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Performance drivers of food and grocery supply chain

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Abstract
Various drivers of supply chain in the retail industry are becoming increasingly influential in the present globalized marketing world. Compared to global standards, the market share of organized retail segment in the Food and Grocery sector is yet to assume significant proportion. Whether the industry is fragmented or well organized the drivers of supply chain such as information, infrastructure, facility, pricing, sourcing, transportation and such other, impact the performance of retail segment all the same. As in the case of global markets, Indian markets are also getting more and more diversified and fragmented. Thanks to proximity to ultimate consumers, retailers are in a better position to have access to ground level information and changing taste and preferences of customers. This basic advantage coupled with need to leverage with competitors has driven them to identify supply chain drivers in their own way. Just as the ability to survive in the competitive market, their supply chain performance needs to be measured and even evaluated.
Food and Grocery sector's success depends upon presence of a vibrant, resilient, and responsive supply chain management. In the whole supply chain management, the role of retailers assumes to be more critically important in diversified country like that of India. As the saying goes, 'What gets measured gets managed'. It is in this context that retail supply chain performance needs to be measured in some way or the other. As of now, a few models of performance measures are available. However, no single model is completely free from lacunae. The purpose of this paper is to make a detailed enquiry into the role and contribution of performance drivers in the retail supply chain and more particularly in Food and Grocery sector.

Keywords: supply chain, drivers, marketing, food and grocery sector, performance, global markets, Indian markets, and performance

Introduction

India is going through a retail revolution. All the big business houses are entering this Sector and it is growing at a very past pace. International giants in this sector like Wal- Mart, Tesco and Care four are also trying to enter the Indian market. Retail is offering tremendous opportunities in employment. However, our country also poses a big challenge to organized large retailers particularly in food sector. Food being perishable item, for the retailer to be successful the key is proper supply chain management. The challenge comes from a number of factors, e.g. huge size and population of our country, varied culture and hence varied taste, very poor infrastructure like improper roads, bad connectivity between production centers and markets, lack of proper cold chain facility like refrigerated transportation, ware-housing etc. Under these circumstances it is interesting to find out how large organised retailers are coping up with these problems. In this paper a comparative study is made in supply chain management adopted by different players in food and grocery segments.

Food & Grocery sector constitutes about 14 % of the organized retailing in India. Ironically, organised retail is a meager 2% of the total retail sector in India. However this figure is changing upwards rapidly. Retail, in general, means selling in small quantities. In a laymen's parlance retailing is a term which can encompass sale of goods and merchandise for personal or household consumption either from a fixed place like market, shops or more recently, departmental stores, supermarket, shopping malls etc. It all started through small shops selling goods but lately came the huge stores ushering in retail revolution in India. There are three major types of retailing, first is Market where buyer and seller are in contact. This involves selling on the sidewalks, streets etc. The second form involves shop or shop trading where goods are out of buyers reach and kept at a distance which the seller supply them on demand. The third type is virtual selling where products are offered online and then selling is done involving e-mail, online shopping. In nineteenth century in France arcades were invented, where shops were made roofed on both sides of the streets. In 1920s, the first supermarket opened in U S A, which heralded the concept of self service. Around the same time first mall was constructed with both arcade and departmental store style. Soon the revolution stared as people got to feel the product before purchasing them, they had a variety to choose from and the ambience added to the beauty of the concept. The scenario remained and conceptualise to the whole world. This has not only opened the vistas for global retail but also provided a next big revolution called Retailing. Retailing both reflects and determines culture as consumer goods are the focus of our labor, our economy, and our collective lifestyle. Because of consumer goods, the retailing industry demands equal opportunity employers.

Retailing is the most unifying and common force for the youth of our society. Retailers now are on a spree to make their global presence felt by entering into the untapped markets which have immense consumer base, especially India and China. Wal-Mart; Carrefour etc are eying these markets through acquisitions or through mergers.

