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Value Chains and Retailing of Fresh Vegetables and Fruits, Andhra Pradesh

G.P. Reddy*, M.R.K. Murthy and P.C. Meena
National Academy of Agricultural Research Management
Rajendranagar, Hyderabad, 500 407, Andhra Pradesh

Abstract

The present study on retailing has been undertaken in Andhra Pradesh to examine growth and performance of modern retailing and its impact on traditional retailers. The study has indicated that the number of players is less in modern retailing than in the traditional retailing. Vertical analysis between the two chains has also indicated the same results. For instance, in the case of vertical distribution in the traditional value chain, 19.8 per cent of the gross value goes to farmers, 11.3 per cent goes to village merchant, 14.3 per cent goes to middlemen, 15.3 per cent goes to wholesalers, 12.0 per cent goes to commission agent, 16.8 per cent goes to rythu bazaar and the remaining 10.8 per cent goes to traditional retailers. Thus, the farmers rank first, and middlemen and wholesalers rank second, whereas in modern retailing, supermarkets receive 38 per cent of the total gross value. The study has revealed that there are both demand and supply side factors that contribute to the emergence of traditional and modern retailing. Hence, efficient, value chain management will certainly add value and help in bringing the produce to the market.

Introduction

In India, retail sector continues to be one of the largest sector attracting fresh investments from the private sector. Currently, Indian retail distribution is completely fragmented with about 13 million players. A majority of these are very small players operating from small shops (below 50 square feet in size), and handcarts and as road-side vendors and hawkers. These retail outlets are spread across the country in over 5,000 cities and 6,00,000 villages. The Indian retail industry is estimated to provide employment to over 18 million people. Traditional local markets and small-scale retailing stores continue to dominate India's food retail sector. Retailing in India is the largest employer after agriculture. It employs almost 7 per cent of the total work force in India and has a contribution of 14 per cent to the national GDP. In the year 2004, the size of Indian organized retail industry was of Rs 28000 crore, which was only 3 per cent of the total retailing market (Kearney, 2006).

Organised retailing is projected to grow at the rate of 25 per cent to 30 per cent p.a. and is estimated to reach an astounding figure of Rs 1,00,000 crore by 2010. The contribution of organized retail is expected to rise from 3 per cent to 9 per cent by the end of the decade. The Indian retail market has been estimated to grow from the US$ 330 billion in 2007 to US$ 637 billion by 2015. Retailing encompasses the business activities involved in sending goods and services to their consmers for their personal family or household use (Berman and Evans, 2001). New market opportunities have arisen with this rapid growth in 'global markets' for products based on long and integrated supply chains (ODI, 2003; Kydd, 2002; Barghouti *et al*., 2004). Due to a rapid growth in demand from expanding urban populations in developing countries, food systems can no longer be viewed simply as a way of moving basic staples from farm to local plates. Producers now often supply long and sophisticated market chains, and market processed and branded products to mainly urban consumers. This is particularly the case with changes in the retail system due, partly to the growth and increasing concentration of supermarkets (Reardon, 2005;

* Author for correspondence,
Email: gpreddy@naarm.ernet.in

Hu *et al*., 2004; Reardon and Berdegué, 2002). There has been a trend away from supermarkets occupying only a small niche in capital cities and serving only the rich and middle class, to spreading well beyond the middle class in order to penetrate deeply into the food markets of the poor (Reardon, 2005). To ensure quality and consistent supply of perishable goods, supermarkets are pushing the food marketing system toward more vertical coordination, allowing retailers to standardize quality, improve bargaining power, and achieve economies of scale (Gulati *et al*., 2007; Boehlje, 1999; Echánove and Steffen, 2005). The changing life-styles and increase in disposable income have helped in the growth of retail industry. Hence, the present study was undertaken to look into various aspects of retail industry in Andhra Pradesh with the following objectives:

- To study the growth of modern organized retailing in Andhra Pradesh, and
- To asses the impact of modern retailers on traditional retail marketing.

Methodology

Data and Sample Size

In this study, both secondary and primary data were collected from traditional as well as modern retailers from four districts of Andhra Pradesh surrounding the Hyderabad district. These were Ranga Reddy, Medak, Nalgonda, Mahabubnagar districts. The data were collected from about 400 respondents for the year 2009-10. Simple tabular analysis was performed to analyse the data.

