2011 Discussion Paper 12

ORGANISED RETAILING OF FRESH FRUIT AND VEGETABLES: OPPORTUNITIES FOR PUTTING RESEARCH INTO USE?

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APRIL 2011

D I S C U S S I O N P A P E R S E R I E S

ACKNOWLEDGMENT

This document is an output from the Research Into Use Programme (RIU) funded by the UK's Department for International Development (DFID) for the benefit of developing countries. The views expressed are not necessarily those of DFID.

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Abstract

A cross-cutting theme in the DFID-funded Research into Use (RIU) programme is the exploration of the developmental opportunities presented by new patterns of entrepreneurial activity. This is an exciting time to be exploring such issues as there has been an upswing in enterprise activity in the developing world, characterised by a markedly different era of economic dynamism. This has affected agri-food value chains in profound ways. For RIU this raises questions about whether there is potential to piggyback on this new dynamic for putting research into use. It also raises the question of whether institutional change in marketing arrangements is associated with institutional change in relation to access to technology, research and other technical expertise. Organised retailing of fruit and vegetables is investigated to explore this question. A farm-level survey and retail outlet-level review suggest that this pattern of market development is linking farmers to markets with promising social and economic consequences. But it is also finding that the value of this as a mechanism for strengthening technical change and innovation capacity is under-developed and that it is here that public policy needs to concentrate its attention and efforts.

Key words: Organised Retail, Horticulture, Entrepreneurship, Agricultural Research, Innovation, Development, Policy, Value Chain Development, South Asia,

JEL Codes: L14, L26, L32, L66, N5, N55, O13, O19, O31, O32, O33, O53, Q12, Q13, Q16

RIU DISCUSSION PAPER SERIES

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LIST OF ACRONYMS

ADB	-	Asian Development Bank
ASARC	-	Australia South Asia Research Centre, Canberra
CABI	-	Centre for Agricultural Bioscience International
CGIAR	-	Consultative Group on International Agricultural Research
CGD	-	Center for Global Development
CPA	-	Centre for Policy Alternatives
CRT	-	Central Research Team, RIU
DFID	-	Department for International Development, UK
FAO	-	The United Nations Food and Agriculture Organization
FDI	-	Foreign Direct Investment
GDP	-	Gross Domestic Product
GlobalGAP	-	Global Good Agricultural Practices
GoI	-	Government of India
ICRIER	-	Indian Council for Research on International Economic Relations
IFPRI	-	International Food Policy Research Institute
LINK	-	Learning INnovation Knowledge
MSU	-	Michigan State University
MTID	-	Markets, Trade and Institutions Division, IFPRI
NDDB	-	National Dairy Development Board, India
NGOs	-	Non-Governmental Organisations
R&D	-	Research and Development

RIU	-	Research Into Use
S&T	-	Science and Technology
UK	-	United Kingdom
UN	-	United Nations
UNPAD	-	Universitas Padjadjaran
USA	-	United States of America

1. INTRODUCTION

A cross-cutting theme in the Research into Use (RIU) programme, funded by the UK's Department for International Development (DFID), is the exploration of the developmental opportunities presented by new patterns of entrepreneurial activity. RIU's specific interest concerns the way entrepreneurship — as a driver of innovation and the dynamic force within economic and social systems — can be used as part of a mechanism where agricultural research and technology are deployed for poverty reduction and economic development. This is part of a wider interest in understanding how the effectiveness of a key public policy tool — investments in agricultural science — can be enhanced.

This is an exciting time to be exploring such issues. Development practice is becoming increasingly comfortable with embracing enterprise as a partner in the development process. But, more importantly, there has been an upswing in enterprise activity in the developing world characterised by a markedly different era of economic dynamism. Although some of this dynamism has had little to do with agriculture directly, it has, nevertheless, started to affect agri-food value chains in profound ways — the industrialisation of food systems not just for export, but increasingly for local (super)markets being just one example of this. While it is true that this economic dynamism has been most apparent in India, China and other Asian countries, more generally, parts of Africa and — and the food sector in particular — are starting to exhibit similar trends associated with urbanisation and rising urban incomes.

For RIU this raises questions about whether there is any potential to piggyback on this new dynamic for putting research into use — specifically, whether institutional change in marketing arrangements is associated with institutional change in relation to access to technology, research and other technical expertise. The literature has for some time now discussed the potential role of public-private alliances for promoting technical change and innovation in the agricultural sector (Byerlee and Echeverría, 2002). The literature has also discussed some of the likely architectures for making this work in an emerging economy setting (Hall, 2006). However, equity and governance issues in value chains have also been

highlighted as a concern that cannot be ignored (Kaplinsky et al., 2010), although more in relation to international value chains. What is now needed is research to explore these issues in relation to the new and emerging patterns of entrepreneurial activity associated with domestic food systems, which have been transformed profoundly in the last 5 years.

The case chosen for this study is the emerging trend in India of large corporate houses branching out into retailing of fruit and vegetables. This trend is closely associated with urbanisation, growing consumerism and an increase in the numbers of upper-middleclass and high-income households. This is a phenomenon that is taking place across the developing world and the experiences of India are likely to provide insights on what may already be starting to take off in Africa. In the case of India the establishment of these new retail outlets selling fresh fruit and vegetables has led to some limited experimentation with new ways of field-level procurement of these commodities. Despite several trader organisations, NGOs and associations of street vendors opposing the massive expansion of organised retail because of a loss to livelihoods, many in industry and policy circles believe it will have positive impacts on the agricultural supply chain and raise prices. This debate is also closely related to the wider issue of potential impacts on street hawkers and neighbour-hood *kirana* (grocery) stores.

