevented other states from doing what is little more than applied common sense. Ghana had the advantage of a leader who brooked no opposition in his determination to carry out reforms: he saw clearly that if small farmers could not prosper, since they would produce surpluses for domestic and export markets, then there was little hope for Ghana.

Beyond attending to these basics there are the additional challenges of measures to remedy failures in competition and high transactions costs. Overcoming these obstacles may be critical to the development of effective supply chains.

This is an exciting area but also a troublesome one: there are no general, simple answers to the questions posed. That should not, however, dismay us as progress will be made partly by trial and error; however this process can be facilitated if experiences are documented and reviewed to learn from past lessons.

6. Conclusions

To draw ideas together it may help to review the main strengths, weaknesses, opportunities and threats that smallholder commercialisation faces in Africa (figure 6.1 summarises and appendix A sets out in more detail the strengths and weaknesses of differing farm types).

The strengths seen in successful commercialisation consist of low costs of labour and often high quality labour, since the household labour force has incentives to work hard and well. This is supported by local knowledge of physical conditions along with the ability to be quite flexible in production (since the household can tolerate, for a time, low returns in farming, especially when the household has diverse sources of income) all of these factors mean that small farms can be low-cost producers.

Weaknesses are equally apparent in terms of limited access to inputs and capital (since rural markets work imperfectly) along with limited ability to bear risk and lack of formal insurance, which leads to risk-averse practices that forgo potential gains from commercial farming. Small farms also experience greater difficulties in meeting the demands of some high-value supply chains, especially those where credence characteristics matter so that small farmers have

Figure 6.1: Small farmer commercialisation in Africa, a SWOT diagram

Strengths	*Weaknesses*
Self-supervising, diligent labour	Limited access to capital, inputs
Knowledge of land and local conditions	Risks in production and marketing
Flexible production	Meeting standards of some supply chains
Opportunities	*Threats*
Urban growth	Climate change
Asian markets	Land alienation
Large areas of unused land: 'sleeping giant'	Policy biases
Technical advances, some already known, others likely in future	Evolving supply chains with more demanding requirements

to incur high costs per unit to certify that their produce meets these. These weaknesses lie largely in the relation of the farms to the rest of the supply chain.

The future for small farmers commercialising is arguably more promising now than at any point since the last quarter of the nineteenth century when the opportunity to export to Europe arose. There are both bright opportunities and daunting challenges. Opportunities lie in the growth of the urban and non-farm economies, creating both rapidly growing domestic markets with increasing shares for higher-value produce. At the same time Asia is equally rapidly increasing its imports of animal feed and oilseeds, amongst other agricultural produce. In Asia there are strong policies to ensure that domestic farmers produce most or all of the staple foods consumed, but there is an often an open door to imports of other agricultural items.

Faced by growing market opportunities Africa also has large areas of underdeveloped, medium potential land such as the Guinea Savannah (World Bank 2009) (see Figure 6.2). This zone has been little used so far partly since some of it was infested by black fly bringing the terrifying risk of river blindness. It has now been cleared in large part thanks to one of the unheralded successes of development programmes[32] partly since the land was not needed. Interest in the Savannah has been prompted by the success of turning similar areas in Brazil and Thailand into agricultural export powerhouses.

> The Guinea Savannah covers some 600 million hectares in Africa, of which about 400 million can be used for agriculture. Less than 10 percent of this area is currently cropped, making it one of the largest underused agricultural land reserves in the world.
>
> During the past three decades, while the potential of the African Guinea Savannah has remained largely untapped, two relatively backward and landlocked agricultural regions elsewhere in the developing world—the Cerrado region of Brazil and the Northeast Region of Thailand—developed at a rapid pace and conquered important world markets. Their success defied the predictions of many, who had seen the agroecological conditions, remoteness, and poverty levels characteristic of the two regions as challenges that would be difficult, if not impossible, to overcome.
>
> (Briefing to accompany publication of World Bank 2009)

To these opportunities can be added the promise of technical advances made possible both by biotechnology and work on developing agro-ecological systems such as conservation farming, agro-forestry, etc.

Against these are ranged some potent threats. Climate change threatens to produce variable weather and consequently more variable harvests. There may be ways to adapt to this through more resilient farming systems and by using regional trade to balance out the variable harvests, but it represents a tough challenge.