Value Chain of Selected Vegetables in Andhra Pradesh

The agricultural production system in the state is multi-cropped with diversified systems of both agricultural and horticultural crops separately and together. The state has 203 thousand hectare area under vegetables with a production of around 3.4 million tonnes in 2009-10. (Table 1). In Andhra Pradesh, vegetable production over the period has not been encouraging as both area and production have declined between the period 2006-07 and 2009-10. The productivity of vegetables in the state was 12.35 tonne/ha, which is quite low as compared to the national average productivity of 15.0 tonne/ha.

In Andhra Pradesh, a significant gap was observed between actual production and potential production of different vegetable crops in 2006-07. It shows that there is vast scope to improve the production of these crops at different levels. This critical gap can be minimized by strong extension services, training and demonstration. Improvement in the productivity can be achieved through replacement of traditional varieties by hybrids and adoption of improved production/ protection technologies. To enhance the vegetable production in the state, the target should be to achieve 25 t/ha productivity by 2020, which is presently around 12.35 t/ha.

Modern versus Traditional Food Retailing in Andhra Pradesh

In India and in Andhra Pradesh too, traditional retailing in fresh fruit and vegetables (FFVs) is done

Table 1. Crop-wise vegetable area and production in Andhra Pradesh: 2006-07 to 2009-10

Crop	2006-07		2007-08		2008-09		2009-10	
	Area (ha)	Production (Mt)	Area (ha)	Production (Mt)	Area (ha)	Production (Mt)	Area (ha)	Production (Mt)
Brinjal	28.5	428.2	26.6	531.3	26.6	531.3	26.6	531.3
Cabbage	6.7	99.8	9.0	134.3	9.0	134.3	9.0	134.3
Okra	28.3	424.0	29.3	439.7	29.3	439.7	29.3	439.7
Peas	0.1	3.5	0.1	4.0	0.1	4.0	0.1	4.0
Tomato	81.1	1540.3	74.1	1408.1	74.1	1408.1	74.1	1408.1
Onion	33.8	574.0	35.6	606.0	39.0	662.6	39.0	662.6
Potato	4.4	88.3	6.6	132.7	6.6	132.7	6.6	132.7
Sweet potato	0.7	13.5	0.7	13.9	0.7	13.9	0.7	13.9
Tapioca	15.7	314.5	17.9	357.5	17.9	357.5	17.9	357.5
Others	65.7	869.7	99.0	1318.8	121.3	1583.3	121.3	1583.3
Total	265.0	4355.8	298.9	4946.3	324.6	5267.5	324.6	5367.5

Source: State Directorates of Horticulture

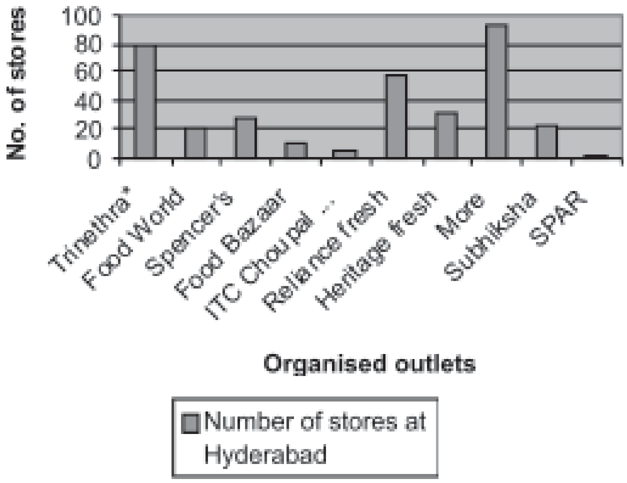

Figure 1. Expansion of organised retail selling in fresh fruit and vegetables (FFVs)

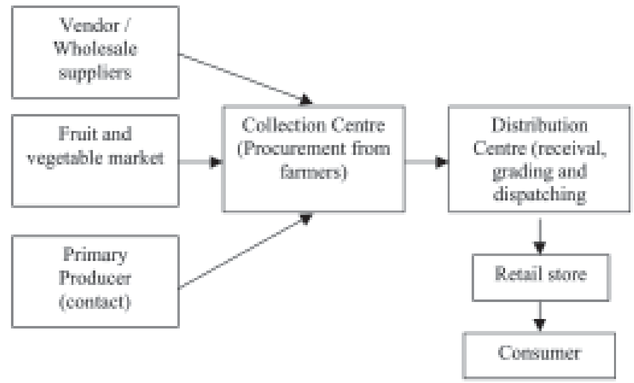

Figure 2. Value chain of a fruit and vegetables modern retail chain in Andhra Pradesh