Is the organised retailing of fresh fruit and vegetables benefiting producers of these commodities? Are these arrangements creating any new capacity for innovation or new demands for technical and other support by different actors in the agricultural innovation system[7]?

The rest of this paper is organised as follows: The second section discusses the emergence of organised retail in the food and grocery sector in the developing world. Section 3 explores the organised retailing landscape in India. Section 4 presents a case study of the changing nature of organized fruit and vegetable retail in the city of Hyderabad in South India.

[7] Agricultural Innovation System refers to the network of organisations, enterprises, and individuals focused on bringing new products, new processes, and new forms of organisation into economic use, together with the institutions and policies that affect the way different agents interact, share, access, exchange and use knowledge.

Procurement operations of various retailers and key features of these arrangements are discussed in Section 5 and the challenges and opportunities for the organised retailing sector in India are discussed in Section 6. Finally, Section 7 summarises the lessons for international development practice and for putting research into use.

2. DEBATES ABOUT FOOD RETAIL AND DEVELOPMENT

Modern retailing is set to have taken off in developing countries in three successive waves in the years between the early 1990s and the early 2000s (Reardon and Hopkins, 2006; Reardon and Berdegue, 2007). In the case of the large Asian economies of China and India, it occurred during the third of those waves, starting from the late 1990s. This trend, popularly referred to as the "supermarket revolution", has been transforming food retail markets — and the supply chains they source from — not only in medium income countries, but also in the poorer developing nations (Timmer, 2005). While exploring drivers of rapid retail growth in developing counties, Reardon et al. (2003) indicated that the same factors that contributed to the spread of supermarkets in developed countries 50 years ago were still responsible for the same phenomenon in developing countries more recently, including: market liberalisation in developing countries; the flood of Foreign Direct Investment (FDI) available after the 1990s; saturation of supermarkets in home-base markets and their low margins (which propelled the search for higher returns in transitional and developing countries); the greater availability of procurement and logistics technology; and declining transport costs. In addition, the emergence of regional agri-food chains in Asia — with the disappearance of regional trade barriers, rise in institutions that encourage regional integration and greater numbers of important regional players — also had important implications for agricultural production and innovation systems (Thompson and Cowan, 2000).

Consumer demand and changing preferences have also played a role in stimulating this growth. For instance, a study by ICRIER (2008) found that retail sales growth was directly proportional to Real GDP and Real Private Final Consumption expenditure, indicating that a substantial increase in disposable income among Indian households since the mid-1990s could be another driver of this supermarket revolution. A study by Deloitte-Stores (2007) predicts faster growth for the organised retail business in developing countries in the next decade due to rising numbers of younger populations. In India the organised food retail sector has been growing at annual rates between 16 and 50 percent over the past few years (Reardon and Gulati, 2008), starting from a small base. If these high rates of growth

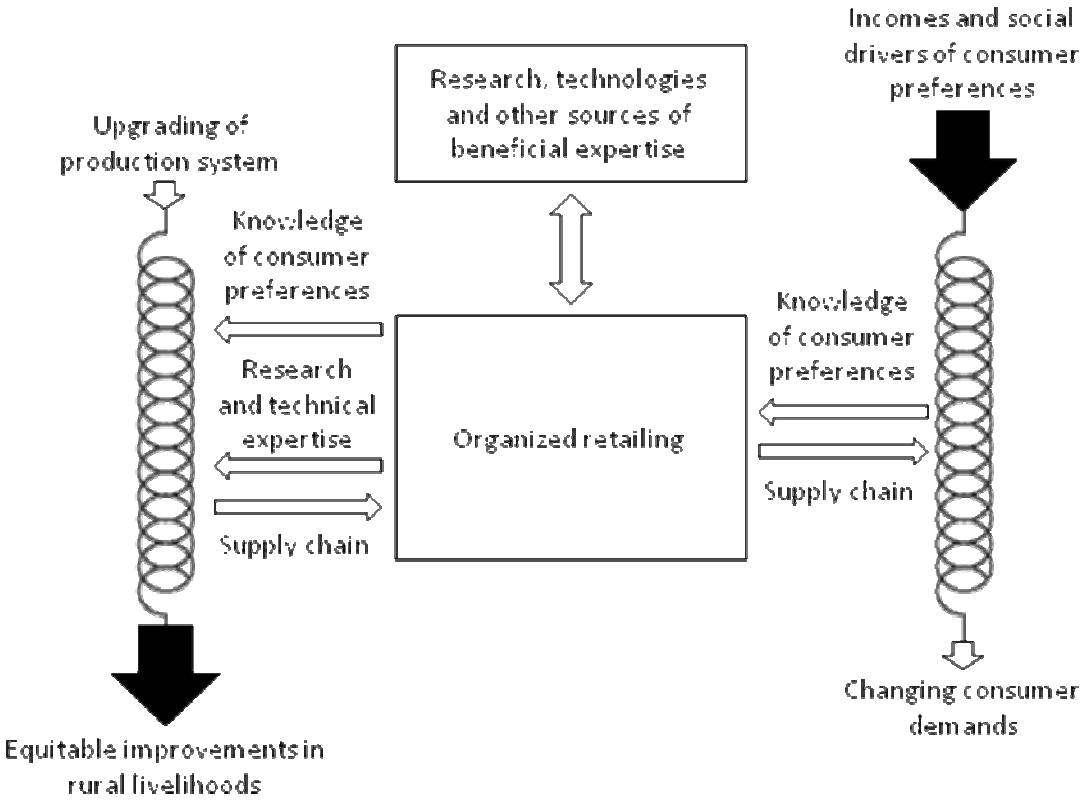
continue they are bound to have significant impacts on existing value chains (ICRIER, 2008). Rapid growth in the organised retail sector is also resulting in consolidation to achieve economies of scale (Chakravarthy and Kurien, 2007). Examples of these in India include corporate giants such as the Reliance Retail Group taking over Adani Retail in Gujarat and the A.V. Birla Group taking over the Trinethra chain of stores across the country.