Figure 6.2: The Guinea-Savannah, Africa's sleeping gianta

Source: World Bank 2009, attributed to IFPRI, also on FAO web site.

The other threats concern scale. Those managing international, and some national supply chains, have no necessary interest in dealing with small farmers- preferring to source from large farmers in bulk lots with lower transaction costs. On the other hand, if they can only get produce from smaller farmers, contracting is one way to do this. That leads to the next threats: policy that is biased against small farmers, and that in its most threatening manifestation, alienates land to large-scale farms. Some believe that larger-scale farming would be more productive and efficient (Collier & Dercon 2009) and that allowing investors to access land in large farms (although not necessarily enormous farms) will contribute more to development than trying to persist with encouraging more production from small farms. The idea that peasant farms are an anachronism whose demise is to be welcomed has been potent for at least two hundred years, despite the persistence of small farms and the remarkable increases in production seen from those farms during this time (see Wiggins 2009 for a reply to Collier & Dercon 2009).

This last point sets the stage for perhaps the major question that this review prompts: it is clear that some small farms in Africa can successfully commercialise, given the right conditions? But how many of the 33 million small farms on the continent will be successful small-scale commercial farms in ten, twenty years' time? And what will happen to the rest? In principle, most would accept that not all small farms have the resources, above all, the land to step up to more commercialised production. Most of those on farms lacking assets probably have better options in off-farm jobs, or in moving to the growing towns and cities. They may not all give up their farms; many will remain as part-time farmers, but increasingly their incomes will come from off the farm.

But where is the threshold that defines the minimum assets necessary to assure a future in full-time farming? In terms of land is it two hectares, five hectares,[33] or even more? This makes a difference to the policies needed and the trajectories for the development of the agrarian structure. Yet to our knowledge there is little study of this point.

To end, what are the major policy messages from this review? Three points stand out:

- Much of what is needed to help small farms commercialise are straightforward, simple measures: ensure a favourable rural investment climate — it does not have to be perfect, good enough will do; and supply public goods in rural areas as effectively and

efficiently as possible. It is frustrating that this is not already the case across rural Africa as both sets of measures should be vote winners.

- The first point needs to be complemented by efforts to link small farmers to opportunities in rewarding supply chains. Farmer associations, contracting with agri-business, are ways to do this.
- Prospects for small farmers will be so much better if there is success with overall economic growth — if the urban economy grows creating jobs off the farm. There is no necessary contradiction between agricultural and urban development: China has not achieved what it has by walking on one leg, why should Africa?

End Notes

[1] Yes, the agro-ecological zone matters, as does proximity to market: a half hectare of irrigated land on the fringes of a city may provide a very good livelihood: twenty hectares of semi-arid scrub in a remote area may not constitute the basis of a full-time farm. The numbers used are illustrative: they can be tuned to physical potential and access to market.

[2] This, of course, was not West Africa's first integration into wider circuits: from the fifteenth century onwards, the demand for labour in the Americas was sufficiently strong that the high costs of sea voyages under sail were commercially rewarding; thereby fostering the shame and tragedy of the trans-Atlantic slave trade. The loss of labour, it is

Annex A: Competitive strengths and weaknesses of different farm types

	Smallholder farmers		Small Investor-farmers	Large-scale farming
	Type 'A'	Type 'B'		
Land	*	**	**	**
Finance / Credit		*	**	***
Inputs: access/ purchase	*	*	**	***
Skilled labour: access		*	**	***
Unskilled labour: motivation, supervision	***	***	**	*
Contacts/networks	*	**	**	***
Market knowledge	*	**	***	***
Technical knowledge	*	**	***	***
Product traceability and quality assurance			*	***
Risk management	*	*	**	***

* = poorly positioned (no star is worse!); *** = well-positioned

Note: Farm types: Smallholder A — might sell some produce but do not or cannot make their entire living from farming; Smallholder B — market-oriented, make a living from selling their output; Small investor-farmers — emerging commercial farmers, small-scale investors, often farming as a secondary activity using earnings from professions and non-farm businesses; and Large-scale farming — large commercial operations run as businesses, some with shareholding.

thought (Darity 1980;, Rodney 1972), had a catastrophic effect on West African economies from that time to the nineteenth century.