through specific fruit and vegetable markets (known as subji mandi), specific shops for vegetables and fruits (which are usually separate), small roadside vending, handcarts, cycle-carts, and head-loaded baskets. Sometimes, different items are to be collected from different shops/vendors. Usually, traditional retailing in FFVs is spatially scattered and therefore is tiresome and time-consuming. In modern retailing different FFVs are available at one place. Thus, modern retailing offers scope for considerably saving in shopping time. Among traditional retailers in Andhra Pradesh, only a few retailers maintain grades and standards in product procurement. Vendors play an important role in the modern value chain by reducing the information gap that otherwise prevails between retailers and farmers. They supply seeds, technology and other necessary inputs to attain the requirement of supermarkets and provide training to farmers on how to achieve the required standards. Vendors also add value to the products through better post-harvest processing and handling, starting from cleaning, trimming, sorting, grading and packing to distribution. The distribution of selected commodities in the traditional market channel involves multiple intermediaries and high cycle times (Reddy and Murthy, 2009). The major savings in time take place in communicating the requirement of the retailer to the farmer and picking up and transporting the produce. A large chunk of fresh fruits and vegetables is lost because of inadequate post-harvest handling and lack of cold storage, processing facilities and convenient marketing channels.

Several malls are coming up in the state (Figure 1). There are opportunities for investments in the rural areas as well. Rythu Bazaars in Andhra Pradesh are examples where producers and consumers are brought on the same platform and a large number of intermediaries are eliminated. They act as whole sale markets from where even the supermarkets source FFVs.

Supply Chain

The supply chain has a weak print, i.e. it is a multi-layered marketing channel lacking in infrastructure. Different supply chains require strengthening at all the levels of infrastructure such as input delivery, credit, irrigation, procurement, post-harvest management, creation of cold store chains, establishment of processing units and modern storage plants and marketing techniques, marketing information.

The infrastructure and linkages of the supply chain are very poor, and are affecting the growth potential of the agricultural sector. Timely availability of inputs and development of organized input market infrastructure will add to the productivity of fruit and vegetable crops. The development of cold chain network will help in reducing post–harvest losses, which means overall improvement in their per unit productivity. Heavy investment is required to build the cold storage chain for transporting the produce from the farm/orchard gate to the consumer. It requires pre-cooling chambers, cold area for porting and grading the produce, and refrigerated trucks for transferring the produce to the market of distribution. Due to weak linkages in the supply chain, the price received by the grower is only about one-fourth to half of the retail price the consumer pays.

Supply Chains of Traditional and Modern Retail Food Value Chain

The supply chain needs to add variety in terms of niche and upcoming products like organic, natural, chemical-free or safe vegetables, which can attract a committed clientele that will be willing to pay for such products. Chains should invest in the market to create a niche and value-added segment, and this can lead to viable selling of highly perishable products like fruits and vegetables. About 37 per cent of stores are achieving returns on fruits and vegetables through volume, quality delivery, commitment and consistency, which can only come from efficiently coordinated and well-linked supply chains.

Value Distribution of Traditional and Modern Retail Food Value Chain

Figure 3 shows the per cent distribution of gross value across different linkages in traditional and modern retail chain in vegetables. These values are based on the average prices received for five major vegetables, namely tomato, cabbage, brinjal, okra, and local bean. The price data were collected at each level of transaction, starting from farmers to retailers. Figure 3 presents both vertical analysis within a chain as well as analysis of different commodities between two chains. For instance, in terms of vertical distribution in the traditional value chain, 19.8 per cent of the gross value goes to farmers (No. of respondents = 79), 11.3 per cent goes to village merchant, 14.3 per cent goes to middlemen, 15.3 per cent goes to wholesalers, 12.0 per cent goes to commission agent, 16.8 per cent to rythu bazar and the remaining 10.8 per cent goes to traditional retailers. Thus, the farmers ranked first, middlemen and wholesalers ranked second in approaching value shares in the traditional chain. The relative distribution is very different in the modern value chain, wherein farmers received 22.75 per cent of the total gross value and supermarkets received 38 per cent of the total gross value.

Though it is obvious from Figure 3 that in the traditional value chain farmers, on an average, receive a higher share than other stakeholders, but the farmers linked to the modern value chain receive a higher price for each of the vegetables. It is important to mention that the quality difference in the products produced by the two groups of farmers has not been considered here, and the improved quality supplied by farmers linked to the modern food value chain may come at a cost that needs to be compared with the improved gross margin. Besides, there are two other important aspects that we have not taken into account. Integrated farmers receive inputs and technical support; there is perhaps

