Traditional Domestic Markets and Marketing Systems for Agricultural Products

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**Introduction**

Market systems play a major role in vibrant economies as mechanisms for both exchange (necessary for specialisation and economic growth) and for the coordination of that exchange (through price signals which reflect and shape producer and consumer incentives in supply and demand). Coordinated exchange for agricultural products which are both produced and consumed domestically play a particularly important role in developing countries, as production of these products makes a major contribution to GDP, their consumption represents an important part of consumer expenditure (particularly of the poor), and effective and efficient exchange in these products plays an important role linking farm and non-farm sectors and allowing the movement of employment from agriculture to other sectors.

Market systems do not, however, provide the only mechanisms for ‘coordinated exchange’. In advanced market economies *hierarchical relations* in organizations (government agencies, firms, civil society organizations) play a major role both as channels for exchange and in providing institutional services necessary for markets to work (Fafchamps, 2004; Williamson, 1991). Distinctions between market and hierarchy exchange mechanisms are often blurred as many exchanges include elements of both, and forms of market, and hierarchy gift exchange vary widely. However market transactions are normally voluntary (in that both sides have to perceive gains from trade), involve precise terms of exchange (with regard to quantity, quality, space and time), and require wider institutions supporting interaction between trading parties (the scope of such institutions being determined by the scope or reach of trade). Hierarchical relations, on the other hand, use ‘command and control’ to allocate resources and in this rely more on institutions and institutional arrangements within organizations and rely less (as compared with markets) on wider supporting institutions (though these are still important).

It is important to note that while increasing volumes of market transactions are a key feature of richer economies, the defining feature of these economies is the very high proportion of transactions and transaction volumes within hierarchies (Fafchamps, 2004). Marketing systems therefore involve a wide range of forms and arrangements of both market and hierarchical relations, the one constant being the dominance of market exchanges in final consumer purchases.

This paper examines the major types of marketing system linking producers and consumers of domestically consumed agricultural products in different contexts, and the opportunities and constraints these offer to poor producers (and consumers). The marketing system is considered to involve physical assembly, handling, storage, transport, processing, wholesaling, and retailing of agricultural products, together with services directly supporting these activities, such as market information, establishment of grades and standards, financing of marketing activities, and price risk management (World Bank, 2006b). It is often important, however, to consider agricultural marketing systems in the context of wider supply chains which extend backwards to include farm production and the supply of inputs and financial services needed for production.

We consider marketing systems for four major types of product: cereals, roots and tubers, livestock products, and fruit and vegetables\(^2\). For each of these we briefly discuss the major characteristics of supply and demand that affect market

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\(^2\) Traditional ‘bulk export commodities’, high value niche products and supermarket supply chains are addressed in separate papers, although the boundaries between these products and those traded in ‘traditional domestic markets’ are blurred: for example China and India are major domestic users of some traditional ‘bulk export commodities’ (such as cotton) and as
structures and prospects for growth in domestic demand being supplied by domestic smallholder farmers. This leads on to examination of different marketing systems that have developed for these products in different contexts, and consideration of the effectiveness of these systems in supporting growth and serving the interests of poor consumers and producers. Specific issues around problems of price instability and risk management are considered for cereals, and new opportunities arising from the spread of information and communication technologies examined. The paper concludes with discussion of the opportunities and constraints for small scale farmers engaging with these marketing systems, and of policies to support small farmer engagement.

**Product characteristics**

In this section we examine for each product type the major characteristics of supply and demand that affect marketing structures and prospects for growth in domestic production in different country contexts.

**Cereals**

Cereals are a major food source for direct human consumption and for livestock feed, but as peoples’ incomes rise their relative importance in human food consumption declines, while the relative importance of use for livestock feed increases. The interaction of growing incomes and declining population growth rates in different parts of the world means that global cereal consumption has been increasing, but at a declining rate. This however masks widely differing historical and projected patterns of growth in consumption in different regions and countries (table 1). These different patterns arise from differences in population growth rates (higher in Africa than other regions) and from differences in income growth in different regions. Thus continuing poverty has constrained income growth and cereal consumption in some regions (for example in much of Africa and parts of South Asia); increasing incomes have led to a decline in the rate of growth in human consumption in other regions (for example East Asia); and increasing demand for livestock feed has played an increasingly important role in rapidly urbanizing countries (in East Asia and Latin America). Increasing demand for livestock feed is also associated with increasing importance of course grains, particularly maize, in total consumption, at the expense of wheat and rice.

A key point that emerges from this analysis is that although long term global growth prospects for cereal demand may be limited, substantial growth in demand is expected in poorer, agricultural based economies in Africa in the future (table 1) as

- projected annual growth rates in demand in these countries are still relatively high, and will remain so for some time,
- these rates of growth are on a very large base, so that they represent very large increases in absolute demand.

Prospects for increased domestic demand providing opportunities for domestic producers need to be set against the relative importance of imports and domestic production. Recent years have shown a trend of increasing cereal exports from industrialized countries to developing countries, with increasing imports particularly marked in Africa and East Asia (table 1, although imports by China have varied considerably and China, with Vietnam, recently became a more consistent and significant exporter). However there are again different processes and patterns of change within the different regions. Exports from industrialized countries have been stimulated by subsidy regimes in Europe and North America, and these have also depressed world prices. Increasing imports in developing countries, stimulated by distorted world prices, are also the result of increasing urbanization, particularly in ‘urbanized economies’, and of low rates of agricultural productivity growth in ‘agriculture based economies’ (in ‘transforming countries’ higher rates of agricultural growth have offset, to a greater or lesser extent, increased urban demand). Further increases in imports in agriculture based economies have often been held back from even faster growth by foreign exchange constraints. The situation is complicated in sub Saharan economies develop, high value niche markets and supermarket supply chains often deal with, exist alongside, and compete for market share with traditional livestock and fruit and vegetable marketing systems.

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3 This section draws heavily on FAO, 2003 and Rosegrant et al., 2001
African by food aid imports and by poor communications infrastructure to inland rural areas, as this separates coastal cities from agricultural production inland and (by raising farmgate fertilizer prices and depressing farm gate cereal prices) can make imports a cheaper urban food source than inland domestic production. This, together with supplies of food aid in some countries and changing dietary preferences, is often shifting consumption patterns in favor of imported cereals and away from coarse grains (and staple roots and tubers)⁴.

Farmers in agriculture based, mainly African, countries therefore have large potential domestic market opportunities in cereal production, but they face substantial challenges: from poor transport and communications infrastructure, from poor market access, and from difficulties in increasing productivity to respond to these opportunities (the challenge of changing dietary preferences towards more imported grains, particularly wheat, is probably less important, as substantial growth in demand for traditional cereals is still expected, despite this). We discuss infrastructure and market access later, but now briefly consider production constraints on smallholder cereal production, as these have important implications for infrastructure and market development.

Significant growth in cereals production in transforming countries has largely been achieved through yield increases in the green revolution, with new varieties, fertilizer (with seasonal finance), and irrigation. There are a number of difficulties with the application of this model to African cereals. Water control is generally more difficult as Africa has much smaller areas under irrigation, the irrigation that is there is much more dependent on seasonal rainfall (rather than snow melt) and hence less reliable, and the economic and management record of much irrigation in Africa has been poor (though there are exceptions). Without irrigation, the rain fed systems found in much of Africa are particularly constrained by rainfall variability, a problem that is likely to increase with global climate change. This does not suit higher potential ‘green revolution’ crops such as wheat, rice and maize, and leads to cultivation of more drought resistant and low input, lower yielding course grains such as sorghum and millet⁵. Lower incentives to use inputs in more risky conditions and/or on less responsive crops are exacerbated by (a) lower international grain prices (as discussed earlier), (b) difficulties with delivery systems for financial services and input supply (particularly fertilisers), and (c) inherent price instability in many domestic cereal markets. Difficulties with delivery systems arise as the various state sponsored mechanisms which promoted coordinated development of infrastructure and of financial service, input supply, output marketing and technology development for farmers in successful cereal green revolutions have had a very mixed record in Africa and have largely been dismantled but have not been replaced by robust private sector service provision (as will be discussed later). Cereal price instability arises because land locked economies face large price wedges between import and export parity prices, and, with relatively price inelastic demand, variations in production as a result of bad/ good weather and/or increased fertiliser use can lead to very large price swings in relatively isolated local and/or national markets. This increases risks for producers who might invest in cereal production. We discuss problems of supply chain coordination and price instability later in the paper.

**Roots and tubers**

Principal roots and tubers are sweet potatoes, potatoes, cassava, yams, and taro. Plantains are also placed in this class. These have varying demand characteristics as with the exception of potatoes and, in some cases cassava, they are ‘inferior goods’ (that is consumption tends to decline as income increases) and are particularly important in the diets of poor people living in some regions with high poverty incidence (such as North East Brazil, West and Central Africa and the Andean region). Cassava products, however, are also a popular urban food in many African countries and (the Andean region excepted) potato consumption tends to rise with increasing incomes and in many developing countries has demand characteristics more similar to vegetables (discussed below). Sweet potatoes (in China) and cassava (in Brazil and in the EU in the 1990s when domestic cereal prices were high) also have important uses as livestock feed. Cassava is also used

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⁴ See for example Muyanga et al., 2005.

⁵ Maize is successfully grown under rain fed conditions in much of Africa, but is nevertheless susceptible to lack of rainfall at critical times in the growing season, as demonstrated by food production shortfalls in Southern Africa in recent years. NERICA varieties of rice appear to have the potential to increase rainfed upland rice production in Africa, but their spread is currently limited across and within countries.
for industrial starch production. Demand for roots and tubers is therefore expected to increase substantially in developing countries (table 2) with the majority of this being supplied from domestic producers.

Production characteristics of different roots and tubers vary considerably. Cassava, yams and sweet potatoes grown in Africa as staple crops differ from cereal staples in that harvesting occurs over less tightly defined seasonal periods, allowing some storage in the ground (Prudencio and Alhassan, 1994), hence easing the seasonal cash and food flow problems farmers face in cereal production. Once harvested, however, tradability is limited by a high bulk/nutrient ratios and (for most cassavas) rapid post-harvest deterioration. Production changes of these crops have also historically been achieved primarily by extensification (increased areas planted to these crops) rather than by increased yields (FAO, 2003). Roots and tubers can achieve high yields, but there are concerns about rapid soil mining and challenges to sustainable intensification – but, in the short term at any rate, increasing roots and tubers production does not generally face the same difficulties as cereals intensification as regards either producer susceptibility to price instability or the need for coordinated delivery systems for input and financial services. These difficulties will, however, become more important if increased domestic demand for these crops is to be met from sustainable intensification – as it must.

Livestock products
Livestock products have very high income elasticities, and demand increases rapidly with rising incomes as countries shift from lower to middle income economies. This has led to a ‘livestock revolution’ in developing counties (Delgado et al., 1999). Increases in poultry consumption have been particularly dramatic and widespread, while changes in beef, pork and dairy demand vary with cultural differences between countries. Future meat demand is expected to grow at roughly equivalent rates in different developing country regions (table 3), with very large absolute increases in demand in China leading to large imports. Roughly similar growth patterns are expected for eggs and dairy products (table 4), but with different trading patterns due to difficulties in trading eggs and low absolute per capita consumption levels of dairy products in China but high absolute per capita consumption in South Asia. While some of this increased demand will be in rural areas, most of this extra demand will be in urban areas, where population and incomes may be expected to increase most rapidly. Smaller scale producers may find it easier to intensify small livestock production than cereals, as small stock production is more able to access micro-finance systems to obtain funds for investment, thus overcoming the coordination problems discussed above for cereal production. Credit constraints are nevertheless likely to constrain smallholder expansion, and the extent to which small scale farmers benefit from increased urban demand will depend upon their ability to compete with imports and with large scale intensive production, particularly in supplying growing supermarket chains. As livestock products are perishable and carry health risks for consumers if proper sanitary measures are not followed in production and marketing, this depends upon their ability to reliably deliver low cost, high quality products and to develop low cost, reliable quality assurance systems – a major challenge.

Fruit and vegetables
Fruit and vegetables have many similar characteristics to livestock products with high income elasticity of demand, important quality issues, some potential for micro-financing of production intensification (especially with irrigation), and competition from imports and difficulties in supplying supermarkets likely to pose increasing challenges to their ability to supply rising urban demand in transforming countries. They also tend to involve, labour intensive production, and face seasonal glut, perishability and quality problems. Table 5 presents data on historical changes in domestic demand and trade for developing countries in different regions, but these data need to be interpreted broadly (due to definitional difficulties in reporting) and there are no demand projections. Africa stands out for its low increase in consumption with domestic production falling behind population growth (Hichaambwa and Tschirley, 2006). Growth in domestic demand has been much greater in South and East Asia, while Latin America has seen dramatic increase in exports.

Potential Growth in Traditional Domestic Markets for Agricultural Products
Looking across the four product types discussed above, it is clear that there are potential opportunities for domestic producers serving domestic markets and that these differ by product type and region. Table 6 pulls together data to give a rough picture of the potential increases in the value of demand per agricultural worker per year by region. These increases have to be interpreted in the context of the total numbers of agricultural workers in different regions, and average agricultural incomes in these regions. Thus the greatest agricultural income opportunities in supplying the domestic agricultural markets examined in this paper arise in Latin America/ Caribbean and in the Middle East/ North Africa regions, but only in the Latin America/ Caribbean region is the potential increase in demand per labourer substantially smaller than existing agricultural GNI per worker. In other regions the potential increased demand is around or (in South Asia) significantly greater than current agricultural GNI per worker. The relative importance of the different products also varies between regions - relatively evenly balanced in sub Saharan Africa, with particular scope for livestock products in Latin America, for dairy and fruit and vegetables in South Asia, and for meat and fruit and vegetables in East Asia.