Review of Literature

Lambert and Pohlen [1] criticize the measures used to evaluate supply chain performance. They state that supply chain performance measurement systems are focused on logistics measures (lead time, fill rate, on-time performance) but do not provide information on how well the key business processes have been performed or the extent to which the supply chain has met customer needs. Moreover, the same authors argue that these measures do not provide information on how the overall supply chain has performed and fail to identify opportunities to increase competitiveness, customer value and shareholder value for each firm in the supply chain.

Otto & Kotza [2] provide us with six sets of unique supply chain metrics based on six different perspectives: system dynamics, operational research, logistics, marketing, organization and strategy. Each of this perspective has different set go goals on which different types of performance metrics are based. Each perspective in this framework has a different notion of the supply chain management and the issues therein. All the metrics provided in this paper are not feasible to be measured quantitatively and qualitatively for developing a comprehensive framework

Chang and Qi [3] provide another framework for measuring the performance of a supply chain. The framework they propose has a innovative performance measurement technique that contributes to development of supply chain management from five core processes: supplying, inbound logistics, core manufacturing, outbound logistics and marketing & sales. This framework uses fuzzy logic and other soft computing techniques to make a process based systematic perspective. A cross organization holistic performance system is introduced to address the real life situation in judgement and evaluation processes.

Gunasekaran *et al*. [4] develop a framework to promote a better understanding of the importance of supply chain management performance measurement and metrics. This framework measures the supply chain processes (plan, make, source and deliver) in respect to strategic, operational and tactical levels. This framework then evaluates apriority wise score for each listed metric by three levels: highly important, moderately important and low importance.

Aramyan *et al*. [5] have developed a framework for measuring performance in supply chain of a Dutch German company dealing in tomatoes. The case study concludes with the following key indicators of performance in the supply chain under study: efficiency, flexibility, responsiveness and food quality. This study further develops an integrated supply chain performance measurement framework that combines metrics of both financial and non financial nature.

Bhagwat and Sharma [6] have taken Balance Score card (BSC) as the basis of developing a framework for Performance measurement of supply chain management. BSC involves evaluating day to day business processes in the following perspectives: finance, customer, internal business process and learning and growth. Three Indian companies in the small and medium sector have been taken in for developing a case study of the BSC based framework.

Robb *et al*. [7] propose and develop a model that establishes a relationship between supply chain or operations practice and operational or financial performance by using a structural equation model taking a set of China furniture manufacturers as a part of case study. The uniqueness of this industry lies in the fact that while increasing labour productivity has been a challenge as in recent times remains relatively low, exports in this sector have undergone substantial growth. One of the major research highlights of this study is relative importance of supply chain and operations practices and the study shows impact of practice on business performance, mediated by capabilities on operations dimensions One of the unique learning's of this paper is the impact of human resources on supply chain performance. This paper takes a look at training and development of operational manpower as a key area for supply chain performance.

Accordingly, Martı´nez-Olvera and Shunk [8] state that customer satisfaction is the supply chain’s primary goal, resulting from the combined efforts of the supply chain partners to resolve a multi-objective optimization problem related not only to cost, quality and time but also to flexibility, responsiveness and reliability.

Schnetzler *et al*. [9] define supply chain strategy as a set of prioritized supply chain management objectives, that is, strategic priorities, and a way to operationalize them, to determine appropriate measures to build up and capitalize on so-called logistics success potentials that can result in successful business performance. The objective of a supply chain strategy is to create sustainable competitive advantage and a better position of firms in relation to its competition. Several competitive priorities are referred in the literature, namely low cost, Quality, flexibility.

Sanchez and Perez [10] distinguish six major dimensions of customer service: product availability, order cycle time, distribution system flexibility, distribution system information, distribution system malfunction and post-sale support. Companies are able to improve service levels by reducing delivery lead times.

According to Zhu *et al*. [11] if design does not reflect the market requirements, the product will not meet the demands of the market even if manufacturing conforms to the design completely. If manufacturing does not conform to the design specifications, the finished product will have poor quality and fail to satisfy customer needs. Quality management in the design and manufacturing phases is not normally implemented in the same company, but from the perspective of the overall supply chain.