Although rapidly increasing numbers of these retail ventures seem to provide new opportunities for producers and processors, their developmental impacts are still contested. Cadilhon et al. (2006) reports that higher prices offered by supermarkets was offset by the extra costs incurred by farmers to supply to them. In most cases, supermarkets still sourced from medium and large suppliers (Farina et al., 2005). Even when they did source from small farmers these tended to be an upper echelon of small farmers in terms of capital assets, infrastructure access and size (Reardon and Timmer, 2007). Natawidjaja et al. (2007) demonstrated a similar trend for tomatoes in Indonesia. In the very rare instances where small farmers sold directly to supermarkets, it was found that they were part of a very good producers' organisation (Gulati and Reardon, 2007). Similar observations have been made in other studies, which show that farmers connected to the organised retail sector in India had larger land holdings (ICRIER, 2008; Mangala and Chengappa, 2008; Alam and Verma, 2007) and higher proportion of irrigated land (ICRIER, 2008) than those supplying to traditional market channels.

However, several studies on fresh fruit and vegetable retail chains in India have confirmed relative advantages for farmers connected with organised retail. For example, retail chain-contracted farmers receive comparatively higher prices (Dhananjaya and Rao, 2009; Alam and Verma, 2007), higher net profits (ICRIER, 2008; Mangala and Chengappa, 2008; Birthal et al., 2005) and also had lower transaction costs (Singh and Singla, 2010; ICRIER, 2008; Alam and Verma, 2007). Singh and Singla (2010) report that retail chains have raised quality consciousness among farmers, introduced grading (in primary processing) and have helped in cost-cutting through extension and training on input use for better yield.

The discussions above indicate that patterns of market development and the differential impacts these have on different market chain stakeholders has been given considerable attention. However, less attention has been given to the way new marketing arrangements and relationships between farmers and retailers act as vehicles for technical change. This is an important question for RIU and is one of the issues explored in the investigation of the Indian retail sector discussed in the next section. Specifically, the discussion explores whether institutional change in marketing arrangements is associated with institutional change in relation to access to technology, research and other technical expertise. Figure 1 below present a stylised framework for exploring this question. Its main feature is the proposition that the current era of economic dynamism in emerging economies is stimulating enterprises to introduce institutional innovations in marketing systems that not only link poor farmers with markets, but also bring about institutional innovation in access to research, technology and related expertise.

Figure 1. A Framework for Exploring Putting Research into Use in Dynamic Economic Systems



Source: The authors

3. THE EMERGING ORGANISED FOOD RETAIL LANDSCAPE IN INDIA

Retail is one of the fastest growing sectors in the world. "The retail business in India is estimated to grow at 13% per annum from US$ 322 billion in 2006-07 to US$ 590 billion in 2011-12. While the unorganised sector is expected to grow at about 10% per annum, organised retail is estimated to grow at 45-50% per annum during the same period" (ICRIER, 2008). However, organised retail constitutes only around 4% of the total retail sales in India, compared to 75-80% in developed countries such as the US, Japan and the UK. In India, organised retailing is spreading fast, though the growth is currently focused around cities and tier-1 towns.

"Food and grocery constitutes the bulk of Indian retailing and its share is about 60%" (Images, 2008). Organised retailing accounts for about less than 2 percent of the food retailing industry in India. However, the share of organised retailing in the food and grocery segment could grow to 15-20% if the current trends in expansion of organised retail continue (Reardon and Gulati, 2008).

Nilgiris, established in 1905 as a dairy farm near Ootacamund in South India, is perhaps the first organised food retailer in India[8]. Although another chain, *Spencers*, has been part of the Indian retail landscape since 1863, it only began selling groceries in 1920. *Safal*, established in 1988 by the National Dairy Development Board (NDDB), was the first organised retailing venture for fruit and vegetables in North India (mainly Delhi)[9]. The rapid expansion of the RPG Group's "Food World" outlets in different parts of India — beginning with its first outlet in Chennai in 1996 — indicates enhanced corporate interest in food retailing.

[8] It opened another store in Bangalore in 1936 and the next one in Erode, Tamil Nadu, in 1962. Nilgiris initially focused on dairy products, bakery products and confectionary, but in 1945 expanded its range to include groceries and other food items. It currently has more than 90 stores under the brand name 'Nilgiris 1905'.