Despite these regional differences it is clear that increases in demand in domestic agricultural markets offer significant potential for increased incomes in agriculture. The challenge is therefore for policies to promote smallholders’ ability to produce for and engage with these markets. We therefore now turn to examine different kinds of market structure linking domestic producers of these products with domestic consumers.

Market structures and operations

If small scale domestic producers are to take advantage of the projected growth in domestic demand discussed above, then marketing systems in the supply chains linking producers to consumers must be able to support low cost production and timely delivery of low cost products, which will need to be of increasingly high quality. The potential for small scale farmers to be low cost producers of cereals, roots and tubers, livestock products and fruit and vegetables depends upon factor prices, managerial efficiency, technology, transport costs, and access to inputs and financial services. Many of these issues are discussed in chapters 6 and 7. We focus our attention in this paper on the potential for different marketing systems to move increasing volumes of produce from producers to consumers at competitive costs, recognizing that the most important consumers will often be in urban centers with good transport links to international markets and hence low import costs. Our consideration of different marketing systems’ ability to link producers and consumers must, however, also take account of problems posed by high transport costs and by the ways which marketing systems may assist producers in overcoming production problems, particularly in obtaining working capital and inputs.

We begin by identifying three major types of marketing system, which we label (a) trader, (b) large scale commercial, and (b) state controlled or parastatal systems. We will discuss each of these types in turn, describing its main features and its effectiveness in different circumstances, and then discuss emerging innovations. While this typology is useful, it must be recognized that in reality all marketing systems are in a constant state of flux and evolution, and the different types described below often coexist.

Trader systems

We define ‘trader’ systems as atomistic systems with large numbers of relatively small traders and hence with a preponderance of market as opposed to hierarchical transactions. We distinguish between those that are relatively mature, having evolved and grown over a considerable period of time with relatively stable structures, and more ‘immature’ systems which have emerged relatively recently and are for a variety of reasons are less robust. Variants of these systems are found in most of the developing world for all four product types considered in this paper, and they often coexist with large scale commercial and state or parastatal systems, traders being particularly important in purchasing, collecting and bulking products from small-scale producers.

Immature systems are most common in Africa (although there are some more mature trader systems in West Africa associated with more longstanding crop and livestock product market systems). This probably arises from (a) limited

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6 Inevitable difficulties in assimilating data for this type of analysis suggest that too much emphasis should not be put on the details in table 6, but the broad conclusions drawn here are robust.
incentives for trade in food crops in the land abundant tropics in the past (Binswanger and McIntire, 1987), (b) thin produce markets which arise from this and from the lack of an agricultural transformation in food crop production in smallholder agriculture and (c) disruption to the development of private trade in food crops by the activities of parastatals.

Common features of these systems reported in cereal markets in Africa include the presence of large numbers of small traders operating at different levels in the marketing chain, particularly in sourcing supplies, each of these handling small quantities of produce. These traders are often single person businesses, trading in more than one crop. Access to credit is normally very limited, and their businesses are funded by equity with severe financial constraints. They then seek to maximise returns to their limited working capital by rapid turnover of small quantities, and engage in only limited storage activities. There are no standard quality grades, and weights and measures are also often not standardized, so that personal inspection of products by buyers is very important: this then requires traders to personally travel between markets where they buy and sell so that with poor transport and telecommunications, traders spend a significant amount of time travelling between markets, and operate in only limited geographic areas. This may then require several levels of trader intermediaries for markets across large geographical areas (brokers play an important role in long distance trade in Ethiopia) and strong reliance on personal relationships for obtaining information and for trust regarding quantities and qualities of purchased grain and contract enforcement. Barrett, 1997 observes that in Madagascar there are large numbers of small scale traders involved in marketing because (a) there are limited economies of scale for traders purchasing small quantities of grain from dispersed farmers within these systems (Fafchamps et al., 2005) and (b) there are very limited capital requirements and low barriers to entry in these activities, leading to ‘crowding in’ of relatively poor people looking for low investment and low risk income sources. He also observes, however, that there are certain marketing functions with high credit requirements and high barriers to entry (wholesaling, motorized transport, milling, and interseasonal storage), and that these are dominated by small numbers of larger firms who may then be able to exercise monopolistic or monopsonistic market power. It should also be noted that even with the large numbers of crop collectors in the market as a whole, crop collectors may still be in a relatively strong monopsonistic positions when buying in small local markets where farmers have very limited market information and face high search and transport costs in looking for alternative buyers.

These characteristics of ‘immature trader systems’ constrain the development of food supply chains in a number of ways. The very limited access to credit among small traders constrains their ability to offer ‘supplier credit’ in interlocking credit to farmers; travel to personally inspect consignments incurs travel and time costs and reduces turnover and hence returns to working capital; the reliance on personal relationships in exchange limits the ability of agents to respond to market signals; and uncertainty about weights and standards depresses incentives for producers and increases costs for buyers. Credit constraints limit the ability of traders to expand their businesses, but reliance on personalised exchange and small transactions also limit economies of scale and hence the potential gains from and incentives for business expansion. Farmers on the other hand have poor market information and face uncertain prices for their produce, varying not only with demand and supply in wider markets but also with local trader relations. These prices may be depressed by high transport costs and trader margins (as a result of high trader risks and of large numbers of intermediaries in the marketing chain). There are frequent complaints of dishonest traders over-filling bags or under-weighing produce to reduce the prices they pay to farmers. Absent or variable quality standards and premia also provide little opportunity or incentive to farmers to raise produce quality (though traders also complain that farmers ‘cheat’ by adulterating produce and hiding low quality produce in supposed higher quality lots).

These conditions are conducive to the existence of a low level equilibrium trap in poor rural economies due to failures in coordination of complementary services needed for agricultural development (Kydd and Dorward, 2004; Dorward, A.R. and Kydd, 2004). This occurs when, despite potential positive returns to coordinated complementary investments at different levels in a supply chain, farmers, input traders, financial service providers and traders do not face positive returns

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7 See Gabre-Madhin, E. Z., 2001a, Gabare-Madhin, 2001 #13, Fafchamps, 2004, Barrett, 1997, Al-Hassan et al., 1999, Harriss-White, 2000, Bauer, 1971. Information is however patchy as these different studies do not all address the same questions or report on the topics.
from their own individual, uncoordinated investments, and private returns are therefore lower than social returns: market failure\(^8\) then leads to under-investment\(^9\).

This analysis is consistent with studies comparing the performance of pre- and post- liberalization cereal supply chains in Africa. The broad conclusions from such studies are that there is significant small trader market entry and that marketing margins (the spread between producer and consumer prices) decline due to reduced spreads between surplus and deficit areas and, in the case of maize in southern and eastern Africa, due to increased consumer purchasing from smaller, lower cost and more local maize mills) (see for example Kherallah *et al.*, 2000; Traub and Jayne, 2006). There is also evidence that markets have become better integrated (with better transmission of supply, demand and price information and arbitration across spatially dispersed markets and over time), especially in countries with lower levels of state intervention before liberalization, and hence more mature private trader systems (Kherallah *et al.*, 2000) though integration may still be poor and spatial and temporal margins remain high (Coulter and Onumah, 2002). However food crop production in Africa has stagnated, and access to credit for inputs has declined. Comparison of fertiliser use in cereal crop production pre- and post- liberalization is difficult, as observed Africa wide fluctuations are sensitive to policy changes and to subsidised fertiliser programmes in particular countries, and it is difficult to separate out fertiliser use on cereal and cash crops. It is, however, clear that liberalization of cereal markets have not supported the rapid cereal intensification and increased fertiliser use and production needed for an agricultural transformation in Africa.

Two fundamental and related problems facing less mature trader systems are the low volumes of marketed production (with small and dispersed consignments, high transport costs for produce from farms to local centres and from these to more central markets) and informational problems for traders and farmers (regarding changing prices in different markets, the existence of sellers/ buyers at particular locations and times, and uncertainty about product quality –for example regarding moisture content, spoilage or adulteration with foreign matter). Three common institutional arrangements in trader based systems that partly address with these problems are trader associations, brokers or commission agents, and periodic markets.

Trader associations are found in many parts of the world. Shepherd, 2005 report that they are found in most wholesale markets in Latin America, throughout Africa, in most Asian countries (and are particularly strong in South Asia) but are less common in formerly centrally planned economies. Some associations are established to address specific problems and then disband (Shepherd suggests this is more common in some Caribbean, Asian and East European countries), while others have a more permanent nature.

These associations, particularly the more permanent ones, have traditionally been seen by analysts as means by which traders create cartels in order to exert monopsonistic and monopolistic market power in buying and selling activities. They are, however, increasingly recognised as providing a number of benefits which promote market efficiency, with potential gains for all market participants through lowering marketing costs and expanding market access. These benefits primarily involve reduction of members’ transaction costs by expanding access to and organizing transport and credit facilities, collecting and disseminating information that individual traders find too expensive to acquire on their own, resolving disputes, and providing physical and institutional infrastructure where it is lacking (Shepherd, 2005; Smith and Luttrell, 2000).

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\(^8\) Market failure is defined here as a situation where the profits from engaging in a transaction are not sufficient to justify the transaction costs and risks involved in establishing and implementing that transaction, even though underlying prices (or utilities) and technical efficiency would suggest that the transaction should be profitable with lower (more reasonable) transaction risks and costs. These transaction costs may involve (a) the establishment and enforcement of exclusive property rights, (b) the definition and enforcement of attributes of the good or service being exchanged, and/or (c) costs incurred in meeting licensing or other requirements of bureaucratic and rent seeking government agencies, officials, criminals or others (with these costs being incurred to provide protection against risks of transaction failure).

\(^9\) Emran and Shilpi, provide empirical evidence of a low level equilibrium trap in poor rural economies. They find that for vegetable marketing in Bangladesh villages there are increasing returns from thick market and fixed costs effects and these cause vegetables markets in villages with low marketable surplus to be trapped in a segmented local market equilibrium. They interpret this as arising from increasing returns in output marketing, but the effects of complementary coordination failure were not investigated.
Traditional Domestic Markets and Marketing Systems: Draft : 6th November

They may also control supply, but while this may give them market power to manipulate prices it may also assist with contract enforcement and promote economies of scale, providing coordination mechanisms that can potentially lower costs: they can thus lower consumer prices, increase marketed quantities and expand market reach to and access for more remote and small scale farmers. Thus despite apparently anticompetitive practices, trader associations’ ability to reduce transaction costs can lead to net social benefits. The costs and benefits of competition and coordination then have to be weighed against each other, and mechanisms sought for gaining the best of both worlds (Poulton et al., 2004). The benefits of trader associations in overcoming market failures and expanding market access for more marginal farmers are likely to be greater where population, production and market densities are lower with poorer and more costly transport and communications facilities: this may explain both the historic strength of trader associations in West Africa and their greater tendency to control supply to markets (as reported by Shepherd, 2005)10.

Brokers or commission agents participate in the marketing chain without taking ownership of produce. They provide a service by providing (a) specialist market knowledge and (b) relationships linking sellers and buyers, in return for a fee which is a percentage of the sales price. By taking their income as a fee rather than a margin they reduce both their need for working capital and their trading risks. They can play an important role in assisting long distance trade (for example allowing local assemblers and wholesalers in a central market to trade without establishing a personal relationship themselves and without travelling with their consignments) and in assisting traders who have not established strong relationships with other traders (Gabre-Madhin, E. Z., 2001b).

Periodic markets are another market arrangement which is found in trader based systems in many parts of the world. These involve markets moving between local rural towns at weekly, fortnightly or other regular intervals. The arrangements within and between periodic markets in a system vary, but typically they provide a regular opportunity for traders and rural consumers and producers to buy and sell different kinds of raw and processed foods, other agricultural products and other items (such as local handicrafts or imported consumer items). As compared with the costs of travelling to a fixed central market (which would need to serve a much larger geographical area), periodic markets, by rotating between rural centres, reduce the costs of rural people travelling to access markets with reliable supply and demand to attract a reliable and sufficient number of market participants. Traders moving between markets on successive days and rural people located in places that allow them to attend more than one market at reasonable cost promote the movement of produce and price information between different markets and areas. Commodities and items traded at markets will vary seasonally, and there may also be hierarchical relations between markets, with some acting as assembly and wholesale markets, possibly linked into both lower level and higher level market rotations. Different markets may also specialise in different activities, so for example Rozelle et al., 2003 report that in China many farmers attend two markets, regularly frequenting more local markets for consumer purchases (with presumably some farmers using these markets for regular sales of fresh produce) and more infrequently going to more distant secondary markets for sales and for purchases of more specialized goods.

Periodic markets are important where lower population densities and income levels constrain the density of consumer demand in rural areas, where there are low densities of marketed surpluses from dispersed small scale producers, and where transport and communications costs are high. The effects of increased density of demand and supply and of improved transport and communications on periodic markets are ambiguous: they may lead to the establishment of new markets with increasing density of periodic markets, increasing frequency of existing and new markets, and/or increasing concentration in permanent markets, depending upon product characteristics, tax systems, and institutional arrangements for accessing market stalls and other facilities (Rozelle et al., 2003).