According to Bora, Chiamsiri & Krairit [12] Traditionally, companies have tracked performance based on financial accounting principles, which date back to the ancient Egyptians and Phoenicians. The performance-based measures include the Balanced Scorecard; the Supply Chain Operations Reference (SCOR) model; the Logistics Scoreboard; Activity-Based Costing (ABC) and Economic Value Analysis (EVA). However, the authors noted that the measures are not exhaustive and merely show some of the most popular

approaches to measure supply chain performance. The Supply-Chain Operations Reference (SCOR) model was developed by the Supply-Chain Council to provide a process-based approach to SCM and assist firms in evaluating the effectiveness of their supply chains. The SCOR model is based on five distinct Management processes: plan, source, make, deliver and return. The major performance attributes of the SCOR model are reliability, responsiveness, flexibility, cost and asset (The Supply-Chain Council, 2008).
Basu [13] defined performance measures in five categories, namely: external, consumer, value-based competition, network performance and intellectual capital. Stewart (1995) claims that companies that have outperformed their competitors are found to be superior in four key operational areas: (1) delivery performance, (2) flexibility and responsiveness, (3) logistics costs and (4) asset management.
Fitzgerald *et al*. [14]. Suggest that there are two basic types of measures in an organisation relating to competitiveness and financial performance, which focuses on the determinants of the results (quality, flexibility, resource utilization and innovation).

Food and Grocery Retail

Organised food retailing is relatively a new phenomenon in India, with the emergence of small western-style supermarkets since the 1990s. Most of the food products are sold through local 'wet' market vendors, roadside pushcart sellers or small grocery stores. Out of 15 million retail outlets, almost seven million sell food and grocery products. The vast majority of these are small kiosks (17 per cent), general provision stores (14 percent) and grocery stores (56 per cent of all rural retail outlets) run by a single trader and his family. Food and grocery retail in India is poised to grow further. According to KSA Technopak study, food and grocery retail sales have grown from Rs 3,81,000 crore in 1996, to Rs 8,66,000-crore in 2007 (Business Line: January 03, 2007).

Table 1: Segment wise Share and Growth of Indian Retail ($ billion)

	2006		2010	
	Market Size	Share	Market Size	Share
Food & Beverages	195	65%	256	60%
Personal Care	15	5%	23	5%
Apparel	21	7%	33	8%
Footwear	5	2%	7	2%
Furnishings	4	1%	7	2%
Consumer Durables & IT	14	5%	24	6%
Furniture	9	3%	16	4%
Jewellery & Watches	15	5%	24	6%
Medical Care	8	3%	12	3%
Recreation	2	1%	3	1%
Others	12	4%	23	5%
Total	300	100%	428	100%

India's strong growth fundamentals—9 percent real GDP growth in 2010; forecasted yearly growth of 8.7 percent through 2016; high saving and investment rates; fast labour force growth; and increased consumer spending—make for a very favourable retail environment. Indian consumers continue to urbanize, have more money to spend on non-food purchases, and have more exposure to brands. The result is a powerful, more discerning consumer class. Going by the adage 'markets are there where people are', India's population of nearly 1.2 billion— forecast eventually to overtake China's—also is an attractive target.
Food accounts for 70 percent of Indian retail, but it remains underpenetrated by organized retail. The food business in India is largely unorganised adding up to barely Rs. 400 billion, with other large players adding another 50 percent to this. The share and growth of different retail sectors in India are given in the Table 1. The All India food consumption is close to Rs. 9,000 billion, with the total urban consumption being around Rs. 5,300 billion (Table 2). This means that aggregate revenues of large food players is currently only 5 per cent of the total Indian market (Figure 1), and around 15-20 per cent of total urban food consumption. According to McKinsey report, the share of an Indian household's spending on food is one of the highest in the world.

