Supermarkets and Beyond: Literature Review on Farmer to Market Linkages in Sub-Saharan Africa and Asia[∗]

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INTRODUCTION

This paper reviews recent literature on selected issues that need to be considered in designing policies and programs to improve farmer-to-market linkages in Sub-Saharan Africa and Asia. Since the "supermarket revolution" has received wide attention in the professional and popular press since the early 2000s, this paper starts with a careful review of that literature. Yet expectations regarding supermarket growth in Africa and parts of Asia have cooled considerably over the past two years. For this reason, the discussion of supermarkets is cast in the broader context of retail modernization; we stress the interaction of supermarkets and more traditional marketing channels in African and Asian food systems, and suggest that these systems are likely to remain highly diversified for the foreseeable future. Additional topics include domestic and regional markets as foci of growth, market information (including commodity exchanges and modern information and communications technology - ICT), and contract farming for export crops. Given the rapid pace of change in marketing systems in developing countries, primary emphasis is placed on research since 2000.

Our top three recommended readings out of this review are Reardon and Timmer (2006) on retail modernization, Jayne et al (2002) on policy for domestic and regional trade, and Weber et al (2006) on market information.

LITERATURE REVIEW

RETAIL MODERNIZATION: Retail modernization in developing countries and its effect on the broader food system has been a major focus of research since the early 2000s. The most visible banner for this work has been the "supermarket revolution". Supermarkets existed in Latin America from at least the 1960s[1], but began to grow much more rapidly in that region during the economic boom and opening to Foreign Direct Investment (FDI) of the 1990s. Growth began later in East/Southeast Asia and Central Europe, followed by selected countries of Africa (Reardon et al, 2004). This growth, together with new procurement practices that the firms work to apply, has lead to a rash of studies attempting to document and anticipate the impacts of these firms on existing actors in the food system, and to draw policy implications for governments and donors.[2]

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[1] See Schwentesius and Gomez (2002) for data on Mexico.
[2] For early studies on Latin America, see Reardon and Berdegue (2002) for a summary, and Alvarado and Charmel (2002), Schwentesius and Gomez (2002), Faigeuenbaum et al (2002), Farina (2002), and Ghezán et al (2002) for country studies. See also Reardon et al (2004). For Asia, see Reardon et al (2003a), Reardon et al (2003b), Hu et al (2004), and Coe and Hess (2005). For Africa, see Weatherspoon and Reardon (2003), Neven and Reardon (2004), and Neven et al (2005).

Early Expectations of Supermarket Takeover: Though distinctions are made between countries, regions, and types of food products, recurring themes in the supermarket revolution literature have been the "rapid rise" of supermarkets, the difficulty of smaller retailers to compete with them, the difficulty of small processors to compete with large processors for the new "supermarket market", and the urgent need to deal with the exclusion of smallholders from the supermarket channel. Until very recently, conditions for supermarket expansion in Africa have been seen to lag but not to differ fundamentally from those in other regions of the developing world; Africa has been portrayed as a later "wave" in the surge of supermarket expansion, with "take-off" having already occurred in East and Southern Africa and beginning in West Africa (Reardon et al, 2004). The following quote encapsulates this view:

> "Our premise is that supermarkets will continue to spread over the (African) region … and thus their requirements will either gradually or rapidly, depending on the country, become those faced by the majority of farmers … Understanding those procurement systems … is thus a way of predicting what will be the challenges and opportunities facing farmers … *in the next 5-10 years"* (Weatherspoon and Reardon, 2003; parentheses and emphasis added).

More Cautious Voices on the Supermarket Story: More cautious views regarding the likely rate of supermarket expansion were expressed early in Asia, and over the past two years in Asia, Africa, and even Latin America. Patterns in Latin America are relevant as a potential indicator of future patterns elsewhere. Coca-Cola (2003) notes that "emerging consumers infrequently shop – if at all – at large supermarkets" in Brazil, despite the heavy market penetration of such outlets in that country. They refer to "the myth (that) it's just a matter of money & time until emerging consumers flock to large supermarkets" (p. 12), and conclude in general for Latin America that "small retailers have a sustainable business model". Farina and Nunez (2005) echo this conclusion in Brazil, noting the persistent diversity of retail outlets, and that "the number of independent supermarkets (as opposed to large chains) and traditional retailers has grown, and their share in food sales has increased" in recent years.