As compared with ‘immature trader systems’ discussed above, more mature trader systems are generally associated with thicker produce markets (with higher population densities and greater marketed surpluses) and a history of less active state intervention in markets, with the state intervening in markets through private traders (the model followed in much of

10 Both the wider benefits of controlling supply (in terms of extending market access) and the ability of market associations to control markets may be greater in these situations.
Asia for example – apart from in centrally planned economies – rather than by taking over the activities of these traders itself (the model generally followed in centrally planned economies and with cereal marketing boards in East and Southern Africa). As a consequence of the longer period of more stable evolution of these systems and of the greater density of trading volumes, traders tend to have a larger businesses, as regards volume of turnover, employment, asset ownership and capital. Thus Harris-White, comparing traders in Guinea and South Asia, notes that whereas African female traders tend to be single person firms, private wholesaling firms in staple food markets tend to be more commercialized, to be up to 100 times larger in terms of gross output, and to employ a significant wage labour force, as well as involving more family members and others in management (Harriss-White, 2000). These larger trading firms also tend to be more specialized as regards market functions and the produce they deal with, and have better access to capital. This is used for financing produce purchases, equipment, storage facilities and in some cases they become involved in providing seasonal finance to farmers through inter-locking arrangements where loans are repaid by farmers selling all their produce to the trader, often at considerably below market prices, giving the trader access to increased supplies at low prices. Limited access to formal credit, and hence limited capital, is nevertheless still generally a constraint in these systems (World Bank, 2006b).

The discussion above has given more emphasis to marketing of cereals than to the other products being considered in this paper. However many of the features of trader systems are found in all products, and in more immature systems traders may often be involved in trading more than one kind of product. There are of course differences, for example between markets for cereals and for highly perishable and continuously produced livestock products such as milk: roots and tubers and different fruit and vegetables occupying intermediate positions on these characteristics. Livestock and meat markets vary with different types of stock and production system. Perishable products with more continuous production (such as milk and some vegetables) may be marketed directly by producers to consumers (this is common, for example, with peri-urban milk producers) but traders are often involved in collecting and bulking produce from small producers who are further from urban markets, and may then sell to processors, wholesalers, retailers, institutions or direct to consumers. Losses in such systems may be very high for perishable products and those whose quality is sensitive to handling (for example McKinsey & Company, 1997 (cited by World Bank, 2006b) estimate losses of 40% for fruit and vegetables in India). There are also concerns regarding food safety standards (for example Poole, N.D. et al., 2002; Shepherd, 2006). Fruit and vegetable markets tend to be dominated by urban wholesale markets supplied by producers or traders (Seidler, 2001; Tschirley et al., 2004; World Bank, 2006b) but these are often outdated, poorly maintained, and crowded, with poor facilities and are sometimes seen by local governments more as a source of revenue than as an important facility for promoting efficient markets and producer and consumer welfare (Shepherd, 2006; Seidler, 2001, World Bank, 2006b). Supermarkets are now taking an increasing market share (see WDR paper by Berdegu et al) but the extent of their growth in agriculture based and to a lesser extent some East Asian transforming countries has been slower and is unlikely to follow the same path in the near future, particularly in the former, due to lower urban incomes (Traill, 2006; Tschirley et al., 2004), and in the latter due to cultural preferences (Cadilhon et al., 2003; Cadilhon et al., 2006). In India the liberalization of markets is slow, but fundamental changes are being observed not only through alliances being formed between foreign and domestic capital, but also with the growth of indigenous organised retail systems.

Large scale commercial systems

The presence of large scale commercial firms in a marketing system represents a shift from market to hierarchical relations in product flows from producers to consumers. This is a natural shift in developing economies as both farms and the trading firms they deal with grow, and is reflected in the discussion of increasing size of trader firms in more mature trader based systems discussed above. Large scale commercial firms tend to be found in the domestic agricultural market systems discussed in this paper where there are (a) significant economies of scale in particular trading or processing activities and/or (b) barriers preventing smaller firms from engaging in these activities, together with reasonable expected
returns on investment in these activities and reasonably effective legal, political and policy systems which limit potential losses from arbitrary rent seeking or policy change. We have noted above how in Madagascar there are large numbers of small scale traders involved in buying produce from farmers but wholesaling, motorized transport, milling, and interseasonal storage are dominated by small numbers of larger firms because these marketing functions have high credit requirements and high barriers to entry. This pattern of small trader based systems dominating purchases of domestic products from small farms but firms becoming increasingly large further down the marketing chain is common, as larger firms often benefit from increasing economies of scale in raising capital, long distance transport, storage, processing (such as milling), and branding. These however, vary with farm sizes and market and product characteristics. Thus large scale maize milling companies in southern and eastern Africa benefit from their ability to buy large consignments from large commercial farms, but they also face competition in the maize meal market from small scale millers who serve dispersed rural consumers and urban consumers who may wish to supervise the milling of whole grain (for food safety and quality reasons) or purchase lower cost less refined meal. Large scale millers are also disadvantaged if marketed surpluses vary dramatically from year to year so that in some years they are unable to effectively utilise the capacity of their investments in physical plant and organizational development. However large scale commercial processors and wholesalers face new opportunities from growing urban economies with increasingly concentrated and reliable consumer demand and increasingly well established retail sectors. The growth of supermarkets’ share of staple food retail markets in urbanized and transforming economies illustrates this, but even in agriculture based economies large scale cereal millers should benefit from the increasing importance of small supermarkets and shops.

These observations apply mainly to cereal market systems. Unless there are large scale processing activities (for example in starch manufacture or in canning or freezing fruit and vegetables), large commercial firm involvement is less common in roots and tuber and in fruit and vegetable market systems supplied by small scale producers in agriculture based and transforming economies, as quality standards and branding are more difficult to establish and there are fewer economies of scale. Urban consumers in agriculture based and transforming economies therefore tend to be supplied by open markets, small retailers and itinerant traders who in turn obtain their supplies from large wholesale markets, although as economies develop these may become more sophisticated, with larger traders operating within them, with increasing use of specialised storage facilities. Supermarket penetration of the fruit and vegetables market lags behind staple foods, but may be promoted by, and may promote, supplies from larger farm, with transactional economies of scale for both suppliers and purchasers of ‘branded’ produce with more stringent quality and safety standards (Poulton et al., 2005). Similar processes may affect market structures for meat products, although health and safety standards in slaughtering, butchering, storing and selling meat may provide more significant opportunities for larger scale firms at lower levels of urban incomes. There are large potential economies of scale in the processing, storage and fresh milk and processed dairy products, and large commercial firms are therefore common in the dairy industry.

State controlled or parastatal systems
Before examining the ways in which governments have intervened in domestic agricultural market systems, it is helpful to step back and consider the particular interests that governments have in these market systems, and the different ways in which they can pursue these interests. Two points need to be made. First, more than other stakeholders, a government can play two distinct roles in market systems, (a) governing the way that private stakeholders function as producers, traders, processors, and consumers in these systems, and (b) taking on these functions itself. Second, in performing these two roles (which may be seen as refereeing and playing in the marketing ‘game’), governments, or the individuals that make them up, should not be acting in their own self interest but in pursuit of wider interests that society gains from marketing system operation and development. Governments’ engagement with marketing systems should therefore contrast with that of private actors in market systems who pursue specific personal interests in consumption or in earnings from production or marketing service provision. The distinction between public and private goods is useful here, with the role of governments in general being to leave to the private sector the provision of private goods, and to take responsibility for providing public goods.

These latter two points are of course related, as potential gains must be weighed against risk, and firms may also ‘invest’ in rent payments to potential rent seekers to protect their investments.
goods (directly or indirectly), but the application of this distinction needs to be nuanced, recognising that in some circumstances (such as the low level equilibrium traps discussed earlier) goods and services normally considered to be ‘private goods’ have substantial public good characteristics.

Governments face a number of difficulties in defining and undertaking their roles in marketing systems. These arise in (a) defining public goods and wider social interests, (b) identifying the best means of pursuing these interests (which may at time be conflicting), and (c) their ability to pursue these interests. These difficulties result from the limited capacity of the state (for example in information, finance, and skills), limited competitive and incentive processes to promote innovation and risk taking, and conflicts between wider social interests and the interests of specific groups and individuals within government.

Dominant (agricultural) development policy in developing economies over the last forty years or so can be (simplistically) divided into two broad phases, state- and then market-led development, reflecting different views on how the state can best promote wider social objectives. These two policy phases reflect changes in dominant economic policy paradigms, the first phase emphasising problems of market failure in poor economies (and promoting state interventions to address these market failures), the second phase emphasising state failures when intervening in markets, and promoting reliance on the private sector and markets with state withdrawal from market interventions.12

In the 1960s and 70s governments in developing countries needed to act, and to be seen to act, to promote national food security (which, given limited foreign exchange earnings and reserves and thin international markets, was taken to mean food self sufficiency), to stabilise prices, and to invest in improved agricultural market access and agricultural development for the benefit of farmers and consumers and/or to generate resources that could be used to invest in other sectors (see for example Hubbard, 2003; Rashid et al., 2005)

A more active role for government was considered necessary because in poor rural economies the private sector was often weak (in organizational capacity and in access to capital and human resources) and large scale private investments risky and unattractive, partly because simultaneous investments were needed in communications infrastructure; input and output trading; research and extension; and in farmers’ input purchases and production. It was widely believed that state intervention could coordinate smallholder farm activities in this context (with state controlled trading and infrastructural, research and extension investments), and/or stimulate agricultural growth by direct investment in large scale production and processing enterprises. Through such actions it could both reduce investment risks and where necessary take them over from the private sector. It could also access public sector finance sources and invest in organizational and human resource development. State activism also matched a common mistrust of ‘parasitic’ traders and of private companies (which were often seen to be associated with exploitation by colonial or local elites), socialist suspicions of the private sector and of markets, confidence in the ability of the state, and dominant economic development theories stressing the importance of industrial sector development, import substitution policies to promote this, and the taxation of agriculture to finance such policies. State activism was also frequently a convenient tool for extending personal, party and state power and patronage.

As a result, across a wide swathe of developing countries the state intervened to stabilise output prices for cereal crops, to provide farmers with access to finance, to supply inputs (which have frequently been subsidised), and to provide poor consumers with subsidised food. The mix of instruments has varied enormously, involving: (i) price interventions in the form of input and finance subsidies and on the output side price supports (and sometimes fixing of prices below world market levels) and; (ii) organizational interventions (parastatals, state-sponsored cooperatives, and agricultural finance organizations) which went well beyond what was necessary purely to administer price interventions (Dorward, A.R. et al., 2004b). These were generally preceded and/or accompanied by substantial investments in land reform (where land holdings were highly unequal), in infrastructure and in research and extension. In cereal and input markets, parastatals

12 Most countries experienced an extended period of adjustment between these two phases, which of course interact with other progressions – concerning the goals of development, the relative importance of different sectors, the nature of growth needed for development, etc. A more nuanced interdependence of state and market is also increasingly recognized, with another sphere of state failure in supporting the conditions necessary for markets to work.
sometimes worked through private marketing systems (intervening in markets by buying from traders who bought from farmers and/or exported or imported grain), sometimes worked alongside traders and large commercial firms (working in markets where private agents did not work and competing with them in others) and sometimes replaced them by establishing themselves as monopolies or monopsonies in one or more market function. Parastatal activities have been supported by a range of government regulations, including monopoly controls in international trade, restrictions on movements of foodgrain by the private sector, concessional credit and preferential access to transportation for the parastatals, and limits on private storage, together with sometimes very large subsidies on their trading operations (Rashid et al., 2005).

The effect of these “agricultural” policies was to subsidise agriculture, although individual crops were taxed and substantial shares of the benefits were captured by small sub-groups of farmers and by non-farmers. However these subsidies also have to be seen in the light of a collection of economy-wide policies that led to an overall bias against agriculture, notably exchange rate over-valuation, which swamped the support which was received from agricultural sector interventions (Krueger et al., 1988).

Development and poverty outcomes from the state-led investments in cereal marketing systems are mixed. In some (mainly African) countries large government expenditures and activity in cereal development led to very little growth and were little more than a major drain on government budgets. In Latin America, domestic agriculture was supported by import substitution policies, at the expense of export agriculture, but ultimately agriculture as a whole suffered from poor macro-economic management. In other (mainly Asian) countries, however, state-led systems promoting smallholder cereals and involving substantial state interventions in markets were home to the most dramatic and widespread processes of agricultural growth and poverty reduction in history. Dorward, A.R. et al., 2004b explain these successes and failures of state systems by postulating that in successful green revolutions government intervention played a critical role but temporary role in ‘kick starting’ markets, by coordinating the complementary services to overcome the low level equilibrium trap that holds back private investments in poor rural areas, as discussed earlier.

This success, however, was achieved despite inherent weaknesses of active state intervention, and was only possible with the dramatic productivity increases afforded by the green revolution technologies which the market interventions supported. Thus large investments in state intervention did not succeed in kick starting cereal and input markets if effective prior investment had not developed more productive new technologies and the infrastructure needed to support both the new technology and the new markets - this seems to have been the case in many African countries. In such circumstances state intervention was a large and unproductive fiscal burden leading to severe macro-economic distortions adversely affecting the whole economy.

Furthermore, in countries where these policies were successful, the need for them was relatively short lived: once ‘thick’ cereal and input markets and confidence in these markets had been established there was little need for government intervention to support private sector development – indeed continuing government intervention depressed further private sector development as parastatals and other market interventions tended to become inefficient and ineffective. Their very success led to large fiscal costs in price support, and they then became an impediment rather than a stimulus to further growth. Nevertheless the political economy of the benefits these interventions offer to politicians, bureaucrats and other interest groups makes them difficult to reform, and the success of liberalization reforms is sensitive to way they are implemented. Successful reforms have therefore carefully nurtured both private sector development and wider political support (China, Vietnam and Bangladesh having achieved this in different ways) while other countries have found it more difficult to manage the policy transition in a way that (a) balances the conflicting short term interests of farmers, poor consumers and the wider economy and (b) cuts back state interventions without undermining the achievements of such interventions in the past in providing a foundation for private sector incentives, opportunities and investment.