[9] Safal Fruit and Vegetable Unit was set up in 1988 by the National Dairy Development Board with the objective of creating a direct link between fruit and vegetable growers and consumers. It is presently a unit of Mother Dairy Foods Processing Ltd., a wholly-owned company of Mother Dairy Fruit & Vegetable Ltd. Safal has set up 279 specially-designed modern retail outlets in and around Delhi to market fresh and frozen fruit and vegetables directly to consumers. It sources fruit and vegetables through more than a 100 producer associations set up in select villages.

Other corporate houses that are currently active in the food retail landscape of India include: RPG (Spencers'), Reliance (Fresh), ITC (Choupal Fresh), Aditya Birla (More), Heritage (Fresh@), Pantaloon Retail (Food Bazaar), Bharti (Easy Day) and Express Retail (Big Apple). Much of the expansion in food and grocery retailing in India is currently concentrated in the southern states — in and around Chennai, Hyderabad and Bangalore. Increasing urbanisation and rising income levels — with resultant changes in dietary patterns towards high-value commodities — have also sparked corporate interest in food retailing in India.

What is the impact of this expanding corporate retailing of agricultural products — especially fruit and vegetables — on producers, intermediaries and consumers in India? The evidence is limited and opinion seems to be divided. Much of the focus of discussion has been around livelihood losses of street hawkers and neighbourhood stores, who currently sell more than 98% of food and groceries. The ICRIER (2008) study found that unorganised retailers in the vicinity of organised retailers experienced a decline in volume of business and profit in the initial years after the entry of large organised retailers. Impacts are expected to be larger in the long run, "when the organised retailing of food and grocery reaches at least 25-30% of the total sales" (Reardon and Gulati, 2008). However, consumers do gain from low prices offered through organised retail (Gaiha and Thapa, 2007; ICRIER, 2008).

With regard to impact on farmers, available evidence varies from significant benefits arising from direct sales to organised retailers (ICRIER, 2008) to no impact as "corporates are procuring only from the *mandis* (produce markets)" (India FDI Watch, 2007; Navadanya, 2007). A study on contract farming arrangements in dairy, poultry and vegetables has reported significant gains in income of farmers who are part of contract arrangements in comparison to non-contract farmers (Birthal et al., 2005). However, the performance of contract farming varies considerably, depending on the nature and type of contracting agency, nature of technology, crop/produce and the local and national context (Singh, 2007). Another study citing global experiences points to lower prices for farmers when large retailers purchase in bulk (CPA, 2007).

The FAO (2005) study on food retailing in Asia indicates that rather than the type of store, factors such as methods of procurement, the use of logistics and quality standards applied have implications for farmers' incomes. The same study also indicates that farmers face many problems in supplying to supermarkets, including: delisting of suppliers and rejection of produce by retailers for not conforming to volume, quality and delivery; and price competitions between chains that keep prices low, thus making it difficult for farmers to earn enough of a profit to pay for on-farm investments. The Indian Government, however, considers organised retail to be beneficial as it can set up supply chains, give better prices to farmers and facilitate agro-processing (GoI, 2006). While organised retailing may partially support some of these much required changes, the role of the government — especially its different organisations involved in agricultural research, extension and marketing — in creating a better production and marketing system is still not very clear.

4. CASE STUDY: ORGANISED RETAIL OF FRESH FRUIT AND VEGETABLES IN HYDERABAD, INDIA

The Organised Retailing Landscape

Up until 2000 Hyderabad had only two organised retailers of fresh fruit and vegetables — Trinethra and Food World. Trinethra was founded in 1986 as a multiple outlet retail store network in Hyderabad, Secunderabad and Vishakapatnam. Food World, which opened its first outlet at Chennai in 1996, extended its presence to Hyderabad the same year. RPG's Spencer followed suit in 2001 and Pantaloon Retails' Food Bazaar in 2003.

Table 1: Expansion of Organised Retail of Fresh Fruit and Vegetables

	Name	Year set up in Hyderabad	Number of stores in Hyderabad	Total Number of stores in India (as of March 2010)
1	Trinethra[10]	1986	79	275 (till Jan 2007)
2	Food World	1996	20	67
3	Spencers	2001	28	250
4	Food Bazaar	2003	11	174
5	Choupal Fresh	2006	6	6
6	Reliance Fresh	2006	45	624
7	@Fresh	2006	32	75
7	More	2007	92	579
8	SPAR	2008	1	4

In the years that followed these initial forays several other corporate retailers have expanded into the Hyderabad market (See Table 1 above). ITC opened its first Choupal Fresh store in Hyderabad in mid-2006. Reliance entered the scene with its first Reliance Fresh store in Hyderabad at the end of the same year. Heritage also emerged on the scene with its @Fresh stores at the same time. The latest to enter this field is SPAR, which opened its first store in Hyderabad in 2008.

Methodology

This study is based partly on a survey of 100 farmers at Vontimamidi — a fruit and vegetable growing cluster in Medak District near Hyderabad (See Box 1) — who are currently supplying produce to five organised retailers (20 farmers were randomly selected from each retailer).

[10] The Aditya Birla Group acquired Trinethra in early 2007 and renamed these stores as 'More'.

This was supplemented with interviews with related actors, including procurement staff and senior management of different retailers, commission agents in traditional markets and government extension staff.