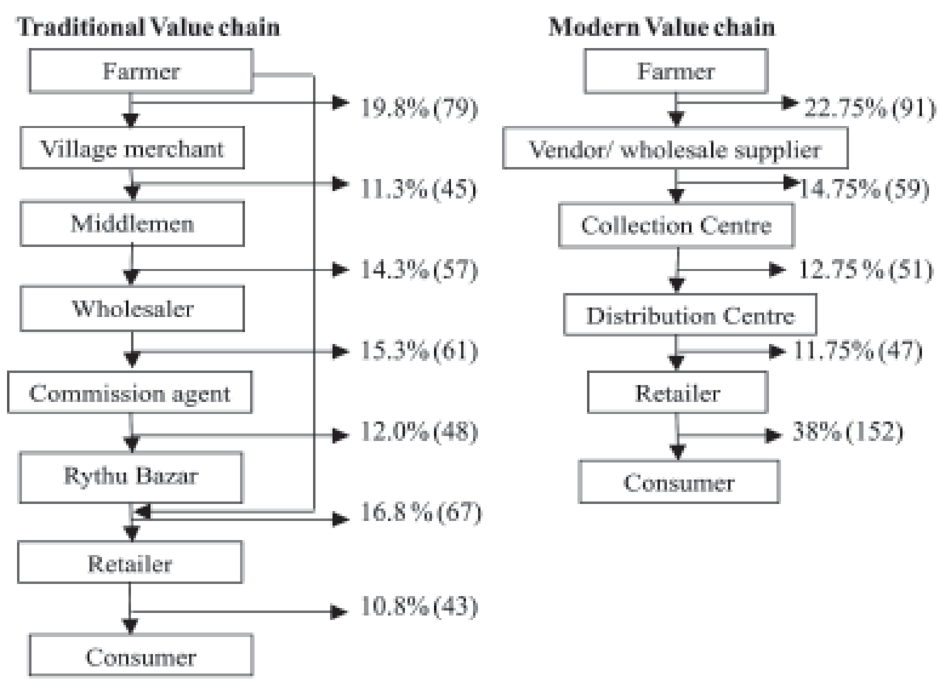

Figure 3. Distribution of gross value in traditional and modern retailing chains in vegetables

Note: Figures within the parentheses denote number of respondents

Table 2. Traditional outlets-wise profile of regular customers visiting the outlet

Type of outlet	Retailing*	Per cent of retailers with regular customers	Per cent of regular / repeat customers	Per cent decline in regular customers
Fixed shop owner	Before	67.8	16.4	25.2
	After	52.1	15.4	
Roadside fixed hawker	Before	65.3	17.9	21.1
	After	61.8	15.4	
Home delivery hawker	Before	52.8	10.8	14.8
	After	52.6	7.7	
Roadside cum home delivery hawker	Before	53.3	14.9	11.5
	After	53.1	11.4	
Mandi/weekly market retailer	Before	62.6	22.4	18.3
	After	59.5	20.5	
Rythu bazaar retailer	Before	71.0	17.9	16.9
	After	64.8	13.1	
All	Before	61.6	23.5	22.6
	After	58.5	19.9	

*Before and after opening of modern retail outlets

a reduction in production risks due to the vertical relationship. Similarly, modern vendors buy the products from integrated farmers at a price correlated to prices in supermarkets. Integrated farmers are likely to face less price fluctuations and lower transaction costs compared to their traditional counterparts. Since they know their buyers, there is no search involved in the transaction. In addition, they also incur low monitoring and enforcement costs due to repeated transactions with the same vendor(s). Therefore, reductions in price and production risks and transaction costs due to the vertical relationship might have enhanced the overall return to farmers linked to the modern value chain.

Impact of Modern Retail Chain on Traditional Retailing

The retail revolution is likely to have far reaching implications for different stakeholders including growers, wholesalers and traders in the traditional market. It may also benefit the small retailers. Of course, the extent of impact will depend on the share of organized retailing and the involvement of small and marginal farmers in the production of the selected crops. There was a competitive response from the traditional retailers through improved business practices and technology upgradation. Small retailers have been extending more credit to attract and retain customers.

The percentage of traditional retailers with regular customers remained almost same even after the opening of the modern retail outlets in the case of home delivery hawkers (53%), and roadside cum home delivery hawkers (53%), however, retailers with regular customers declined in the case of fixed shop owner from 67.8 per cent to 52.1 per cent, roadside fixed hawkers from 65.3 per cent to 61.8 per cent, mandi/ weekly market retailers from 62.6 per cent to 59.5 per cent and rythu bazar from 71 per cent to 64.8 per cent. Thus, traditional retailers with regular customers declined from 61.6 per cent to 58.5 per cent. Decline in regular customers was maximum in the case of fixed shop owner (25.2%), followed by roadside fixed hawker (21.1%), and mandi/weekly market retailer (18.3 per cent). Thus, the roadside hawkers and fixed shop owners reported the highest number of footfall both during week-days and week-ends before the opening of modern retail outlets.