Goldman et al (1999) identified the "persistent continued strength of 'wet markets' in Hong Kong"[3] despite that city's developed economy; they attribute this strength to these traditional markets' adaptation to consumer shopping habits. Goldman (2000) was one of the first to identify consumers' "selective adoption" of supermarkets, whereby "consumers who regularly shop in supermarkets continue to purchase fresh food in traditional outlets"; these findings echo those of others showing continued retail diversity even where supermarkets have expanded most. In recent work in Vietnam, Cadilhon et al (2006) anticipate strong growth of supermarkets (from a base of only 2%) but suggest that "policy makers should not promote the 'modernization' of food systems at the expense of traditional channels, which meet important consumer needs". Maruyama et al (2007) also see strong growth, but cite serious challenges for supermarkets in lowering their prices and enhancing their locational convenience, both of which are key factors for the great mass of consumers in Africa and Asia.

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[3] "Wet markets" refer to traditional open air markets.

Reviewing literature on supermarkets in Africa, Humphrey (2006) concludes that "the extent of transformation of retailing … as a consequence of (supermarket expansion) is overestimated". In Kenya, where supermarkets had penetrated more than in any SSA country outside South Africa and perhaps Zambia, Tschirley et al (2004a) and Tschirley et al (2004b) show that supermarket chains held less than 2% of the national urban fresh produce market in late 2003, and that nearly all fresh produce purchases in these supermarkets were made by consumers in the top 20% of the income distribution. They calculate that, to reach a 10% market share in 10 years, supermarket sales of fresh produce would have to grow 22% per year in real terms. In a cross-country econometric analysis, Traill (2006) estimates that Kenyan supermarkets will hold at most a 16% share of total food sales by 2013; this would correspond to a 4%-5% share of fresh produce. Ayieko et al echo findings elsewhere of diverse shopping habits among consumers, noting that 94% of Nairobi consumers frequented at least three different types of retail outlets in the previous month. By 2006, Reardon and Timmer (2006) had noted the very small market shares of supermarkets in nearly all of SSA. They suggested "considerable uncertainty about the rate at which the supermarket sector will grow" even in Kenya and Zambia; in most of the rest of SSA, they deemed it "unlikely that … we will see supermarket growth for several decades."

In India, market reform and opening to FDI, along with prospects for 7% yearly growth in retail sales in a market of 1.2 billion people, have generated billions of dollars of planned investment in supermarkets by local and multi-national firms, including Wal-Mart and Carrefour. Yet supermarket shares in India are currently very low (around 2%), due to the country's massive and complex small retail sector. Supermarkets there face the 20/20/20 challenge: they must grow their food sales by 20% a year for 20 years just to reach a 20% market share. Such unprecedented growth would still leave more traditional channels holding 80% of the food market.

Supermarkets and the Exclusion of Small Farmers: Concern about exclusion of smallholder farmers from supermarket supply channels is most acute in fresh produce, since it can be direct marketed to supermarkets by farmers. Concerns are based on the efforts of fresh produce procurement managers to provide consumers with a stable, year-round supply of safe, high quality produce at competitive prices. Farmers that cannot meet these criteria, especially the need for fixed quantities every week of the year, fall off the supermarkets' "preferred supplier" lists. Smallholder farmers are especially challenged in this regard, and evidence is mounting that all but a tiny minority, whether independent or in farmer groups, are unable to remain on preferred supplier lists on a sustained basis[4]. As a result, medium- and large-scale farmers supply the overwhelming majority of produce moving through preferred supplier programs in Africa.

Yet these programs carry a tiny fraction of the food trade in African countries. For example, in Kenya in late 2003, this share was less than two-tenths of one percent of all

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[4] Regoverning Markets, 2004; personal interview with Mr. Willie Minnie, Procurement Manager for Freshmark Zambia (September 2005); Reardon and Berdegue, 2002; Reardon and Timmer 2006.

food purchased in urban areas[5]. Thus, while smallholder exclusion from large supermarket supply chains is a reality, it cannot now be considered among the top tier of rural policy concerns in this area of the world; nor is it likely to become a top tier concern over the next 10-20 years in most countries, given projected supermarket shares over this time.