This discussion of state and parastatal systems has focussed largely on markets involved in cereal supply chains. State intervention in domestic fruit and vegetable markets and in roots and tubers markets has been much more limited. However central, state or local governments frequently provide urban wholesale and retail market facilities for these products, and regulate and tax activities in these markets. As discussed earlier, these facilities are often of poor standard and crowded, and the regulations, intended to serve consumer and producer interests as well as raise revenues, often impede competition and market systems innovation (for example Seidler, 2001; World Bank, 2006b).
Direct intervention has been more common in markets and production systems for livestock and livestock products, as a result of concerns about hygiene and health issues and of recognition of potential benefits from economies of scale in processing (as discussed earlier under large scale commercial systems). Large distortions in world markets for meat and dairy as a result of subsidies in Europe and North America also encourage domestic protection. As with cereals, a wide variety of forms of intervention have been implemented, ranging from (often ineffective) health and hygiene regulations, through movement restrictions (often imposed for disease control purposes) to price controls and the establishment of parastatals buying from private traders, competing with private traders, displacing private traders through monopsony regulations, and/or engaging in production.

Pica-Ciamarra, 2005 applies to livestock the same framework as Dorward, A.R. et al., 2004b apply to cereals, arguing that governments need to ‘establish the basics’ and then ‘kick start markets’ to get smallholder livestock production for markets going. Critical difficulties here are in coordinating investments in veterinary health services delivery with production and output market development. Sustained success stories are limited, ‘Operation Flood’ in India being a notable exception. Here the National Dairy Development Board has worked with state governments to support cooperatives serving small farmers often with one or two cows. This has supported dramatic increases in smallholder dairy production in India (a ‘white revolution’) through a combination of policies restricting both private sector engagement in milk processing and imports, and favouring cooperatives through investments in improved processing facility and subsidised support for cooperatives service delivery to smallholders (Sharma and Gulati, 2003). As with successful interventions for green revolutions, the challenge facing India after the white revolution has been to open up the dairy sector to private sector and international competition while removing bureaucratic and other impediments that inhibit cooperatives and smallholders competitiveness (Sharma and Gulati, 2003).

**Innovative systems**

Discussion of the three types of marketing system shows that farmers, traders, large scale commercial firms and government agencies all face substantial difficulties in accessing information and in working together in low cost and low risk marketing systems linking smallholder farmers and consumers. These difficulties arise from underlying and related problems of poor communications and transport, lack of standards, small transactions, weak institutions, and limited access to finance, and are a major constraint to agricultural development that benefits producers and consumers and drives or facilitates wider economic growth. In this section of the paper we describe a number of emerging institutional innovations which attempt to address these problems, directly or indirectly. We focus on innovations in marketing system structures and relationships rather than on policies to promote better market performance, as reform of state systems has been discussed above and the role of the state is discussed in the final section of the paper, together with policies supporting market development. Similarly three common but not universal institutions were discussed earlier under trader systems: trader associations, brokers, and periodic markets. These will not be discussed further here, but it should be noted that their introduction or strengthening may be able to improve marketing systems where these arrangements are currently weak or absent.

**Farmer Organizations:** Recent years have seen a widespread resurgent interest in farmer groups or producer organizations as mechanisms for supporting agricultural development (for example World Bank, 2002; Bingen et al., 2003; Peacock et al., 2004; Collion and Rondot, 2001). These organizations, which include producer cooperatives, have a long standing and mixed history, having been very successful in many developed countries in the past, but largely (though not universally) failed in the era of state led policies in developing countries: this experience urges caution in relying on farmer organizations for too much.

A difficulty in discussing farmer organizations, and it is also a difficulty in their management, arises from the large number of different potential stakeholders with interests in farmer organizations (for example different government agencies, farmers, traders, NGOs, politicians, and employees), and the wide range of different services and benefits that farmer organizations may offer, or appear to offer, to these stakeholders. We focus here on the role of farmer organizations

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13 Regulations promoting animal health and hygiene in domestic markets are sometimes driven by the need for the whole livestock sector to comply with regulations needed to access export markets.
in marketing systems, but recognize that farmer organizations may also be foci for technical extension (as in farmer field schools) and for government and non-government organizations wishing to use them as cost effective channels for delivering a wide variety of services to (poor) rural people. A large literature warns that FOs are undermined by attempts to encourage them to scale up too rapidly or to take on too many or over-ambitious activities. They can also be undermined by subsidies, by a failure to focus on core commercial activities offering clear benefits to members, and by donor and government support and interference that interacts with them more as development agents than as private businesses (Stringfellow R et al., 1997; Collion and Rondot, 2001; Lele, 1981; Hussein, 2001; Kindness and Gordon, 2001; Hussi and Murphy, 1993; Chirwa et al., 2005).

The principle marketing benefit that farmer organizations offer to farmers is the bulking up of the individual input purchases and produce sales so that they are able to engage in markets with much larger transactions. Since small transactions are a major source of increased costs for both farmers and traders in smallholder agriculture, the bulking up offered by farmer organizations is often a fundamental pre-requisite of other marketing system innovations discussed below. Bulk transactions then offer the possibility of lower transport costs, more reliable relationships with larger traders, and sometimes better prices and access to financial services.

These benefits are not, however, achieved without substantial challenges. Organizational challenges arise in managing ‘collective action’ where members need to act together despite there being situations where their short term individual interests may be better served by ‘breaking ranks’ and taking advantage of opportunities available to them as individuals but detrimental to the farmer organization as a whole. Furthermore, the process of bulking farmers’ purchases or sales involve substantial cost and commitment, and these are borne by farmers and by the farmer organization. Organizational and financial management skills are also needed, but these tend to be in short supply in poor rural areas. Governance systems are also a challenge, needing to both allow farmer organizations to benefit from individual skills of capable leaders and protect them from fraud or diversion of resources to serve elites or other interest groups. Contextual challenges arise because most smallholder farmer organizations are located in rural areas with poor transport and communications, thin markets, and weak institutions (as discussed earlier) and their members have limited and often poor quality resources, and are subject to a wide range of personal, market and production risks. Paradoxically the challenges facing farmer organizations are greatest in the situations where they are most needed.

Successful establishment of farmer organizations promoting market access therefore needs to address these challenges and will generally only work in situations where there are significant technical and market opportunities for farmers to engage in moderately high return enterprises. In agriculture based economies these opportunities are more commonly found in producing export crops. Some farmer organizations with better communications or with particular agro-ecological advantages may be able to focus on livestock, fruit or vegetable production for urban markets. There may also be opportunities for marketing of relatively low intensity production of roots and tubers. A focus on intensive cereals production will, however, rarely be profitable unless this is either a subsidiary activity to production and marketing of a more remunerative cash crop, is associated with irrigation system management, or is focus of specific external support.

Support for the development of farmer organizations has to be strongly focussed on developing both technical and organizational capabilities but has to tread a very careful path in providing enough support for the farmer organization to grow and thrive without promoting dependency. It must also not encourage farmer organizations to take on too much: it is generally best for them to work with rather than compete with private sector organizations in actually providing marketing and other services to farmers. An important question in supporting farmer organizations concerns the time period over which they should be provided with external support. It is generally expected that they should over time become financially self sustaining and independent. It may be important, however, to recognise the social benefits that poor rural economies gain from their activities, and the difficult environments which they face in these poor rural economies. There may then be a case for some continued subsidies to farmer organizations not only while they develop, but also while the economies in which they are located develop. There are dangers in this, and such subsidies would need to be carefully designed and implemented to reduce rent seeking and dependency and to promote wider social benefits from farmer organization activities without undermining their commercial development.
NASFAM is a national farmer membership organization that supports the formation and operation of farm clubs to improve members’ access to profitable farming opportunities. Formed in 1997 by 14 Farmer Associations that emerged from the USAID supported Smallholder Agribusiness Development Programme, by 2004 it had established 20 more new associations to include over 100,000 members in more than 5,000 clubs, representing nearly 5% of farming households in Malawi. Local clubs with 10 to 20 members are organised into associations under the national umbrella of NASFAM. NASFAM owns NASDEC, a not-for-profit holding company with two subsidiaries, NASCOMEX and NASCENT which respectively provide commercial and development support services to associations, clubs and members. With increasing diversification into a other crops after an initial focus on tobacco, NASFAM clubs and associations (with NASCENT) provide business support in technical and business training, organizational development systems, and links to input, credit and output marketing service providers – which include NASCOMEX providing transport, input purchase, and produce marketing services to associations.

Critical elements of NASFAM’s success include focussing on motivated farmers and good business opportunities; professional services with market and client research when starting new activities; concentrating on developing linkages with service providers rather than trying to provide too many services itself (with a ‘Partners Fund’ for business development grants to potential partners); and a core focus in its own services on developing market linkages, technical support, capacity building (literacy and management training) and governance (with standard membership rules and structures and financial management and auditing services). Club, association and NASFAM constitutions are carefully crafted to provide overall membership control with considerable independence to professional managers and commercially experienced leaders. NASDEC is governed by a board with eight members elected by NASFAM associations, and four appointed for technical or commercial ability. NASCOMEX and NASCENT have advisory councils of stakeholders with technical and commercial expertise. Different services are provided from different levels to match the needs for local specificity and wider economies of scale, while the club, association and national constitutions explicitly prohibit office bearers from holding any political office. The establishment of NASCENT, NASCOMEX and NASDEC allows NASFAM to develop commercial and development services under separate specialist technical and financial management but with private sector discipline. This structure also provides some protection from the bureaucratic interference that cooperative structure are potentially prone to.

Critical elements in NASFAM’s success lie in the way it addresses many of the organizational and contextual challenges facing farmer organisations, although its model does not work directly with food crops nor directly serve the interests of the poorest and marginal sections of the rural population.

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<tr>
<th>Challenges to FOs</th>
<th>NASFAM strategy</th>
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<td>Divergent equity, client, &amp; leader interests</td>
<td>Strong business service focus &amp; motivation for members &amp; FOs</td>
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<td>Strong donor &amp; professional emphasis on business culture</td>
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<td>Strong structures to separate FOs from business service operations</td>
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<td>Collective action</td>
<td>Promotion of strong business culture</td>
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<td>Focus on business services to individual members</td>
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<td>Need for strong leadership to be effective but not too powerful</td>
<td>Strong leadership from professional staff, trustees &amp; donor</td>
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<td>FO leadership encouraged within clear rules</td>
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<td>Strong capacity building in business &amp; governance skills &amp; culture</td>
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<td></td>
<td>Strong accountability of leaders to members for effective services</td>
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<td>Poor business environment</td>
<td>Careful selection of areas &amp; crops/ businesses with good potential</td>
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<tr>
<td>Lack of business services</td>
<td>Close relations with range of service partners &amp; direct provision of limited but well supported critical services by separately managed commercial service</td>
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<td>Poor infrastructure</td>
<td>Donor subsidy to FO &amp; professional capacity development &amp; to supporting services separate from FOs</td>
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<td>Rapid change</td>
<td>Flexible &amp; imaginative management &amp; structures (eg NASCOMEX)</td>
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<td>Staged approach to expand scale &amp; range of services</td>
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<td>Political interference</td>
<td>Clear &amp; enforced rules separating politics from FO leadership</td>
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<td>Government interference</td>
<td>Management strongly independent from government but close field level cooperation with government services</td>
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NASFAM has benefited from long term, committed donor support involving financial, technical and policy assistance. This has steadily evolved, with the withdrawal of technical assistance and declining financial support. Challenges to NASFAM include the difficult conditions for farming and business in Malawi, the need for further diversification, and pressure to both reduce its reliance on financial support from donors and to expand the scale and scope of its commercial and development activities. Another challenge
relates to difficulties in supporting members’ access to financial services outside the concentrated marketing system in the tobacco sector.

Source: Chirwa et al., 2005

This discussion has focused on primary or grassroots organizations: there are also in some circumstances roles for secondary organizations linking primary organizations. These may represent their primary organizations, facilitate their coordinated access to specific services, or provide support to primary organization development. As with trader associations, unless producer organizations have a very strong hold on a particular sub-sector they do not generally play a very major role in advocacy, as benefits of such activity may be diffuse and not restricted to members.

Marketing Information Systems: Market information systems (MIS) attempt to address the widely recognised problems faced by farmers and traders in obtaining both medium/long term information (to guide farmers’ production and traders’ investment decisions) and shorter term information (to guide marketing decisions about when and where to buy or sell on what terms). MIS’ potential both to increase market efficiency and to strengthen the bargaining position and/or competitiveness of smaller players (producers against traders, small traders against large) is widely accepted. However, the experience of public investment in MISs has often been disappointing (Shepherd, 1997), with information often disseminated too slowly, in the wrong form or too infrequently to be of real use to producers, let alone traders, and governments failing to sustain systems originally established with donor funding. However a number of innovative approaches are being piloted in different parts of the world. These build on advances in communications technology and liberalization of telecommunications and broadcasting - especially local FM radio, mobile phones, internet and satellites – to speed up information dissemination and to link information provision and access to other marketing services and new markets. In India the Ministry of Agriculture operates an ‘AgMark Net’ programme which collects price information from regulated markets and disseminates through the internet (World Bank, 2006b) and there are very large numbers of rural PC-kiosks (Toyama et al., 2004) estimated in 2004 that there were about 150 rural PC-kiosks projects in India each with ‘thousands’ of existing or planned kiosks) with many of them offering agricultural marketing information (ITC’s e-Choupal programme is described in box 2).