Box 1: Vontimamidi, an epicentre of retail procurement

Vontimamidi is a village in the Rangareddy district of Andhra Pradesh, about 40 Km away from the major urban centre of Secunderabad and located on a major highway. Its central location has allowed it to become the epicentre of a cluster of farms in a 30-40 km radius, and a hub for retail collection centres. Approximately 14000 farmers grow vegetables — including gourds, cucumber, brinjal, chillis, beans and tomatoes — in villages around Vontimamidi. Reliance was the first organised retailer to set up a hub in Vontimamidi in 2006 to source fruit and vegetables, and ITC and More followed suit in 2007. In the same year, Spencers set up its vegetable collection centre at Mulugu near Vontimamidi, while Heritage launched its pack house in a nearby village.

Table 2 below provides an indication of the volume of produce bought by organised retailers from Vontimamidi every day. In addition to organised retail, traditional produce markets also source their fruit and vegetables from Vontimamidi through the 75-odd commission agents who operate at a local *mandi* (market).

Table 2: Procurement Details of Different Market Agents at Vontimamidi

Organised Retailers	Average daily procurement (tonnes)		Number of farmers selling their produce (daily average)
	Other days	Weekends (Saturday/Sunday)	
Organised retailers			
ITC- Choupal Fresh	4-5	7	30-50
Reliance Fresh (Ranger Farms)	13-14	16	30-50
RPG –Spencers	10	12	25-30
Heritage- @ Fresh	26-30	42-45	50
Aditya Birla-More	7	17	35-40
Local produce market (*mandi*), Vontimamidi	300	300	500

Nature of Existing Procurement Arrangements

ITC' Choupal Fresh

Choupal Fresh is a pilot project operated by ITC's Agri-Business Division, with the professed objective of vertically integrating farmers with the market. ITC established its collection centre for fresh vegetables in 2007 at Vontimamidi, where vegetables bought are sorted, cleaned and graded before being sent to a distribution centre. ITC has set up a crop nursery and demonstration farm at Vontimamidi on a two-acre plot it leased in 2008. The company has employed a technically-qualified farm manager to handle ground-level operations, including procurement, nursery management and dissemination of better crop management practices among vegetable growers (See Box 2 in the next section for more details). The company maintains a list of 'contact' farmers and has encouraged some of them to branch out into the cultivation of exotic crops.

Heritage's Fresh@

Fresh@ is a chain of retail stores — specialising in fresh fruit, vegetables and groceries — set up by Heritage Foods India Limited, a leading private dairy and agri-business company in South India. Heritage has established a 60-tonne capacity pack house in Adivimasjid, a village close to Vontimamidi, as well as collection centres in five nearby villages. The pack house has facilities for cleaning, sorting, grading and ripening fruit. It handles more than 52 kinds of vegetables, including carrots, cauliflower, gourds, chillis and capsicum. Heritage works with 187 farmers spread out in 4 clusters (each cluster comprises 12-13 villages). Out of these, 131 are designated as "custom farmers" — a term for the company's preferred producers, who it supports through inputs and technical advice from an experienced agronomist. Production operations are co-ordinated by a production manager (See Box 2 in the next section) and field-level operations by 15 production and procurement assistants. Heritage also maintains a field nursery for farmers and has been instrumental in promoting cultivation of new crops in the area, such as carrots, cauliflower and potato.

RPG's Spencer's Retail

Spencers's Retail is one of India's largest multi-format retailers, specialising in food and grocery items, electronics, home and office essentials, garments and personal care. The company is one of the oldest players in agri-food retailing. It set up a procurement facility in Mulugu village, close to Vontimamidi, in 2007, where fresh vegetables are bought from nearby farmers and even the local *mandi* (market) when supplies fall short of demand. The collection centre maintains a list of 150 farmers on its roster, but buys produce from around 25-30 farmers every day. It doesn't provide any sort of advice or technical support to farmers. Produce bought is then cleaned, packed and sent to distribution centres before being dispatched to different stores across the country.

Reliance Fresh's Ranger Farms

Ranger Farms is the procurement wing of Reliance Fresh, the vegetable and fruit retail wing of Reliance Retail. Its collection centre was established at Vontimamidi in 2006, with around 35-50 farmers supplying produce to it every day. Although a trained agriculturalist looks after procurement operations at Vontimamidi, the collection centre doesn't provide any specific technical support to growers. Reliance Fresh has also established three other collection centres in the region, specifically for green leafy vegetables, cole crops and tomatoes.

ABRL's More

Aditya Birla Retail Limited, which operates 672 food and grocery stores across India, acquired the Hyderabad-based Trinethra supermarket chain in 2007 and renamed it "More". More's procurement centre at Vontimamidi, set up in 2007, has around 350 farmers on its roster, out of which 35-40 are regular suppliers. As of now, More does not provide any technical support to growers.

Local *mandi*, Vontimamidi

The Andhra Pradesh state government set up a local *mandi* (traditional produce market) for fruit and vegetables at Vontimamidi in July 2008. The *mandi* has no formal system of auction in place, but transactions are carried out by 75 commission agents, who set prices based on

the produce available and their negotiations for it with traders. All produce, irrespective of quality, is bought at the *mandi*. Farmers bring their produce to the *mandi* in the evening and sell it to commission agents, who, in turn, sell to traders from other locales.

The *mandi* lacks basic infrastructure (storage, parking, clean water, etc.) and there is no modern or digital weighing system. Commission agents charge a brokerage fee (varying from 4 to 10% of produce prices), while farmers have to bear unloading charges (Rs 2 per bag). The exact percentage of commission charged depends on credit advanced to farmers (for buying inputs such as seed and fertiliser) as well as implicit factors such as personal relationships and farmers' reputations. As general practice credit advanced is not directly charged any interest, but agents charge farmers a higher percentage of brokerage fee to compensate for interest.