[3] Proponents of agricultural development are criticised as overstating the case for agricultural development. Since ultimately development will result in most people working off the land, with agriculture as minor sector in the economy, as it is in most OECD countries, it is argued that agricultural development cannot be the driver of development (— see, for example, Dercon 2008). Agricultural development may not be a sufficient condition for development, but it is often a necessary precondition. Without agricultural development, it is difficult to develop any country — with the exceptions of those countries that have high oil or mineral revenues per capita, or some city states. When agricultural productivity rises, labour and capital can be switched to manufacturing and services: hence, paradoxically, successful agricultural development leads to a relative decline in the importance of farming, as people leave the land and countries urbanise. (Timmer 2009)

[4] One dictionary definition gives a spatial dimension, describing commercial agriculture as "the growing of crops for sale outside the community" (Encyclopaedia, Colombia University Press).

[5] See for example, Preibisch et al. 2002 on a village in central Mexico where the reason for planting most of the land to maize lies with cultural identification: growing maize is what decent people do, not to grow maize would risk a household being seen as somehow deviant.

[6] Even in OECD countries today, it is surprising how many farms are family-run enterprises; unlike manufacturing, where the bulk of output comes from factories operated by large corporations.

[7] The quotation equates 'commercial' with 'large-scale', thereby removing from the argument the possibility that some countries in Africa have encouraged commercial farming, albeit on a small-scale. This apparently flies in the face of all the evidence of competitive small-scale commercial farming across the continent. That this is seen is so many different nations, in different ecologies, for different crops, suggests that this cannot be discounted as an exceptional case.

[8] 'Villagization, decentralisation and state monopoly marketing aimed to bring all rural people under the direct control of a hierarchical administration which monopolised all political and economic exchanges beyond the village and district boundaries. They were indeed an attempt to capture the peasantry, defined in the language, and often implemented in the manner of military operations. However the peasantry remained 'uncaptured' and the state, bankrupted by its own policies, has had to retreat.' Williams, 1987, 649 on Tanzania

[9] Market failure arises when the outcomes from trading in markets for factors and products do not deliver socially optimal outcomes. Several problems can cause markets to fail, including inability to exclude those not paying from enjoying a good a service, leading to undersupply of public goods; existence of externalities; undefined property rights; monopoly power; high transactions costs; and income inequality.

[10] An example might be reports from the Pakistan Punjab in the 1960s and 1970s, when green revolution varieties of cereals offered sufficient rewards for landlords to expel

tenants and farm the land using machinery. The difference between this case and much of Africa, is that widespread tenancy is not common in most parts of the continent.

[11] For example, in a Malian village in 1987 Becker (1990) counted 311 persons resident in just ten households.

[12] Managing very large households is not easy. Young men and women in the household want to become independent and start their own households, rather than work for the patriarch who heads the large household. The latter tries to retain household labour on the promise of inherited land to those who remain. See, for example, den Ouden 1995 for cases in Bénin.

[13] In some parts of Africa schoolteachers and other government employees sometimes enthusiastically innovate and specialise on their family farms. Their salary underwrites household welfare and any risks involved can be borne.

[14] This exaggerates some of the decline of Ghana's cocoa in the 1970s. Once domestic prices became so unattractive some of the crop was smuggled across the borders to Togo and Côte d'Ivoire, where the prices were more attractive.

[15] Allocating freehold rights to male individuals has other drawbacks: it may disinherit female members of the household and undermine their de facto rights to land.

[16] Also known as bribes. In parts of Africa, trucks have to pass numerous controls by police, customs, sanitary inspectors and so on, some of whom require bribes to be allowed to proceed. Livingston et al. 2011 reproduce World Bank studies that report an estimate of US$25 paid in bribes for every 100km of transport in Mali.

[17] Osborne's study from Ethiopia finds that traders are able to force down the price paid to farmers — by all of 3% percent. A rent, but hardly a heavy tax on farmers.

[18] An onion marketing chain studied in Tanzania (Mutabazi et al. 2010) showed that traders buying onions and transporting to Dar made very modest returns, but when the onions arrived at the central market, commission agents were able to make large margins at little cost. This was not a rural market failure, but an urban one.