DOMESTIC AND REGIONAL MARKETS AS A FOCUS OF GROWTH: Non-traditional agricultural exports have received large amounts of analytical attention over the past decades. Donor support to market oriented agriculture for smallholder farmers has also focused heavily on export markets, while "domestic food markets remain undercapitalized, risky, rudimentary, and relatively thin" (World Bank, 2007).

Both traditional and non-traditional exports have and will continue to be important sources of growth for some farmers in some countries. Kenya's exports of fresh and pre-packaged vegetables and fresh flowers to Europe may be the continent's best example of success in a non-traditional sector, but other countries are achieving some success along a similar path. Yet even in Kenya, the domestic horticultural system is four- to five times larger by value than exports (Tschirley et al 2004a), and involves many times more smallholder farmers and traders; in Zambia, the domestic fresh produce system is 10-20 times larger than exports. In China in the early 2000s, the domestic horticultural market was 40-50 times larger than exports. Expected income growth in many countries of east Asia, in India, and in Kenya and some other countries of Africa, combined with the large size of the domestic and regional markets, means that the domestic system will be the main contributor to growth in products such as horticulture and livestock, which have high income elasticities of demand[6]. Domestic staples markets also show great growth potential, especially when adjusted for falling rural:urban population ratios; in many countries of Africa, these ratios are expected to fall from about 2:1 to nearly 1:1 over the next 10-20 years, meaning that each farmer will need to nearly double the food they produce for the domestic market[7].

These domestic systems are nearly always tied-in with regional neighbors, whether for maize, other food staples, livestock, or fresh produce. USAID (2005; Table 1) specifically recommends, in the case of horticulture in SSA, that development of the local and regional market be prioritized over export; in Asia it prioritizes regional trade over exports to developed countries. English et al (2005) suggest in Kenya that poverty reduction from horticultural exports to developed countries is likely to come much more from employment effects than from smallholder production for that market.

Urban populations in Sub-Saharan Africa and Asia are expected to increase by 130% and 70%, respectively, over the next 25 years[8]. Even modest income growth could push total

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[5] Based on a 2% market share by supermarket chains in fresh produce, a 20% share of fresh produce in urban consumer expenditure, and 40% of supermarket chain fresh produce procurement occurring through preferred supplier programs (Neven and Reardon, 2004, for Kenya): 0.02*0.2*0.4 = .0016 = 0.16%

[6] See English et al (2006) for a contrary review of Kenya's horticultural export success story and its varied contributions to growth and poverty reduction.

[7] See Tschirley et al 2006a for information on Mozambique.

[8] United Nations World Population Prospects: The 2005 Revision

food demand up by an additional twenty- to thirty percentage points beyond these figures, especially for fresh produce and livestock. Traditional marketing systems will continue to carry the largest share of this food, and many are inadequate even for current volumes. Major investment is thus needed in improved wholesale and retail facilities and in transport infrastructure to reduce very high transport costs (especially in Africa).

MARKET INFORMATION: TRADITIONAL MIS AND COMMODITY EXCHANGES: Key references on market information in Africa are Weber et al (2005) and Tollens (2006a). See also Tollens (2006b) for an assessment of recent experience with commodity exchanges. A useful general reference is Shepherd (1997).

Frustration with the frequently moribund status of publicly funded Market Information Systems (MIS) has lead to substantial experimentation with private systems, typically organized around Agricultural Commodity Exchanges (ACE). In SSA outside of South Africa, Kenya and Malawi have operating exchanges (though Malawi's is nascent), and one is being actively promoted in Ethiopia[9]. These initiatives are important and will undoubtedly generate valuable lessons for improving market information. Yet Weber et al (2006) and Tollens (2006b) both make two points. First, MIS and ACE are not substitutes: the purpose of an ACE is more narrow than the broad market development objectives of an MIS. Second, much market information is of a public good nature, especially in the underdeveloped market systems that prevail in Africa and Asia. This type of information will therefore be under-produced by private systems. Those private systems that are able to turn a profit will tend to produce a narrow range of time-sensitive information that they can sell. As a result, public investment is required if the broad array of information needed by smallholder farmers and policy makers it to be produced. Kenya Agricultural Commodity Exchange (KACE) and Malawi Agricultural Commodity Exchange (MACE), while evaluated positively by Tollens, are not expected to be sustainable for some time. We suggest that a hybrid approach to market information is needed. The objective of the hybrid approach is to provide increasingly relevant information to small farmers and the private trade, while at the same time providing policy makers with analysis and perspective that strengthens and refines government commitment to making markets work. Key elements of this hybrid approach are:

- Government needs to maintain and strengthen its commitment to collecting and disseminating a broad set of basic market information – local, regional and international prices, supply information, and outlook, and changing policies and practices that affect trade. .
- At the same time, these information services need to have the financial and managerial autonomy to generate revenue, seek additional outside funds (e.g., from donors), and manage these funds.
- To ensure support for government budgetary allocations, these services need to cultivate private sector support. They need to see their role as promoters of trade, not just reporters of trade. Mainstreaming these types of attitudes requires training and mentoring over time;

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[9] See AddisFortune.com, 6 May, 2007. http://www.addisfortune.com/Feature-The%20Devil%20is%20in%20the%20Details-ECEX.htm

- Where ACEs exist, MIS should establish formal links with them.
- Finally, national MISs need to be linked together with their neighbors through efficient means of communication so that information available in one country is immediately available in all countries of the region.

No hybrid MIS combining all these characteristics exists in Africa that we know of; this is a major funding opportunity for donors wishing to promote improved market performance in agriculture.

INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT): Modern ICT such as cell phones, the web, and email are increasingly being used in MIS in Africa. The very rapid expansion of cell phone ownership, even in rural areas of Africa, means that these tools could be especially useful. Little if any research has been done on their effectiveness; Tollens (2006a) indicates generally that much experimentation is still taking place, and no standard model has yet emerged. Two points should be kept in mind about this potentially useful tool. First, cell phone systems use SMS messages, meaning that the spectrum of information available through these systems is likely to be substantially narrower than that on local and provincial radio. Second, cell phones are not likely in the foreseeable future to be able to reach as many farmers as local and provincial radio broadcast in the local language. For these reasons, Weber et al stress that modern ICT tools should be used, but that radio is likely to remain the most effective means of "providing broad-based unbiased information to help improve the bargaining power of farmers … and in informing public decision makers about how markets function …". For the potential of radio to be realized, the high cost of running spots on some state controlled radio stations needs to be brought down, and local private stations need to be utilized as much as possible. Private sponsorship of MIS broadcasts is one way forward.

CONTRACT FARMING FOR EXPORT CROPS: For smallholder farmers to compete in a globalized economy, they need access to production inputs and to updated information about production and post-harvest practices needed to ensure productivity, quality, and timeliness. Due to cash flow constraints, many farmers require these inputs on credit, yet both input and credit markets frequently work poorly in SSA and poorer areas of Asia. Under these conditions, contract farming arrangements, also known as *outgrower schemes*, have governed production of a wide range of cash crops throughout the developing world for many decades.[10] When effective, these approaches allow smallholder farmers to profit from a crop they might ordinarily not have access to, and allow processors and exporters to benefit from these farmers' low costs of production while ensuring sufficient supply to make their investment profitable.[11]

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[10] See Glover (1990) for a review of experience in East and Southern Africa through the late 1980s. See Birthal et al (2005) for several case studies from India, and Zola for a broader review in Asia.

[11] These low costs of production are related primarily to the very low price at which many smallholder farmers are willing to "sell" their labor in production of the crop, and to the low supervisory costs inherent in using primarily family labor. See Binswanger and McIntire (1984).

Yet the conditions under which contract farming can be expected to emerge and persist are relatively restrictive, relating primarily to production and marketing characteristics of the crop and to characteristics of the market into which farmers sell (Delgado 1999; Benfica and Tschirley 2002[12]). Numerous examples exist of failed efforts, primarily related to the inability of processors to recover input credit (often referred to as "side-selling"; Stringfellow 1996, Glover 1990). Poulton et al (2004) and Tschirley et al (2007) suggest a trade-off between competition and coordination in contracting for cotton in Africa: competition frequently results in better prices to farmers, but can also undermine input credit provision and product quality. As a result, highly competitive output markets lead to the failure of contract farming and reversion to approaches less dependent on external inputs, with less extension assistance, and less able to capture quality premia.

Donor assistance to contract farming can be useful in the following circumstances:

- Supporting the costs of more intensive extension assistance from contracting companies who might be undercut by competitors if they had to bear all the costs themselves; current examples include GTZ support to Dunavant/Zambia's YIELD program for cotton and USAID assistance to cotton extension in Uganda.
- To help bridge the gap between unorganized smallholder farmers and new investors; NGOs can often be effective in helping organize farmers around a new commercial opportunity and in reducing the prospect of side-selling.