A variety of market information systems have been developed in Africa recently using a mixture of internet, SMS, voicemail, radio and market chalkboards for disseminating information (for example in Kenya, Malawi, Mozambique and Senegal, and they are spreading rapidly to other countries14), and local FM radio has been successfully used in market information systems in Uganda and Mali (Kleih et al., 2004; Temu and Msuya, 2004; Myers, Mary et al., 2005). There is anecdotal information on the impacts of these systems on farmer prices, for example Mukhebi, 2004; Mukhebi, 2005 reports increased prices by farmers using KACE and reduced spatial and inter-temporal price variation in Kenya, and Myers, Mary et al., 2005 report that Mozambiquan farmers who use price information from radio get higher prices for their produce, but it is difficult to establish causality. It is also too early to judge the long term viability of different commercial models, and their impacts on different types of farmer, and necessary conditions for their success. Nevertheless anecdotal evidence, experience to date, farmer interest (with rising usage of SMS) and the willingness of mobile phone companies to invest in these systems, albeit often supported by donor initial funding, suggest that these approaches have potential and warrant continued investment and investigation. Features of many of the more recent innovations are (a) a strong focus on making up to date information easily accessible to users on a range of topics and (b) the provision of market information in the context of and linked with other services (for example links to new markets opportunities), with potential benefits for both users and suppliers of the system.

14 These are being implemented by the Kenyan and Malawi Agricultural Commodity Exchanges, the Mozambique Agricultural Marketing Service (SIMA) and by Manobi, which is expanding its currently expanding these activities to Mali, Burkina Faso, Uganda, Ghana, Zambia and Tanzania (see http://www.manobi.sn/sites/?M=6&SM=20&IDPresse=22),
Box 2 Rural kiosks: The e-Choupal Initiative

The agribusiness group of Indian Tobacco Co. (ITC) established 6,400 internet installations, termed e-Choupals, in 9 Indian states between 2000 and 2006, and claims to reach 36,000 villages and 3.5 million farmers. By 2015 it aims to install a further 20,000 e-Choupals to give a total network coverage of over 100,000 villages, representing 1/6th of rural India, and covering more than 10 million e-farmers in 15 states. Under the initiative ITC establishes an internet facility in a village and appoints and trains an operator (Sanchalak) from among the farmers in the village. The Sanchalak then operates the computer on behalf of farmers, allowing them to access information on local and global prices, weather, farming practices, to buy a range of consumer and agricultural goods and services (sourced from other companies), and to sell wheat, soya, coffee or shrimps to ITC. Sales to ITC are handled by the Sanchalak, acting as a commission agent to receive and pay for produce in the village and manage its delivery to ITC. As compared with the traditional wholesale marketing system, this marketing channel cuts marketing costs for both farmers and ITC, improves transparency, and allows better grading of produce, and hence better prices and also puts competitive pressure on traditional markets - Goyal, 2006 reports that e-choupals in Madra Padresh have increased soy bean prices in general agricultural markets in the same districts by 5 to 10%.

Source: DeMaagd and Moore, 2006; Manohar, 2005: Kumar Das and Dutta, 2004: http://www.itcportal.com/ruraldevp_philosophy/echoupal.htm

Contract farming: Contract farming involves arrangements whereby commercial firms provide farmers with some form of service supporting production in return for rights to buy some or all of the product. The range of services provided to farmers varies widely, as does the terms of the produce purchase contract (in terms of stipulated prices and quantities). Arrangements may also be bi-partite (with one company providing all services) or involve relations between multiple service providers coordinating delivery of input, finance, extension and output marketing services to farmers. ‘Contract farming’ commonly refers to contractual arrangements between agribusiness firms or parastatals on the one hand and farmers on the other for the production and marketing of higher value crops or livestock for domestic or export markets. However state or private arrangements for ‘interlocking transactions’, another term for contract farming where seasonal inputs were supplied on credit by crop buyers in return for produce purchase rights, were found in the past in many of the green revolutions supported by state led agricultural development policies (Dorward, A.R. et al., 2004b), some of these operating effectively and others with very high credit default rates

Incentives for agribusiness investment in contract farming with smallholder farmers usually arise from some combination of the following (Dorward, A.R. et al., 1998; Poulton et al., 2005): (a) product processing and marketing offering significant returns to relatively large investments in plant or market systems with limited alternative profitable use and requiring assured quality, timing and quantity of supply of farm produce, (b) limited opportunities to source farm produce from independent or vertically integrated larger farms either because they do not exist (for example because of land scarcity and smallholder land tenure systems) or because larger farms have more profitable production alternatives, (c) limited opportunities to source farm produce from existing smallholder markets, (d) more labour intensive products (giving small family operated farms a competitive advantage). Successful contract farming also commonly requires a) products with lower credence characteristics (that is where quality can be determined from product inspection without, for example, quality or food safety monitoring processes during production), (b) small farmer motivations for participation that extend beyond short term direct profits from participation, (c) some form of horizontal farmer coordination (involving relatively independent farmer organizations or contract farming mechanisms), and (d) significant investments by produce buyers in facilities and institutional mechanisms (and learning) for farmer monitoring and support (Poulton et al., 2005).

Reviews and studies of contract farming suggest that contract farming arrangements do allow small farmers to achieve higher yields, diversify into new crops, and to increase incomes, and that these can deliver wider benefits through, for example, stimulation of demand for hired labour (see for example Stringfellow R et al., 1997; Kirsten and Sartorius, 2002; Singh, 2002; Singh, 2005; World Bank, 2006b). Some studies report that contract farming schemes tend to exclude smallholder farmers, that farmers may bear a disproportionate share of risks, and that (with unequal relations between
more powerful monopsonistic service providers and farmers) the terms for farmers may decline over time in the process of ‘agribusiness normalization’ (whereby increasing volumes of supply decrease buyers’ incentives to keep encouraging production from contracting farmers). Monopsonistic power is often needed, however, to maintain incentives for company investment and to combat side selling and strategic default by farmers (whereby farmers take loans and escape repayment by defaulting on their commitment to sell produce under the contract). However other studies (for example Birthal et al., 2005) report contract farming arrangements where companies share risks with smallholder farmers who also gain from sustained reductions in transaction costs and from improved prices and profits.

The wide variety in contract farming arrangements and systems and their varied success in benefiting smallholder farmers and agribusiness firms demonstrate that these arrangements are complex and that their performance and potential benefits are highly sensitive to specific features of the products, firms, communities and contractual arrangements involved. There must, however, be clear benefits to all parties in adhering to their contractual commitments. Sometimes this may require that agribusiness firms have recourse to monopsonistic power to contain side selling by farmers, but this must be balanced by countervailing mechanisms for protecting the interests of contracting farmers. This requires more nuanced approaches than general calls for reduced barriers to entry and greater competition in agri-business and market development, needing instead a continued search for alternative ways of aligning farmers’ and companies’ incentives and of reducing transaction costs and risks in service provision (Poulton et al., 2005). Possible ways forward here include some form of profit sharing or equity participation for farmers in contracting companies (Knight et al., 2003 Singh, 2005), competitive coordination among service providers (Poulton et al., 2004, Stockbridge et al., 1998), involvement of farmer organizations in representing and organizing farmers in their relations with contracting companies, increasing exit costs for both farmers and contracting companies (for example through investment in mutually specific assets) (Gow et al., 2000; Kirsten and Sartorius, 2002) and, more generally, the promotion of greater trust and transparency in farmer-company relations. Particular difficulties are generally faced in contract farming and interlocking arrangements involving seasonal credit for products which are commonly produced and traded in the locality, as prevention of side selling is difficult, requiring some combination of strong profit and other benefits to farmers from adhering to the contract and strong institutional arrangements across the community for enforcing credit repayment or punishing default (Dorward, A.R. et al., 1998).

Commodity exchanges are ‘…organized market places where trade, with or without the physical commodities, is funneled through a single mechanism ….with a mechanism for price discovery to occur in an organized manner, through a system of price bidding and through a set of rules governing the products brought to the market, the market actors, and the contracts between buyers and sellers’ (Gabre-Madhin, Eleni Z. and Goggin, 2005 p6). Commodity exchanges enhance the efficiency of impersonal, long-distance trade by providing market information and by offering fast and low cost mechanisms for price discovery, trading and resolution of contractual disputes. The existence of physical exchanges is also a prior step to the development of more sophisticated trading contracts, such as futures and options. Commodity exchanges dealing with agricultural commodities have a varied history in developing countries. A number of larger urbanized and transforming economies have commodity exchanges, many of them dealing specifically with agricultural commodities, and set up in the 1990s (http://www.unctad.org/infocomm/exchanges/ex_overview.htm). India has a long history of agricultural commodity exchanges but these were repressed by government restrictions until the 1990s and they dealt more with bulk commodity exports and high value products than with products for domestic agricultural markets addressed in this paper (Sahadevan, 2005). There is considerable potential for the revitalization of these exchanges, but unless these are pursued by changes in regulations and systems both by the government and by the exchanges themselves then existing exchanges are likely to be superseded by new local and international trading systems (Rutten, 2000) There are only a few emergent agricultural commodity exchanges in agricultural based economies in Africa (discussed below).

Large-scale players (both sellers and buyers) are normally needed for the establishment of commodity exchanges, to provide a consistent and critical mass of trading activity in terms of numbers and sizes of lots. Their development is also undermined by government intervention unless this is consistent, transparent, and does not impede trade. Even without directly participating in commodity exchanges, smallholders can benefit from the existence of commodity exchanges as they promote wider market transparency and stability through interactions between larger traders, and this is particularly the case with exchanges offering futures and hedging contracts. The SAFEX commodity exchange in South Africa, for example, offers futures contracts on maize, allowing the possibility of governments and traders in neighbouring countries...
hedging grain price risk (Dana et al., 2006). The benefits of this diminish, however, if the markets in which smallholders operate are separated from the commodity exchange by high transport or transaction costs.

There are interesting developments with commodity exchanges directly serving smallholder farmers in other African countries. Prior to its closure in 2001, ZIMACE, established in Zimbabwe in 1994, was building up the smallholder farmers’ proportion of volumes traded on its floor, overcoming transport and minimum lot size constraints on smallholder farmer participation by promoting the participation of farmer groups and links between smallholder farmers and larger commercial farms (McGrath, 2005). Experience from Western Kenyan also shows that well-organised smallholder farmers, as well as traders, can benefit from commodity exchanges (Woomer and Mukhwana, 2004). The Kenyan Agricultural Commodity Exchange, established in 1998, has gone further with explicit attempts to overcome problems of remoteness of farmers from its central trading floor in Nairobi by reaching out to smallholder farmers and traders in farming areas, through the establishment of Market Information Points (MIPs) in rural markets. These are key elements in the MIS described earlier, as MIP staff collect information to feed into the system and also post price information from different markets on chalk boards. These boards also serve as a trading floor for displaying offers to sell and bids to buy commodities. Sellers are encouraged to place offers and buyers to place bids with KACE staff linking sellers and buyers in an open outcry system (Mukhebi, 2004). A similar system is being established in Malawi (the Malawi Agricultural Commodity Exchange, MACE), also with the support of the Rockefeller Foundation. These systems are still being developed and expanded, and face substantial difficulties from lack of standardised grades, weights and measures and quality premia; from small lots; from limited and weak farmer organizations; from the lack of warehouses, warehouses receipt and inventory systems (discussed below); from weak institutions for dispute and conflict resolution; and from continued government intervention in grain markets (Mukhebi, 2004). 15 The financial sustainability of these outreach activities by KACE still needs to be established, and will depend upon the extent to which the problems listed above can be overcome, the scale of roll out and uptake, and the terms of commercial arrangements with service providers such as mobile phone companies.

Warehouse receipt systems (WRS): Warehouse receipts are “documents issued by warehouse operators as evidence that specified commodities (of stated quantity and quality) have been deposited at particular locations by named depositors. (Coulter and Onumah, 2002 p323). The depositor may be a producer, farmer group, trader, or other individual or corporate body, and the warehouse receipt represents ownership of the stored commodity until it is sold out of the warehouse. A variety of warehouse receipt systems (WRS) build on this base, as the warehouse operator or third parties can extend credit to depositors (in inventory credit systems) or warehouse receipts may be traded.16

The major benefit from warehouse receipt systems is the way that they provide liquidity to farmers and traders, by allowing them to access credit or sell a better priced forward contract rather than sell produce when prices are low but they need cash (for example farmers often need to sell crops immediately after harvest, when prices are low, and small cash constrained traders need to turn produce over quickly in small lots). Since shortages of liquidity are a major constraint in the marketing systems discussed in this paper, this is a very significant contribution of warehouse receipt systems, and it is possible because produce secured in the warehouse effectively becomes collateral for lending. Furthermore, an established system reduces transaction costs in commercial lending because management and screening of this collateral is concentrated around a relatively small number of formal warehouse operators. By reducing the pressure on farmers and small traders to sell quickly when prices are low, warehouse receipt systems also allow them to realize better prices for

15 Mukhebi also notes that while these difficulties pose severe constraints on KACE activities, KACE activities also provide demand for and incentives to address difficulties.