[19] Jayne et.al. (2003) also examine the relationship between share of non-farm income and total income per capita and find that this is positive in all countries except Ethiopia – a finding that is broadly consistent with that of Reardon (1997).

[20] The limits were lifted in the late 1970s

[21] In some cases, the advantages of scale include that the trader or processor can get loans on international markets at substantially lower rates than applies in domestic capital markets.

[22] This applies in the UK as much as it does elsewhere. Minten et al. (2011) stress the importance of moral commitments over the written contract in cementing the business relations in Madagascar. Typical growers were loyal — in any case, there was no-one else who would pay the same prices for green beans — and had been working with the processor for an average of eight years.

[23] Prices for 1957 converted to their value in 2007 dollars from Peter Timmer.

[24] These are not, however, the only motivations for growing staples. Preibisch et al. (2002) looked at a village in central Mexico, connected by sealed roads to major cities within half an

hour's drive, where there was no more chance of an interruption to maize supplies than there was in Mexico City, and where most households obtained most of their income from artisan production and trading of pan scrubs. Despite this underwriting their access to food, all households in the village used most of their farms — rarely more than 2 ha — to grow maize, a crop that had gross margins well below the many cash crops they could have sown, given the excellent access the village had to urban markets. There was no economic rationale to the choice of crop. Interviews with the villagers, however, revealed strong social imperatives: despite the bulk of incomes coming from off the farm, the households considered themselves to be farmers, and farmers grew their own food, above all maize. This was a source of identity and pride: not to grow maize would have been to lose that identity. It should be added, of course, that in central Mexico, rural people are aware that maize cultivation goes back not hundreds, but thousands of years: they are proud of that heritage.

[25] Ndueni, Mbooni Location, a high potential zone, is now officially part of Makueni District, but historically it formed part of Machakos District.

[26] Why was Jahally-Pacharr not designed in the light of gender roles? Most probably because the scheme was seen to marry a clear technical opportunity to an apparently crucial need to produce more food in a country that was importing much of its food. For the designers, matters of land and gender were probably secondary, if they featured at all in their thinking.

[27] Not that many African small farmers ever get formal credit, even fewer are taken to court, and even fewer of them have ever been able to pledge their land against the loan: these may be market failures, but they do have some saving graces!

[28] See, for example Hobbs 2001 on Danish co-operatives for pork production. So successful are these, that they dominate world trade in pork for demanding markets: private enterprise, apparently, cannot match them.

[29] They talk of market maps for such analysis, an approach well developed by some value chain specialists, see Hellin et al. 2005.

[30] Not surprisingly, since many of the measures were designed to tax or extract a surplus from the peasantry.

[31] In similar vein, Fan et al. (2007) argue that the Asian cases they review indicate the need for sequencing. In early stages the priority is broad-based growth, then later more attention can be directed to regional and household inequalities. The Asian cases are in the second category.
During the first phase, strategies should focus on reducing widespread poverty through broad-based economic growth that reaches rural areas. In subsequent phases, more direct attention should be focused on lagging sectors and regions, as well as on poverty at the community and household levels, in order to reduce the poverty and income inequalities that arise and persist despite reform.

[32] In 1998, McMillan et al. reported that the 11-country Onchocerciasis Control Programme (OCP), begun in 1974 with US$ 56M from the WHO, has been very successful in controlling river blindness. Phase 1 covered Benin, Burkina. CDI, Ghana, Mali, Niger, Togo—764k km2 in all; expanded in 1986 to cover Guinea, Bissau, Sierra Leone, Senegal—to reach 1.3M km2 in all. The programme has opened up 25M ha of highly productive land to settlement, 30M people formerly at risk are

no longer so, and 1.5M with impaired vision have recovered. The Bank rates the programme as a huge success with returns estimated at 18–20% percent. Donors are now about to launch a programme for 16 countries in East and Central Africa.

[33] Yes, the agro-ecological zone matters, as does proximity to market: a half hectare of irrigated land on the fringes of a city may provide a very good livelihood: twenty hectares of semi-arid scrub in a remote area may not constitute the basis of a full-time farm. The numbers used are illustrative: they can be tuned to physical potential and access to market.

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