SMALLHOLDER OVERVIEW

The key issue for smallholders in the area of ***retail modernization*** is the rate at which modern retail outlets will grow, and the extent to which smallholder farmers will be excluded from these firms' "preferred supplier networks". After six- to seven years of research, the preponderance of evidence suggests three things: smallholders are indeed widely excluded from these systems, but only a tiny fraction of food production in Africa and Asia flows through them, and the market share of supermarkets in most of the region will grow much more slowly than had once been anticipated. Retail sectors in all these areas will remain highly diversified, and traditional "wet" markets, small shops, kiosks, and street vendors will retain majority market shares for the foreseeable future. Our own conclusion, therefore, is that smallholder welfare will be more heavily influenced by developments in these systems than by access to the supermarket sector *per se*. Rapid growth in ***domestic and regional markets***, driven by urbanization and income growth, will present great growth opportunities for smallholder farmers. ***Hybrid MIS***, featuring a judicious mix of radio, cell phone, and internet technology, could help smallholder farmers exploit these opportunities. ***Contract farming*** is sometimes the only way that smallholder farmers can gain access to high value added cash crops; donor support for improved extension assistance and organization of farmers under these schemes can have a high payoff.

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[12] See Jaffee (1994), however, for an empirical review of the widely varying circumstances under which contract farming has emerged, and examples of failure where external conditions seemed favorable.

WHERE DO WE GO FROM HERE?

This review suggests that the implications of retail modernization for smallholder farmers go far beyond the "supermarket revolution", and that government and donors must not lose site of the dominant role that "traditional" systems play in this process. Efforts to increase smallholder access to the supermarket channel should therefore be seen as one component in a much broader agenda. Improvements in wholesaling and retailing need to focus on four areas:

- Three types of investments in traditional wholesale markets[13]. First, improved logistical efficiency, especially for loading and unloading, will reduce costs and improve hygiene. Second, additional work to improve hygiene will make these markets more attractive for a broader range of retailers. Third, improved grades and standards, and more easily available information on prices and volume by grade of product, will increase market transparency and further attract customers. Because regional trade is already a key component in national food supplies throughout Africa and Asia, regional links among MIS need to be strengthened. Cell phones and internet technology can be important complements – not replacements – for radio dissemination in these systems.[14]
- Investments in traditional retail markets to improve cleanliness and logistical efficiency.
- Investment in new entrepreneurial wholesalers, often not located in public wholesale markets, who can serve a range of retail outlets from wet markets to supermarkets. Technoserve has pioneered approaches to shortening the supply chain for banana in Kenya and Matoke in Uganda by working with farmer groups and providing training and finance to selected wholesalers to work more closely with these groups[15].
- Selective partnering with supermarket chains and agro-processors to reduce the cost to them of dealing directly with smallholder farmers; these investments must be carefully screened, as experience to date is not encouraging. Typically some type of mediation, either by a large farmer, an entrepreneurial wholesaler, or an NGO, is required.[16] The model pioneered by Cargills (Ceylon) Limited in Sri Lanka deserves further study, as it may be one of the more successful firms in partnering with smallholder farmers, and also trains professionals in the modern food business.

Policy will also be crucial, because inconsistent policy often disrupts both domestic and regional food trade. Key areas include policies on regional trade, market regulation and the role of municipal authorities, and price stabilization for cereals.[17] Capacity for food

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[13] See Tollens (1997) for a review of wholesale market performance and investment needs in Africa.
[14] See da Silva (2006) for an example of innovative market information in wholesale markets of Sri Lanka.
[15] See Technoserve (2007) and Piper (2007). We have not found independent assessments of these experiences. Shepherd (2007) cites success in Indonesia helping a new wholesaler serve supermarkets.
[16] See footnote 4, and also Shepherd (2007) for a review of approaches to link farmers to modern markets.
[17] See Jayne and Jones (1997), Jayne et al (2002), and Tschirley et al (2006b).

policy analysis and formulation is woefully inadequate in most countries of Africa and Asia; building this capacity requires long-term investment in formal training and in mentoring arrangements between experienced and young researchers in nascent policy units.

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