5. KEY FEATURES OF ORGANISED RETAIL ARRANGEMENTS

Organised retailers currently buy around 22-33% of the produce grown in and around Vontimamidi, but the figure is likely to go up as more new retail stores continue to open in urban centres (and assuming that fresh fruit and vegetable retail begins to contribute significant revenues to corporate retailers). Key features of procuring arrangements by organised retailers examined in the course of this study are summarised below:

(i) Better prices for farmers

All five organised retailers who source their produce from Vontimamidi base their daily rates on local average daily prices at the major local produce market at Bowenpally, making sure to fix rates higher than market rates. Farmers also gain through these arrangements because they save on brokerage charges and packing costs at the local *mandi*. There are also instances where farmers haven't benefited as a result of price fluctuations at the *mandi*. Of the 100 farmers surveyed for this study 69 had sold to both an organised retailer and the local *mandi* on the same day. Their experiences of the transactions are presented in Table 3 below, which illustrates the percentage net gain in the farmers' earnings through organised retail.

Table 3. Net Gain (Organised retailer vs. local mandi)*

% gain**	No. of producers	% of producers
-25 to 0	3	4.34
0 to 25	9	13.04
25 to 50	26	37.68
50 to 75	17	24.63
75 to 100	5	7.24
>100	9	13.04
Total	69	100.00

**Net gain= retailer price – net price at the mandi after deducting other charges*
*** % gain= (net gain/net price at the mandi)X 100*

Thus, while more than 95% of the farmers surveyed gained through transactions with organised retailers, the gains experienced by at least 62% of them was much more than the prices (between 25% and 75% more) offered to them at the *mandi*.

(ii) Greater choice for farmers of outlets for sale

Till 2006, vegetable producers in the region only had one avenue for marketing their produce — through agents at the produce market at Bowenpally in Hyderabad. However, the mushrooming of retail stores in the city and collection centres in the region has afforded Vontimamidi farmers a greater choice in how they sell their produce. The setting up of a local *mandi* at Vontimamidi has also worked in the farmers' favour, as any produce not bought by the retailers is sold at the market.

Almost every farmer surveyed didn't trust the method of weighing produce that was used in the *mandi* — where agents still used the traditional hanging balance — and preferred the electronic scales used by retailers. However, the *mandi* still held some appeal for farmers, as all produce was bought regardless of quality, while the retailers only bought quality produce. Table 4 below summarises the factors affecting farmers' decisions on who to sell to on a given day.

Table 4. Decisions on Sale of Produce

Methods used for deciding the point of sale	**%**
Farmers call the retailers (check demand and prices)	64
Retailers call farmers on the phone and inform them of their daily requirement and prices	32
Take the produce to the first retailer, then to the next and then to the *mandi*	4

n=100

When surveyed, farmers said the main attraction of organised retail was the higher prices offered for produce, closely followed by their trust of the electronic scale over the traditional hanging balance. Savings from commission charges to agents at the local *mandi* was another reason to choose organised retail instead.

(iii) Insufficient institutional development

Organised retailers have introduced a new institution in marketing fresh fruit and vegetables by creating a system of preferential payment for quality — although given the (small) scale of these arrangements, they are yet to have any impact on the local *mandi*, where farmers continue to sell the bulk of their produce.

However, the governance mechanism of the new supply chain created is still not fully developed. The institutions (rules) related to contracts, payments, grades and standards are yet to evolve. The retailers' existing marketing system doesn't fit into either the model of standard contract farming or that of corporate farming. There is no pre-determined procurement price and nor are inputs or technical support provided as part of this arrangement. It is more like *contact farming* — an informal procurement arrangement where retailers enter into informal arrangements with producers who can provide quality produce. There is no mechanism for sharing production and marketing risks. Procurement volumes and prices change daily, based on information on front-end demand communicated by the head office as well as prices at the local market. Also, each party is free to explore better avenues of procurement and sale.

If these arrangements are to expand and succeed there is a need to develop a code of commercial conduct for commercial relations between retailers and producers. Here the government can play a very important role in developing this code of conduct, so that chances of potential conflicts between retailers and producers are reduced and, thus, losses to both parties mitigated.

There is enough reason to believe that retailers are, so far, not biased against small farmers (Table 5). However, global experience indicates that smallholders are likely to be excluded from these new supply chains when organised retailers start employing stringent quality parameters in procurement (FAO, 2005).

Table 5. Holding Size of Farmers (Acres)

Holding size	%	Average area [acres]
Less than 2.5	31	1.78
2.5- 5.0	34	3.88
5.0 – 10.0	21	8.28
More than 10	14	18.86

n=100

From the above table, it is reasonable to assume that organised retailers are not biased toward farms of any particular size. Rather, the emphasis is more on quality and preference is given to those farmers who fulfil retailers' requirements.