16 Other systems closely related to warehouse receipt systems are repurchase agreements (where financiers actually buy the stored commodity against a contract to sell it back to the original seller later at an agreed time and price) and factoring where a producer obtains some form of advance payment from a financier in return for assigning to the financier the payments due from a sales contract (see World Bank, 2006a). The advanced funds are then recovered by the financier from the buyer in the contract. The systems reduce risks for financiers if they face lower risks of recovery from buyers than sellers. Reverse factoring uses these principles, but here the financier deals directly only with large, previously accredited firms, further reducing risks. Factoring and reverse factoring systems have been used mainly in supporting small and medium enterprises supplying large foreign buyers, and there are considerable challenges in its application to the marketing systems addressed in this paper.
their products. Other benefits from the implementation of these systems may include improved storage and grading of produce, with lower post harvest losses and better produce grading and trading standards (by promoting greater use of formal warehouse storage), a general thickening of rural financial markets and opportunities for farmers and traders to build up a formal record of good performance in these systems, and reduced intra-seasonal variation in prices (a wider benefit to producers and consumers even though they may not be directly engaged with warehouse receipt systems themselves). Warehouse receipt systems can also complement and promote the development of commodity exchanges.

There are, of course, difficulties with warehouse receipt systems, which have limited their spread and the benefits obtained from them, and thus their potential benefits should not be overstated. Like agricultural commodity exchanges, warehouse receipt systems offer significant potential for improving agricultural marketing systems in developing countries, with potential for both direct and indirect benefits to participating and non-participating smallholder producers. However they also make similar demands on market and other institutions, demands which are not always easily met, particularly in domestic markets involving smallholder producers. There are examples of their implementation in such markets (for example in Ghana and Zambia), but these are limited in number, scale and longevity, so there is much to play for in further developing and testing these systems to serve domestic markets involving smallholder producers.

As with commodity exchanges, major systemic problems inhibiting development of warehouse receipt systems include lack of supportive policies and legal frameworks, and in particular actual or potential ad hoc government interventions in agricultural markets, weak institutions governing the arrangements and undermining conflict resolution and investor confidence (in this case regulatory oversight of warehouse management). There are also specific difficulties facing smallholder farmers and small scale traders with regard to costs of accessing warehouse receipt systems, as they may operate at some distance from certified warehouses, they have problems bulking up stored quantities to fulfill minimum lot sizes needed to reduce storage and management costs and fees, and there are substantial costs and difficulties in organizing and managing producer and trader organizations needed to reduce these problems. As with commodity exchanges, these difficulties may be reduced where a financially viable system can be developed for large scale farmers and traders, exploiting economies of scale for large volumes, and then special mechanisms developed to enable smallholder farmers to use the system (this may need some form of financial or organizational subsidy). It is also important to note that inventory credit and other warehouse receipt systems do not directly address smallholder farmers’ critical problem of financing seasonal capital (beyond their potential to increase income from previous season sales) as these systems only allow farmers to raise credit using existing production as collateral, they do not provide a mechanism for obtaining credit to finance production (unless production seasons overlap). Finally, there is a critical problem of who is able and willing to bear the risks inherent in warehouse receipt systems. Gabre-Madhin, Eleni Z., 2005 notes that warehouse receipt systems bear risks as prices may fall during the storage period, or may not rise as much as expected, so that gains in value do not cover administration and storage costs and losses. Furthermore, price gains may themselves be reduced by widespread adoption of warehouse receipt systems. Risk prone and risk averse small farmers should not be expected to take on the risks of holding inventory, and systems therefore need to be developed for small and/or larger traders to have incentives to bear these risks. These risks will, however, be particularly high in poorly developed market systems (the focus of her discussion is Ethiopian grain markets) where such market innovations are most needed, leading to a ‘chicken and egg’ problem affecting wider market system development.

*Participatory supply chain development:* We conclude our discussion of institutional innovations for market system development by considering a broad group of approaches which focus on working with farmers and commercial firms to develop new supply chains. A wide range of approaches and actors have been involved in such initiatives, and we draw here on a useful review of these by Best et al., 2005. These approaches aim to increase smallholder farmers’ competitiveness through economies of scale and value addition, from their working with each other and with others to improve and diversify production, handling, processing, and marketing of crops or livestock activities with an identified demand. This however needs new marketing, production, business and organizational skills, new or strengthened relations and links among market chain actors, improved access to flows of information and technologies and financial services, and (frequently) advocacy for policy change to provide a more enabling environment. Such development in turn needs new partnerships between farmers and other stakeholders, mentoring of farmer groups, better farmer access to public and private services, and an enabling policy environment.
An example of a formal systemization of these approaches is the ‘Territorial Approach to Business Development’ developed by CIAT (Centro Internacionale de Agricultura Tropical). This has five main iterative activities: partnership development, market opportunity identification and selection, market chain analysis and competitiveness strategy, implementation of options, and business development services. These are located within and inform broader advocacy for policy changes. Initial partnership development involves the establishment of partnerships between farmers and external and local interest groups to work together in supply chain development. Their first task is to identify and select promising potential market opportunities which match local assets and skills. Market chain analysis and development of a competitiveness strategy uses both formal and participatory methods to develop understanding of selected market chains, working at three levels (the market chain itself, the business and extension services, and the factors in the enabling environment that affect the performance of the subsector). Participatory methods are important for development of understanding, ownership and trust among different players in the market chain, and market mapping can be a particularly useful tool in this (Hellin et al., 2005). Particular separate roles are identified for a ‘chain champion’ (normally a commercial firm which identifies and will work on opportunities to expand reliable commercial supplies of a high value product) and a ‘market facilitator’ (who facilitates the development of a relationship between potential smallholder suppliers and the chain champion).

**Price risk management**

Potential problems posed by price instability for cereal producers have been raised in earlier sections of this paper, when discussing constraints to farmer and trader investment. Price instability also poses risks to traders, and cereal price hikes are very damaging to poor consumers who spend a large part of their incomes on staple food purchases. In this section of the paper we examine this issue in more detail, considering the extent of the problem, its effects, and alternative policies for addressing it.

We begin by noting empirical findings on the extent of cereal price instability. A review by Byerlee et al., 2006 find that world price variability for staples is substantial, with a coefficient of variation of 20-30% around the trend for rice, wheat and white maize, but there is no evidence that this has worsened in the last two decades. Generally domestic prices for staples have been more stable than world markets, but domestic price instability (and incidence of severe food price shocks) is highest in landlocked Africa. While it is reassuring that world price instability has not increased, Byerlee and others note that there is concern that price instability could increase in near future due to stock reductions in major producers plus explosive growth of demand from China. Intra-seasonal price variation is another important aspect of price instability.

Discussion of price instability also needs to be set in the context of past policies addressing this issue. Historically, as discussed earlier, developing country governments have tended to intervene in the pricing of a range of agricultural produce, ranging from staple foods to cash crops with a variety of sometimes contradictory motives, and it has often been difficult to separate those looking to prevent short term price variation (with price hikes damaging poor consumers and price falls damaging poor farmers) from those looking to prevent long term high prices (undermining the welfare of poor consumers) or to raise prices to provide an incentive for poor farmers to sell surpluses on the market (bearing in mind that many of the rural poor grow staple foods, so sales of staple food surpluses can be a first step into the market). State agricultural trading could also raise revenues for government, as can border taxes on imports and exports.

While the literature on state involvement in cash crop trading and price setting is almost universally negative and there is a generally positive evaluation of the arguments for state withdrawal 17, the literature of government involvement in staple foods provides more mixed conclusions. The balance of academic opinion is hostile to state involvement in price setting and trading and strongly advocates early steps towards liberalization, even in very poor countries. There is, however, a

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17 An exception must be noted for the challenges of grades and standards, where is recognised that state agencies have the scope and power to impose effective standards, while private agents can struggle with the coordination challenges of imposing credible national standards within dispersed smallholder systems.
minority literature which holds more nuanced views, arguing for a “stages of development” perspective which recognises that structural conditions in some countries imply that there is a need for an active state role in setting staple crops prices, requiring private trading to operate within a framework which is managed by the state. These structural conditions include circumstances where the rural population is a substantial proportion of the total, is very poor, and is largely engaged in smallholder agriculture with rife under-nutrition, weak institutions, transport and marketing systems and large production and price risks. As discussed earlier in this paper, these conditions can lock farmers and traders into a low level equilibrium trap. The arguments of the minority literature are bolstered by an uneven record in the record of liberalization of food systems on poorer countries in promoting staple food production, as discussed earlier. The question remains if this poor performance is simply evidence of poor policy implementation, excessively influenced by entrenched vested interests and a failure by policy makers to comprehend the potential of a market-oriented food system or on the other hand the result of structural features of rural economic organization in poor areas which still require state intervention in pricing and marketing to promote growth.

**Arguments against price stabilization intervention**

The case against state involvement in staple foods pricing includes the following arguments: the classic Newberry and Stiglitz, 1981 finding that the economic efficiency costs of food price fluctuations are small (although there may be significant distributional effects); failure to realise the benefits of competition in rewarding efficient operations; insensitivity to consumers’ needs and smothering the incentives to search for cost reducing technical and institutional innovation; inability of government to set efficient prices due to inadequate information, slow reactions and self-interested pressures from vested interests.

There is a strong theoretical and empirical literature arguing that government outlays on research, education and infrastructure are “enabling” both by lowering costs through more effective use of existing technology and also by increasing capabilities for technological, organizational and institutional innovation. In contrast, outlays on price interventions by government are seen as “money lost” which at best create transitory welfare gains at the cost of generating distortions which misallocate resources through inappropriate price signals. Additionally government intervention inhibits private business activity through mechanisms which include increased price uncertainty, subsidised state-owned competition and outright bans on market entry. Another line of fiscal argument is that the costs to government of intervention are very difficult to predict and have a tendency to balloon out of control, undermining macroeconomic stability, raising interest rates and thereby crowding out private sector investment as well as alternative higher return government outlays. Finally, there is a view that even if there was historically a case for price stabilization, this has been outdated by greater international economic integration, facilitated by lower trade barriers, investment and technological progress in transport and handling systems and innovation and deepening in financial and commodities markets.

**Arguments for intervention**

The case for state intervention in markets for staple foods is sympathetic to many of the contrary arguments, and is based on an analysis of the material and institutional conditions in some very poor economies. An early example is Timmer’s finding that Indonesia’s intervention in food markets added significantly to its growth rate (Timmer, 2002). More recently Myers, RobertJ., 2006 is sceptical of the universal applicability of the Newberry and Stiglitz view that the efficiency costs of food price fluctuations are modest, arguing that these can be high when account is taken of the effects on economic growth and household food security and nutrition. Myers starts from premises which continue to be realistic, which are that that rural households in the poorest countries face incomplete credit and risk markets and that the poor comprise not only net staple food consumers but also a substantial numbers of net producers (or at least potential net producers, if they could access more inputs and take somewhat more risks). Thus price interventions which reduce the possibilities of catastrophe for both of these categories of household have large positive effects on welfare and on economic growth.

As Myers and others recognise, this problem could in principle be solved more satisfactorily by the introduction of functioning credit and insurance markets. However high risk aversion due to poverty, high production and price risks, the necessity for relatively long loan maturities, high information costs and weak contract enforcement constitute formidable barriers to the evolution of credit markets to support smallholder producers of staple foods. In the case of risk markets,
while experiments in rainfall insurance for poor producers are to be welcomed, it is not clear that they will be able to overcome quickly the prohibitive transactions costs encountered in retailing insurance cover to smallholders, either through pure market mechanisms or through hybrid market-collective action approaches. It is true that new technologies such as smart cards (for credit) and remote sensing and GPS (for rainfall insurance) hold out promise of cost reducing innovation, but it would be unwise to bank on any particular timetable for their roll-out to smallholder agriculture.

A further consideration in the arguments for price intervention is access to the world markets and also the depth and accessibility of neighbouring regional markets. For some landlocked countries, there can be very large margins between import and export parity prices, implying that under liberalised conditions very large price fluctuations could occur as seasonal production variation causes countries to switch from overall surplus to deficit. Where regional markets are deep and accessible this can be an important stabilising influence (for example the South African commodity exchange plays something of this role in Southern Africa), but there have to be agents within the country with the resources and confidence to contract with the commodity exchange. In the short term, at least, it is likely that these agencies will be public sector and/or donor funded.

The argument that government intervention in the pricing of staple foods may sometimes be necessary to promote pro-poor growth is essentially a “stages of development” argument, and is hedged with important qualifications. Essentially it applies to a subset of economies with large numbers of rural poor engaged in smallholder agriculture and for whom credit and risk markets are hardly available. Even in some economies with these characteristics, price intervention would be infeasible if the major food staples were difficult to store, this ruling out intervention for cassava and plantains, for example. Furthermore, coastal countries in which the majority of the population are accessible from the ports should experience less price fluctuations and therefore might be considered candidates for early liberalization even under high levels of rural poverty. Finally in economies where a high proportion of the poor have little or no stake in the production of staple foods, either because of high urbanization or because the agricultural economy is dominated by larger commercial farms producing specialised crops, policy can be more single minded, focusing on sustainable means of ensuring cheap staple food, which may best achieved by liberal internal and external trade.

**Conclusions**

The majority literature tends to generate conclusions which assume that reforms have become mired in a state of partial implementation often dubbed the “road half travelled” (Kherallah et al., 2000). Typical conditions here are insufficient confidence on behalf of private capital to enter food market operations on the needed scale, and this is attributed to continued unpredictable discretionary intervention by government. From this perspective the central challenge is for government to accept that it must move in stages towards non-intervention in staple food markets and that it can deal with issues such as under-nutrition and weak incentives for food producers by other instruments. Once government non-intervention becomes credible then private businesses will supply the finance and management expertise needed to hold stocks and trade domestically and internationally, thereby stabilising prices. Minimal barriers to international trade and access by private agents to futures markets will be very helpful and governments should devote efforts to international and regional negotiations to reduce trade barriers. Other conclusions from this literature (Byerlee et al., 2006) stress the importance of maintaining effective social protection programmes to directly help the poorest, especially during food price spikes (food for work, school feeding etc). Training is needed at a number of levels: government needs to learn how to make the intervention framework comprehensible, predictable and credible to the private sector while the private sector may need capacity building in storage and training. There should be strong encouragement of market-based instruments for managing risk such as crop insurance and futures markets.