Innovative Models

To develop modern value chains by the retail sector some concrete investments have to be made, including encouragement from the government. For establishment of such chains, some of the needed efforts are:

- Providing a conducive environment for private sector investment,
- Setting standards for products to maintain quality,
- Post-harvest management, skilled manpower and infrastructure, and
- Development of linkages between small and marginal farmers on one side and the retail sector on the other side.

Presently, the policy in general deals with only a few important commercial crop products, namely tomato and brinjal. This should be extended to other vegetables and commercial crops. This policy supports the grower to fetch a better price for his produce in the market and also benefits the consumer on the other side.

Different forms of Value Additions

1. Differentiate the products on the basis of quality or size, and sell the same at different prices to appropriate customers.
2. Minimally process items to a form and shape which is closer to the final consumer product (e.g., fresh-cut vegetables and ready-to-eat salad mixes).
3. Process the whole item or its functional components, or lower grade, waste or by-products by converting the short shelf-life product to a storable form (e.g., freezing or dehydration of FFVs).

Modern retailers offer value-added, processed F&V products, spend time on processing activities rather than on produce sourcing and storage, add complementary products and services related to healthy eating and living, and try to understand better and attempt to respond efficiently to wants and needs of its local customer. Certain fruits and vegetables could be especially promoted due to their health proprieties. In addition, health-related information in the form of books, booklets or leaflets could be distributed, free or at price. Offering of some fresh preparations in the shop such as juices, or ready-to-eat snacks may result in the impulse purchases. A category may be created after fruit / vegetable - based health link and could even include complementary products which are usually sold (without prescription) in drug stores. Small exclusive retail chain operators would be more agile and responsive in fulfilling these low cost wants and latent needs of their customers than supermarkets. The transaction costs may be reduced to control high fluctuations in the market price. The food chains in Andhra Pradesh are full of inefficiencies — a result of inadequate infrastructure, too many middlemen and wholesalers, complicated law and an indifferent attitude.

Conclusions and Policy Implications

In Andhra Pradesh, the retail sector is largely traditional, but stores in modern format are emerging. The emergence of modern retail chains has created new food value chains which have helped in reduction of price and production risks and thereby have increased returns from farming. The demand for quality, safety and other specific requirements may exclude small-scale farmers. But, for consumers there is an improvement in product quality and convenience. In Andhra Pradesh, there is a need to build institutions and mechanisms to increase small scale farmers' participation in the modern food value chain. Vendors play an important role in the modern value chain by reducing the information gap with training and channelisation of modern retailers and farmers. There is also a need to reduce intermediaries in marketing of FFVs so that farmers' share in consumer or user's rupee increases.

References

Berman, B. and Evans, J.R. (2001) *Retail Management*, Prentice Hall, Upper Saddle River, New Jersey.

Coughlan, A.T., Anderson, E., Stern, L.W. and El-Ansary, A.I. (2001) *Marketing Channels*, Prentice Hall of India Pvt. Ltd., New Delhi.

Gulati, A., Minot, N., Delgado, C. and Bora, S. (2007) Growth in high-value agriculture in Asia and the emergence of vertical links with farmers. In: *Global Supply Chains, Standards and the Poor: How the Globalization of Food Systems and Standards Affects Rural Development and Poverty*, Ed: J.F.M. Swinnen. pp. 91-108. CABI, Oxford, England.

Hu, D., Reardon, R., Rozelle, S., Timmer, P. and Wang, H. (2004) The emergence of ODI (Overseas Development Institute). *Food Policy Old and New*. ODI Briefing Paper November 2003 (unnumbered) ODI, London.

Nielsen, A.C. (2007) *Survey of Consumer's Shopping Behaviour and Perceptions toward Modern & Traditional Trade Channels in Indonesia*. Report to the World Bank/Indonesia.

Reardon, T. (2005) *Retail Companies as Integrators of Value Chains in Developing Countries: Diffusion, Procurement System Change, and Trade and Development Effects*. GTZ, Eschborn, Germany.

Reardon, T. and Berdegué, J. (2002) The rapid rise of supermarkets in Latin America: Challenges and opportunities for development. *Development Policy Review,* **20**(4): 371-388.

Reddy, G.P. and Murthy, M.R.K. (2009) *Food Supply Chain: Food Retail Management*, NAARM Annual Research Report 2009-10, National Academy of Agricultural Research Management, Hyderabad.