(iv) Institutional changes in access to technology, research and technical expertise

Introduction of new knowledge on improved seeds and farming practices, deployment of trained staff to advise farmers and a new procurement system that values quality have all resulted in incremental improvements to farmers' access to technology, research and technical expertise. Out of the five organised retailers, only ITC and Heritage have established reliable mechanisms for transferring new technologies to farmers (See Box 2 on the following page). Both have established production and demonstration plots in Vontimamidi and have recruited trained personnel — who also provide technical advice to farmers — to manage them. They have also distributed sample seeds of vegetables (supplied by seed companies) to farmers. Heritage has a bigger professional team to provide technical support to producers, especially its 'custom farmers'. Ranger Farms (Reliance) is managed by an agricultural professional, but the company does not provide any formal extension support to producers. More and Spencers do not offer any technical support to farmers. Only 15% of farmers have received any kind of advice from retailers on vegetable production (Table 6).

Table 6. Services received from the retailers

Type of service	% of respondents who have received the service
Sample packet of vegetable seeds	12
Advice on vegetable production	15

N=100

Box 2: Extension Support by Organised Retailers (ITC and Heritage)

ITC Choupal Fresh: ITC has set up a 2-acre crop nursery and demonstration farm at Vontimamidi. New varieties of vegetables are tested here and the site is also used as a training centre. The company has an agricultural extension officer posted here, assisted by 2 local, trained technical assistants. The officer visits ITC's 'contact farmers' regularly and provides technical guidance over the phone.

This technical team is responsible for:

- Identifying vegetable-growing village clusters
- Studying cropping patterns, seasonality, quantity, duration and availability of crops
- Identifying key farmers
- Developing collection centres and finalising quality parameters
- Introducing new varieties, demonstrating new technologies and providing advice on problems

Recently the company selected 24 farmers from the region and trained them on vegetable production techniques that would earn them a Global GAP (Good Agricultural Practices) certificate, ultimately granted to them by Food Cert (the organisation entrusted with GAP certification in India). GAP is a standard that covers the entire activity of agricultural production — from before seeds are planted until the crop is harvested. ITC's extension team has also prepared a checklist based on Global GAP, titled Choupal Fresh GAP.

Heritage's Fresh@

Heritage has established a nursery and demonstration farm near its pack house at Mulugu, near Vontimamidi. A large team of professionals manages production, procurement and extension activities. Besides a senior manager (trained in agricultural business management) the team comprises a deputy manager (procurement), 2 production and procurement executives and 15 field assistants with diplomas in agriculture. Technical support is provided by an experienced agronomist.

Every month outside experts conduct training classes for the technical staff on production

and plant protection aspects. The technical team, in turn, trains custom and registered farmers during village meetings. Farmers interested in registering with the company are invited to fill in an agreement form and are then provided a unique code and identity card. Custom farmers who are willing to invest in poly houses are encouraged to grow exotic vegetables, such as yellow and red peppers, broccoli, red cabbage, china cabbage, etc.

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The two companies that have placed technically-qualified teams at the collection centres and that have set up demonstration plots need to be commended, given the weak nature of public horticultural extension. The Andhra Pradesh Department of Horticulture only has two employees (1 horticultural officer and a field consultant) for each division[11]. Sometimes the two-member teams are forced to attend to more than one division, given the large number of vacant posts. The department as a whole is more focused on distributing inputs and subsidies. At the time of conducting this study neither the organised retailers nor the farmers in Vontimamidi had any engagement with the horticulture department, despite both being eager to improve production techniques.

(v) New actors, new roles and opportunities for more frequent and more effective interaction

The five corporate retailers in Vontimamidi have set up collection centres, distribution centres and packing houses to store, grade, clean and pack produce before distributing it to urban retail outlets. This has resulted in a strengthening of the supply chain infrastructure for perishable commodities, and has reduced produce spoilage to a large extent. Retailers have incentivised quality production by providing farmers an alternate channel for marketing produce. They have also brought in a new system of pricing based on quality. Some are also trying to develop farmers' capacity to cultivate new crops and produce commodities of better quality.

Current patterns of interaction are, however, restricted to retailers and select farmers. What is clear is the need for a local retail presence and continuous intermediation to develop new capacities. Upgrading production of horticultural produce with new crops,

[11] Each division comprises 6-7 mandals. Each mandal includes around 30-35 villages.

better varieties and adoption of better quality standards would need a different kind of extension system in place. The state horticultural department and research stations working on vegetables and fruit could learn a lot from the experience of some retailers, such as ITC and Heritage, who are currently experimenting with new models of support for their preferred farmers. The importance of problem-solving advice, regular field visits and continuous intermediation for producing better quality produce is increasingly clear. A lot could be gained by forging effective partnerships between different agencies involved in research, extension and marketing. Without an effective mechanism for technology development and promotion, the potential offered by the entry of organised retailing would be difficult to achieve.

6. CHALLENGES AND OPPORTUNITIES FOR ORGANISED RETAIL IN INDIA

Organised retailing of fruit and vegetables by the corporate sector is expected to expand in India in the coming years. While retailers are experimenting with a new business model, producers are testing out new approaches to marketing fruit and vegetables. These arrangements are still evolving. However, these new ways of producing and marketing fresh fruit and vegetables are currently creating capacities for innovation in horticulture. While government could do more to support and strengthen these arrangements (through research, extension, marketing and infrastructure development), it seems to be disengaged from this entire process of change.

The current debate on organised retail of fresh fruit and vegetables is highly skewed in terms of its impact on traditional small retailers. Protecting the interests of small retailers is important, but the interests of producers who outnumber different market intermediaries by any count should also receive equal consideration.