By contrast the policy conclusions of the minority literature start with an examination of the specific conditions of the country and particularly of its poor consumers and producers, including government capacity, governance issues more generally, and recent experience with food system intervention. In some cases it might be concluded that for the reasons discussed earlier a rapidly liberalised food market could undermine welfare and growth. In other cases the opposite conclusion would be drawn, and doubtless some countries would fall into an ambiguous middle ground category. Given generally weak government capacity and ever present worries about rent seeking there is no presumption in favour of intervention.
In this vein, Poulton et al., 2006b propose a number of models for state intervention in staple food markets in southern and eastern Africa. Although Poulton et al focus on what the state should do, they nevertheless envisage a dominant role for private activity in intra-seasonal storage under any of the options they consider, as private intra-seasonal storage can be expected to be lower cost than state storage activity. The emphasis should, therefore, be on setting clear rules of the game for private storage activity, with care taken to minimise crowding out of private storage by state activity. Whilst the majority of Poulton et al’s options are focused principally on problems of “exceptional” years, one (the so-called African BULOG model) does give the state an explicit role in setting limits to intra-seasonal price variation - limits within which it is intended that private storage activity can still take place. These authors also note that another option (which they term the ‘Critical Commodity Chain’ approach) enables the state to go beyond the primary objective of stabilising prices and to use the apparatus created for price stabilization purposes to provide additional, interlocked support to smallholder producers of staple food surpluses to overcome the low level equilibrium trap discussed earlier. This type of support has been conspicuously absent since the advent of market liberalization policies, yet there is strong political support for its re-introduction in many African countries and there are also strong theoretical and historical arguments for its benefits when effectively administered (Dorward, A. et al., 2004a).

Poulton et al concede that there are countries where prevailing standards of governance make successful implementation of any of these options impossible. However, “full liberalization” is not a credible strategy, either, for political reasons. Thus, unless governance standards improve, the food systems of these countries will be stuck between state and market failure, consigned to continuing high food price volatility, and little progress in broad-based growth or poverty reduction will be possible.

**ICT impacts and opportunities**

Recent years have seen a growth of new information and communication technologies in rural areas of developing countries as regards the arrival of new technologies, their spread and their range of uses. The principal use of ICT in supporting agricultural marketing has been in the spread of agricultural market information, as discussed earlier. Innovations in marketing information systems considered then were all dependent on developments in ICT – FM radio, mobile phones and the internet. Most attention, and the greatest opportunities here, lie with the spread of mobile phones and the internet, but FM radio is also important, with both (a) local FM radio stations being able to broadcast, indeed often looking for, locally targeted information and opportunities to develop more interactive programmes and (b) widespread radio ownership in many areas (for example Myers, Mary et al., 2005 report that in 2001 about 25% Africans owned a radio while less than 1% had access to the internet - however 7% of Africans owned a mobile phone with ownership in Africa growing at 35% per year, and access to mobile phone use being considerably greater than ownership due to sharing of phones (Scott et al., 2004).

As reported earlier, therefore, new marketing information systems and associated commodity exchange initiatives make heavy use of formal mobile phone services. Widespread and rapidly growing use of mobile phones also leads to greater opportunities for informal communication between traders and farmers about prices and market opportunities, and this is now common even for small grain traders in India (Sharma and Gulati, 2003). Mobile phones are particularly well suited to shared and intermittent use for specific purposes, as pre-paid cards and billing systems allow owners of phones to charge other users for phone calls, and texting of pre-paid scratch card numbers is used by Ugandan subscribers to make money transfers. (Scott et al., 2004). This suggests that mobile phones have the potential to not only facilitate communication about payments in agricultural transactions, but to actually make electronic payments. Mobile phones and internet systems also can also improve communications and hence coordination within larger trader organizations and among different service providers (input suppliers, extension services, rural financiers and produce buyers) and within farmer organizations.

There are a number of innovative internet based systems offering agricultural market information (for example tradenet.biz extends to a number of countries in Africa and beyond and provides the software for MISTOWA, Market Information Systems for Traders in West Africa (Poole, N. D., 2006) ) but there are frequently access problems for smaller traders and farmers without specific links to mobile phone SMS systems (as described earlier for KACE) or to rural internet kiosks (as described earlier for e-Choupals). Where farmers and small traders cannot directly access these systems they may be
disadvantaged by lack of information, but on the other hand they may also benefit from lower margins and increased transparency and efficiency in the market as a whole – as appears to be the case with e-choupals impact on general soya bean prices (box 2).

Smart cards (with microprocessor chips that can process information or store data) represent another important new technology whose time is coming. Smart cards can act as part of integrated systems with Automatic Teller Machines (ATMs) or Point-of-Sale Devices (POS) devices. The Malswitch card is an example of a card that appears to be taking off, in Malawi, with great potential to improve farmers’ access to inputs, seasonal finance and produce markets (box 3). There have been other examples of these systems being trialled but not found to be cost effective (for example BASIX 2006), and it appears that they are most likely to be effective when implemented on a large scale to achieve economies of scale and scope, linking rural credit, input purchase and produce sales to each other but also serving wider trading systems due to high (but falling) costs of ATMs, other equipment (such as PDAs) and cards (Burritt, 2006).

**Box 3 Malswitch**

Malawi is the first country in the world to use smart card technology in a national system using biometric fingerprint identification. Introduced by the Reserve Bank of Malawi in 2002, the system provides a country-wide settlement of financial transactions between participating individuals or institutions and a central banking system. The system provides solutions for both the banked and un-banked market segments of Malawi and benefits to the retail and business sector, the financial services sector, government and the general public, allowing cashless payments (with reduced handling and security problems), rapid money transfers and, through a powerful computer network and integrating system, links banks, provides a virtual private network (for smaller banks to link branches without setting up their own network) and a Real Time Gross Settlement System allowing clearing banks to settle the obligations to each other in real time, with positive implications on liquidity in the banking system.

Following the introduction of MALSWITCH there has been an increase in ATM investment in the country, but adoption has been slowed by the high costs of these (approximately $50,000 each) and the need for interoperability of shared facilities across banks, and the system has been actively promoting this. Building on early involvement with MALSWITCH, Opportunity International is now piloting a mobile banking system using bullet-proof, all terrain 4-wheel drive vehicles fitted with an ATM. With solar power, a GPS tracking system and satellite technology allowing real-time transactions, vehicles will visit 26 designated market places on market days in five districts on a weekly basis. The technology is being used for use with microcredit initiatives, and payments to smallholder tobacco farmers, with the potential to link these with input delivery systems in an interlocked stop order system. It is also being trialed as the basis for anti-retroviral drug distribution for HIV/AIDS sufferers, and BP has introduced a MALSWITCH fuel card for transport companies to manage cashless fuel purchases, serving over 50 filling stations.

Sources: [http://www.aplitec.co.za/](http://www.aplitec.co.za/); First Merchant Bank, 2005; Malawi Nation, February 2, 2006; Burritt, 2006; [http://www.opportunityinternational.ca/learn/current.html](http://www.opportunityinternational.ca/learn/current.html)
Conclusions

Major findings

In this section we reiterate the major observations about the marketing systems studied in this paper to inform subsequent discussion of their implications for policy. Salient points are:

- The domestic agricultural marketing systems examined here are very important in developing countries – they offer substantial opportunities for domestic agricultural producers to increase their production and incomes, and in all developing economies these potential income increases are substantial when compared with current average agricultural incomes, and in poorer economies (in Sub Saharan Africa and South Asia) they are also substantial when compared with current average total incomes. These marketing systems are also important for consumers, especially poor consumers who spend significant proportions of their incomes on (particularly staple) foods and are isolated by distance and poor transport and market linkages from international grain markets. The domestic market opportunities for the different products considered here (cereals, roots and tubers, livestock products, and fruits and vegetables) differ between regions and countries, depending upon countries ‘stage of development’ and agro-ecological, institutional, infrastructural and cultural characteristics.

- In many, particularly poorer, developing countries these markets do not serve producers or consumers well, with large margins and poor price integration reducing farm gate prices, raising consumer prices, and increasing uncertainty for all. Widespread problems affecting market operations and development which include poor transport and communications infrastructure, weak institutions (for contract enforcement, weights and measures, grades and standards), dysfunctional government intervention in markets, poor information (on prices, supply and demand, grades and standards), and large numbers of small traders who are short of capital and who incur high costs in trading. Fafchamps, 2004 characterises the problems of many markets in Africa as having too much market exchange and not hierarchical exchange within larger firms. Not only do these failings directly reduce the welfare of (particularly poor) producers and consumers, they also undermine incentives to invest in higher return activities both on and off farms.

- Particular difficulties in smallholder production systems in poor rural areas arise from problems with the development of complementary services needed for investment agricultural intensification – for example in input supply, seasonal financial services, produce buying and technical and business extension. Widespread and rapid reduction of these low level equilibrium problems needs investment in systems for coordinated service development. The nature and extent of these problems varies, however, between products with different production, processing, storage and marketing characteristics and between regions and countries with different agri-ecologies, with different locational and other opportunities for linking with global markets, and with different states of economic and institutional development.

- A variety of institutional arrangements have been developed and are emerging in attempts to encourage more efficient market systems which better serve smallholder farmers, including farmer and trader associations, commodity exchanges, market information systems, warehouse receipt systems, brokers, contract farming and physical market development. Documented cases of success are valuable in generally reducing transaction risks and costs in the market and in raising prices and reducing uncertainty to farmers. However many of these innovations are easier to implement in less poor economies and/or for higher value products, or have not been implemented for long enough to demonstrate that they are sustainable in the longer term and can be rolled out on a larger scale. Furthermore few address the problem of complementary service development needed for intensification, the exception, contract farming, not normally being applicable to staple crop production.

- Farmer associations appear to be a core element in almost all innovations, but there are major challenges in their rapid and widespread development. The spread of new ICT services offers important opportunities for marketing information systems, and integrated use of different technologies for different purposes and stakeholders seems to
be a critical component of their success. The most promising technology for addressing the complementary service development problem – the use of smart cards - is very costly and it appears that it needs to be rolled out on a very significant scale outside the agricultural sector if it is to be provide affordable services in poorer agricultural economies – and this of course is very challenging.

- The performance, functions and potential of domestic agricultural produce marketing systems are closely linked with the natural resources on which agriculture is based, with technologies needed for increasing agricultural productivity and with the provision of financial, input supply, technology and transport services and infrastructure. This means that it is difficult to analyze them or formulate marketing policy and investment priorities in isolation from wider agricultural and economic development strategies.

**Policy conclusions**

What policy conclusions can be drawn from this?

Three fundamental points need to be made.

- First, better working of these marketing systems is an important policy goal, with high potential pay-offs and contributions to farm and non-farm economic growth and to poverty reduction, particularly in poorer agricultural economies. Paradoxically, however, the relative gains from exploiting these markets are greatest in those economies where these marketing systems face their greatest challenges and where states have the least resources to deploy for their development.

- Second, although in the long run there are very strong arguments that agricultural marketing systems are best carried out by the private sector in the context of appropriate provision of public goods by the state (as discussed below), the historical record contains few if any examples of agricultural based economies making rapid strides in agricultural development without a strong active role for the state (though there are of course examples of countries where strong state activity has failed to promote agricultural development).

- Third, and following from this and from findings highlighted above, policies to promote agricultural marketing systems development as a means for agricultural development need to be tailored to their context – to specific agri-ecologies, global market positions, and states and stages of economic and institutional development.

What then should be the role of the state in promoting development of these marketing systems and the potential opportunities they offer?

Conventional policy prescriptions concentrate on the role of the state in providing ‘public goods’ to address market failures causing under-provision of goods and services by the private sector. Market failures arise from difficulties that private actors have from goods and services being non-excludable or non-rival, from non-excludable or non-rival externalities or spill-overs from private investments, from economies of scale, and from informational problems. Difficulties in applying these prescriptions to practical policy formulation and implementation arise because externalities depend upon their context (for example there may be very large externalities for investments that lift a market across a threshold or out of a low level equilibrium trap, but very low externalities on investments below or above this threshold), as do the definitions of non-excludability (for example new ICT systems or increased population density may allow exclusion at reasonable cost from previously non-excludable services), the nature and extent of economy of scale problems and thresholds, and informational problems. Needless to say these are linked with each other, with stages of development, with the nature of agricultural production systems and markets, and with political and social valuation of the welfare benefits of addressing different market failures. The general conclusion from this is that the definition and valuation of public goods varies with context, and in general will be broader and place greater demands in poorer economies.

More universally recognized roles for governments in delivering public goods to overcome market failures focus on investing in infrastructure and establishment of an enabling environment for markets to flourish.

Poor transport facilities are a major problem in many rural areas and a particular problem in Sub Saharan Africa, with a poor quality and low density road network. Investment in improved feeder roads is critical for improving farmers’ access
to markets and to reducing trader and farmer marketing costs. Transport costs in some countries may also be reduced by lowering excessive import duties, by liberalizing transport services, and by promoting their more efficient management and operation. Government investments in specific marketing infrastructure such as village, district and urban markets, godowns and warehouses may also be needed, particularly in the earlier stages of development. With time there is likely to be more opportunity for a role for private sector investment in such facilities depending upon contextual issues as discussed above, but government investments should generally be looking to expand private sector activity as a long run objective, even if it is not feasible in the short run, and with this in mind should promote engagement with, for example, farmer and trader associations when making investments.