Producers do benefit when alternate marketing channels emerge and this study clearly supports this. Benefits are not only in the form of higher incomes, but also in terms of improved capacity for quality production and dealing with new ways of marketing. However, so far only a few farmers in the region have benefited, with retail operations still at a small scale. Farmers still continue to depend on traditional markets and, therefore, upgrading the infrastructure and trading practices at these *mandis* should receive continued attention.

Once the scale of business expands, retailers will have to deal with a greater number of producers. With rising urban consumer demand in terms of quantity, quality, choice and convenience, organised retail is bound to expand. If producers are to benefit from this new marketing revolution, their ability to produce quality horticultural produce needs to be upgraded. This would require both public and private sector support. Farmers' capacities to market quality produce also need to be enhanced.

Public sector extension support for horticulture producers is currently very weak. Strengthening it would require larger numbers of trained personnel and more resources. However, there is a greater need for a different kind of extension system that could specifically support farmers to produce quality fruit and vegetables and help them access the right kinds of input and output markets. A lot could be learnt from the experiences of ITC and Heritage, as well as other public initiatives in the country, such as Safal (Mother Dairy Fruit and Vegetable Ltd.) and the Vegetable and Fruit Promotion Council, Keralam.

Public sector extension needs to be proactive and engage with organised retailers to design extension programmes that enhance the capacity of farmers and producer groups. Although this study hasn't found any discrimination against smallholders, global experience indicates that they are likely to be excluded from these new supply chains, when organised retailers start employing stringent quality parameters when buying produce. Extension can and should assist small farmers in enhancing their capacity to deal with these new quality requirements.

Some organised retailers have started supporting producers with seed, advice and personal visits to farmer fields. But they need to do more if they are keen on expanding operations. This would involve recruiting more technically-trained staff, improving farm advisory services and designing specific educational programmes on quality production.

Arrangements between retailers and farmers are currently based on trust, without any written or binding contract. However, once the scale of operations expands, written contracts would become important. The public and private sectors need to work together to develop better and transparent guidelines on contract arrangements to reduce risk and ensure profit sharing.

7. LESSONS FOR PUTTING RESEARCH INTO USE AND INTERNATIONAL DEVELOPMENT PRACTICE

In the late 1990s and early 2000s, a number of studies flagged to the international development community that private sector activity in agri-food systems had the potential to drive technical and instituitional innovations capable of improving the livelihoods of the small scale farming system (Hall et al., 1998, 2002; Reardon et al., 2003; Byerlee and Echeverría, 2002). At that time examples were scarce and it was difficult to see how these would play out at scale. Nevertheless, even at that time the key bottleneck was clearly identified: namely, the need for new ways of working and other institutional changes that would allow new and potential links between private agri-enterprises, public research and allied technical services to work productively together in supporting a continuous process of innovation.

Ten years later, the predictions about the potential of private enterprises have starting to be seen on the ground. As the case of India shows, private enterprise is becoming a major transformative force in the agri-food system. More specifically, it is being viewed as a large-scale mechanism for linking poor farmers to rapidly expanding urban markets. These are no longer isolated cases, but an increasingly common practice. From a domestic and international development policy perspective, this is a trend of sufficient importance for policymakers to give attention to.

Yet while this pattern of market development is now widely and better established than it was 10 years ago, the same problems are being encountered. If the case of India is indicative of a more generic trend, it suggests that while a new architecture of sector players is now in place, relationships between private enterprise, public research and allied technical services are still poorly developed. Moreover, because of this, the potential for these new patterns of market development to provide farmers with access to a range of technical and other resources and expertise and to contribute effectively to the upgrading of production systems is an opportunity missed. Policy cannot afford to ignore this as the food systems of most developing countries urgently need to upgrade production practices to increase food productivity and improve the sustainability of practices in order to cope

with climate change as well as to meet changing consumer demands — which increasingly embody these sustainability and ethical concerns.

What can be done? It seems that the hardware is in place — in the sense that an architecture of linkages exists — but the software (or orgware) to make this hardware work is missing. The task at a generic level is, therefore, about finding ways of increasing the comfort level between agri-enterprises, public research and allied technical services. Once these new and comfortable ways of working are established that would enable productive collaboration to take place. This, of course, has proven easier said than done (Hall, 2006; Spielman et al., 2009). The truth is that there is probably no shortcut to achieving this 'comfort level' of relationships. It is going to require long-term policy support for a range of activities that help develop the interface between organised retailing and agricultural research and extension services. The justification for this as a public expenditure is that of a clear social return to the small-holder farming sector.

The range of possible ways of achieving this greater interface between is wide and diverse, but at its core is the need for public money to experiment with and build experiences of public-private relationships: this could be in the form of tax breaks for investments in public research by the private sector; it could be in the form of business challenge funds to support collaborative research and development activity; it could involve handing over horticultural research facilities to industry associations; it could involve seconding public extension staff to private companies or even providing public resources to the private sector to train and provide extension services. The possibilities are endless while being specific to particular social and institutional settings. However, the overriding message for public policy is that its task is to strengthen the capacity of the emerging architectures and systems that are assuming significance in the development landscape. This is a lesson for RIU in the sense that its modus operandi in the future should be to become opportunistic. It should focus on identifying opportunities associated with emerging patterns of entrepreneurial development and explore ways of using financial and technical support to stimulate the patterns of institutional development needed to enable innovation and relevance to social and economic development agendas.

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