Establishment of an enabling environment requires clear and transparent regulations which promote rather than inhibit private investment in marketing systems, reduce risk, and reduce farmers’ and traders’ transaction costs in dealing with government. This will often involve reducing government intervention in marketing systems and where intervention is necessary (for example in raising taxes or enforcing health and safety standards) these should be designed to meet their objectives with minimum costs and uncertainty for farmers and traders. An important agenda here for many smaller African economies is the promotion of inter-regional trade (Poulton et al., 2006a), while allowing that different countries, and indeed districts, provinces or states within countries have different agro-ecological and economic conditions, constraints, opportunities and development priorities and needs. Institutions also need to be developed that promote standard weights and measures, low cost contract enforcement and dispute resolution in agricultural marketing and also in access to credit. A wider focus on improving the rural investment climate is critical, and encouragement of expansion of mobile phone networks in rural areas an important part of this (together with improved transport services as discussed above). An important part of the enabling environment is a regulatory framework that supports effective operation of farmer and trader associations, providing members, trading partners and other stakeholders with appropriate protection from fraud and political interference without inflexible and onerous restrictions. Promotion of competition (to encourage efficiency and better farmer prices and services) needs to be balanced by measures encouraging coordination (for example in quality standards, in contract enforcement and in complementary service provision – as discussed below). This may require a nuanced view that recognises benefits as well as costs of firms or trader associations holding market power, and promotes non-competitive mechanisms of countervailing power. An important but often lacking component of an enabling environment is increasing accountability of state agencies to rural stakeholders to improve these agencies’ the efficiency and effectiveness.

A third important role for governments, closely related to investments in communications and in an enabling environment, is the promotion of services that specifically support market operation. These include market information services and produce grades and standards. As with market infrastructure investments, stakeholder involvement is essential in these activities, and in more mature markets these services can be provided by the private sector (for example trade associations or private companies). Agricultural commodity exchanges and warehouse receipt systems may have complementary roles to play here, though as noted earlier these may be difficult to introduce in markets without some large scale producers and traders, and these institutions have not been introduced sufficiently widely or over a sufficiently long time for judgements to be made about the extent and sustainability of gains they offer to smallholder farmers in different circumstances. However continued subsidies for such institutions, as for farmer associations, may be justified in poorer economies if these institutions are making critical contributions to agricultural marketing system and wider economic development. Great care must be taken, however, that subsidies are provided in a way that promotes continued search for increasing efficiency and effectiveness rather than complacency and inefficiency.

Governments may need to engage actively in different ways to promote price stabilization for staple crops. In poor agricultural based economies price stability is an important policy issue because of the susceptibility of staple food markets to inter- and intra-seasonal price instability and because reasonable and staple prices are important to the livelihoods of large numbers of poor producers (both net producers and deficit producers), to poor consumers, to incentives for investment in agriculture and off farm, and to management of foreign exchange. Given this, food price stability is a highly politicized issue as long as there are significant numbers for people whose incomes or expenditure are significantly affected by staple food prices. Appropriate policy responses to promote food price stability will vary with the state and stage of development (affecting importance of food staples to producers and consumers), with the importance food staples production in the economy and their potential for driving growth (dependent upon agro-ecology), and upon
the speed and cost of access to international markets (dependent largely on access to the sea, and affecting the extent to which imports can be relied upon to stabilize prices). Generally speaking international markets can be relied upon more by higher income, more accessible countries and by countries with poor agro-economic potential for staple production. Conversely a more active role will be needed by the state in poorer, less accessible countries with better agro-economic potential for staple production.

Building on Gabre-Madhin, Eleni Z., 2005 (p28), policy priorities to improve market performance are therefore to reduce physical marketing costs; reduce transaction risks and costs in exchange; increase trade finance; increase market competition (provided this does not undermine coordination); and increase participation, dialogue, and awareness among market actors (producers, cooperatives, traders, processors, exporters). These recommendations cannot, however, be separated from the wider difficulties in the provision of complementary services where development in poorer economies and/or more challenging production environments depends upon more intensive production of lower value products needing purchased inputs. As noted earlier, some governments successfully overcame these challenges in admittedly easier agro-ecological, political and economic conditions in the second half of the 20th century. With widespread problems of ‘state failure’ and highly visible disappointments with state led agricultural development since the 1980s (despite Vietnam’s and China’s remarkable growth in private markets on strong state activist foundations), government delivery of these services is not generally considered appropriate in today’s poorer rural economies. Nevertheless, the general policy sequence through multiple ‘stages of development’ in these state-led success stories still represents the predominant historical pattern of development: first the establishment of basic technical, infrastructural and socio-economic conditions for potential productivity increases; then external intervention to support, through subsidies, stable private sector market development; then, ideally but difficult and often delayed, a phased withdrawal of interventions representing continued investment in a changing and diminishing range of public goods.

Important unresolved empirical and policy questions are posed by the tensions between the historical record of successful state sponsored marketing systems involvement in agricultural development in poorer agricultural economies on the one hand and more recent and continuing policies emphasizing the pre-eminence of private market development in poorer and less poor agricultural economies on the other. There are a number of explanations for recent agricultural development failures in Africa – insufficient government investment in core research and transport public goods for profitable private sector investment; weak institutions undermining market and private sector development; high costs of service delivery to smallholder farmers; inconsistent liberalisation depressing private sector investment; spiralling poverty among small farmers (with declining soil fertility and inability to afford purchased inputs); fundamental coordination problems in private delivery of complementary services for staple food crop intensification; and a basic over-reliance on smallholder agriculture in difficult circumstances. These explanations lead to different investment and policy priorities: greater investment in core research and transport public goods, in institutional development, or in farmer organisations; more consistent and complete liberalisation and withdrawal of the state from markets; investment in fertiliser subsidies; interventions to overcome coordination failures and kick-start critical markets; and withdrawal from smallholder agriculture and an emphasis on non-farm opportunities as principle drivers of economic growth and poverty reduction. The relative validity and importance of these explanations and of the responses they call for will of course vary with context – and many of them will, in many circumstances, be complementary. However they will often compete for scarce investment funds, and there are particular potential conflicts between calls for more complete liberalisation and calls for specific investments to address coordination problems in delivery of complementary services for staple food crop intensification. There is, however, limited empirical, theoretical and analytical work examining these competing stories and policy priorities. Addressing this gap is an important task.

Bibliography


Kindness, H. and A. Gordon (2001). *Agricultural marketing in Developing Countries the role of NGO's and CBO's*. Chatham, Natural Resources International.


### Table 1 Developing Country Demand and Trade: Cereals

<table>
<thead>
<tr>
<th>Demand in 2000</th>
<th>Net cereal trade, 1961-2004, million tonnes (b)</th>
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</thead>
<tbody>
<tr>
<td>Latin America/ Caribbean</td>
<td>2.9</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>3.1</td>
</tr>
<tr>
<td>Near East/ North Africa</td>
<td>3.4</td>
</tr>
<tr>
<td>South Asia</td>
<td>2.6</td>
</tr>
<tr>
<td>East Asia</td>
<td>3.2</td>
</tr>
<tr>
<td>All Developing countries</td>
<td>3</td>
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(a) Source FAO, 1993  
(b) Source: FAOSTAT, 2006 (negative indicates imports). Demand in 2000: FAOStat 'domestic supply'

### Table 2 Developing Country Demand: Roots & Tubers

<table>
<thead>
<tr>
<th>Demand in 2000</th>
<th>(mill tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latin America/ Caribbean</td>
<td>1.1</td>
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<tr>
<td>Sub-Saharan Africa</td>
<td>3.2</td>
</tr>
<tr>
<td>Near East/ North Africa</td>
<td>4.1</td>
</tr>
<tr>
<td>South Asia</td>
<td>4.1</td>
</tr>
<tr>
<td>East Asia</td>
<td>1.7</td>
</tr>
<tr>
<td>All Developing countries</td>
<td>2.2</td>
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</table>

Source: FAOSTAT, 2006. Demand: FAOStat 'domestic supply' roots and tubers dry equivalent and IFPRI 2001 (a)
Table 3 Developing Country Demand and Trade: Meat

<table>
<thead>
<tr>
<th>Region</th>
<th>Growth in total meat demand (%/year) (a)</th>
<th>Demand in 2000 (thous tonnes)</th>
<th>Net meat trade, 1961-2004, thousand tonnes (b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latin America/ Caribbean</td>
<td>3.8 3.7 4.8 2.4 2 31,321</td>
<td>471 926 474 359 235 3,391</td>
<td></td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>2.6 2.1 2.1 3.4 3.7 6,787</td>
<td>17 60 -74 -210 -300 -631</td>
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<td>Near East/ North Africa</td>
<td>4.7 3.3 3.3 3.6 2.9 8,378</td>
<td>-30 -75 1,012 -925 -1,085 -1,406</td>
<td></td>
</tr>
<tr>
<td>South Asia</td>
<td>3.6 3.8 2.7 3.8 4 7,467</td>
<td>0 3 51 72 299 318</td>
<td></td>
</tr>
<tr>
<td>East Asia</td>
<td>7.1 7.7 7.8 2.5 1.6 75,965</td>
<td>-11 -18 -23 32 -2,879 -1,966</td>
<td></td>
</tr>
<tr>
<td>All Developing countries</td>
<td>5.3 5.6 6.1 2.7 2.1 131,297</td>
<td>364 921 -612 -762 -2,817 -158</td>
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(a) Source FAO, 1993
(b) Source: FAOSTAT, 2006 (negative indicates imports). Demand in 2000: FAOStat ‘domestic supply’

Table 4 Developing Country Demand and Trade: Dairy

<table>
<thead>
<tr>
<th>Region</th>
<th>Growth in milk &amp; dairy demand (%/year) (a)</th>
<th>Demand in 2000 (thous tonnes)</th>
<th>Net eggs &amp; dairy trade, 1961-2004, thousand tonnes (b)</th>
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<tr>
<td>Latin America/ Caribbean</td>
<td>2.7 2.6 3.5 2 1.7 63,244</td>
<td>-213 -407 -891 -752 -778 -395</td>
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<td>-93 -217 -516 -353 -431 -471</td>
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<td>-67 -212 -899 -826 -852 -1,012</td>
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<td>4.5 4.8 4.8 3.1 2.4 110,420</td>
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<td></td>
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<td>East Asia</td>
<td>5.8 5.6 4.9 2.7 2.2 24,638</td>
<td>-281 -294 -359 -711 -1,477 -1,692</td>
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<td>All Developing countries</td>
<td>3.6 3.4 3.8 2.7 2.2 252,254</td>
<td>-858 -1,441 3,313 -3,074 -3,875 -3,958</td>
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(a) Source FAO, 1993
(b) Source: FAOSTAT, 2006 (negative indicates imports). Demand in 2000: FAOStat ‘domestic supply’
<table>
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<tr>
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<td>Latin America/ Caribbean</td>
<td>2.8</td>
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<td>3.3</td>
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<td>East Asia (exc China)</td>
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<td>5.2</td>
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<td>880</td>
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Source: FAOSTAT, 2006; Demand: FAOStat 'domestic supply'
Data from China omitted as significant discrepancies with unrealistically high recent growth rates in estimated demand.
Table 6 Developing Country Increase Value of Annual Demand 2000-2020 Per Agricultural Worker in 2000 (US$)

<table>
<thead>
<tr>
<th>Region</th>
<th>Agric labour ('000)</th>
<th>Cereals &amp; Tubers</th>
<th>Meat</th>
<th>Dairy</th>
<th>Fruit &amp; Veg</th>
<th>Total</th>
<th>Agric GNI/ worker</th>
<th>Total GNI/cap</th>
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<tbody>
<tr>
<td>Latin America/ Caribbean</td>
<td>43,894</td>
<td>204</td>
<td>54</td>
<td>684</td>
<td>930</td>
<td>129</td>
<td>2,002</td>
<td>2,880</td>
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<td>Sub-Saharan Africa</td>
<td>179,384</td>
<td>64</td>
<td>76</td>
<td>78</td>
<td>85</td>
<td>56</td>
<td>360</td>
<td>332</td>
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<td>197</td>
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<td>281</td>
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<td>366</td>
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<td>116</td>
<td>12</td>
<td>27</td>
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<td>8</td>
<td>125</td>
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<td>139</td>
<td>350</td>
<td>372</td>
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<td>All Developing countries</td>
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<td>70</td>
<td>21</td>
<td>101</td>
<td>167</td>
<td>463</td>
<td>821</td>
<td>568</td>
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</table>

<table>
<thead>
<tr>
<th>Region</th>
<th>% total increase value of demand</th>
<th>% current Agri GNI/ cap</th>
<th>% current total GNI/ cap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latin America/ Caribbean</td>
<td>10% 3% 34% 46% 6%</td>
<td>70%</td>
<td>54%</td>
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<td>Sub-Saharan Africa</td>
<td>18% 21% 22% 24% 16%</td>
<td>108%</td>
<td>74%</td>
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<td>117%</td>
<td>80%</td>
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<td>South Asia</td>
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<td>175%</td>
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<td>39%</td>
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<td>All Developing countries</td>
<td>8% 3% 12% 20% 56%</td>
<td>145%</td>
<td>71%</td>
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For fruit and veg, China omitted from East Asia, 2000-2003 annual growth rate extrapolated forward
Produce value estimated at export prices