Table 2: Consumer Spending (Excluding Institutional and Government Spending)

S. No	Consumer spending (excluding institutional and government spending)	Size in 2009 (in US$ Billion)	Size in 2014 (US$ billion)	Likely Ranking in 2014
1	Food and grocery	260	325	**1**
2	Healthcare	34	55	**2**
3	Apparel and home textiles	32	43	**4**
4	Education (K-12, higher education & vocational)	28	45	**3**
5	Telecom	25	41	**5**
6	Jewellery & watches	25	34	**7**
7	Personal transport (vehicles + fuel + repairs)	240	37	**6**
8	Travel and leisure	12	20	**8**
9	Consumer durables and IT products	11	17	**9**
10	Home (furniture, furnishings, etc.)	10	15	**10**
11	Personal care	10	14	**11**
12	Eating out	5	7	**12**
13	Footwear	4	5	**13**
14	Health and beauty services	1	2	**14**

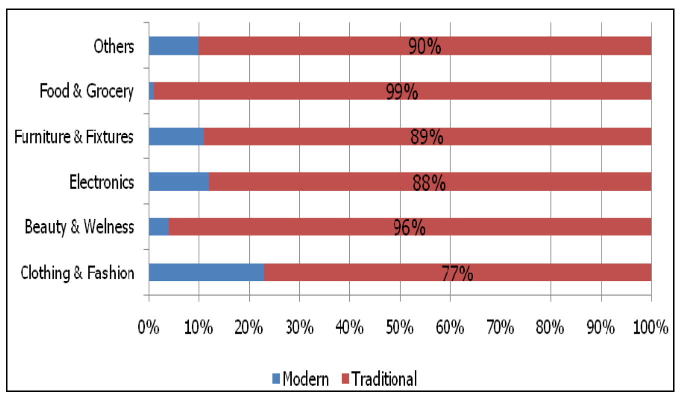

Fig 1: Share of Modern and Traditional Retail

Food and Grocery Retail in South India

Organized retail is spreading and making inroads into different parts of the country. The trend in grocery retailing, however, has been slightly different with a growth concentration in the South. The south of the Vindhyas is a cosmopolitan stew of ingredients favourable for organised retail. It's a motley mix of experimentative consumers aided by a generous and affordable infrastructure blended with long-standing entrepreneurial activity. In a way, the genesis of organised retail was scripted from South India. The four southern states rank highest in penetration of retail outlets in India and a sizeable chunk of corporate sales. The south is considered to be the largest and most developed region for modern trade. This also has to do with consumers in the region with a positive disposition in terms of propensity to shop at such formats. Adoption is typically higher in south India. Though there were traditional family owned retail chains in South India such as Nilgiri's since as early as 1905, the retail revolution happened with the RPG group starting the Food world chain of food retail outlets in South India with focus on Chennai, Hyderabad and Bangalore markets. Owing to the success of Food world of RPG group, several new models such as Trinethra, Subhiksha, Margin Free and others have made their foray into this sector albeit at regional levels. The regional entrepreneurs in south India kick-started organised retail. Examples include the supermarket chains such as Saravana stores in Chennai, acknowledged as the inspiration of Kishore Biyani's Big Bazaars, Varkey's supermarkets in Kerala, Ratnadeep in Hyderabad or Nilgiri's, MK Retail and Food world in Bangalore. This has been backed up by a strong supply chain.

Food and Grocery Retail in Karnataka

Despite traffic snarls, pollution and booming real estate growth, the retail sector in Karnataka is witnessing an explosive growth. The reason for the retail boom is the city's growing affluence. In the last 10 years Bangalore in Karnataka population has increased around 30 per cent and is ranked the seventh most affluent city in India. It is estimated that over one-third of the households in Bangalore in Karnataka have an annual expenditure between Rs 50,000 and Rs 1 lakh, while 40 per cent of the city's population has annual incomes ranging between Rs 70,000 and Rs 1.4 lakh. The 15-45 age groups are a retailer's delight. The retail boom in Bangalore in Karnataka is not merely visible in bigger malls but also among the smaller ones which are basically large stand-alone departmental stores and have sprung up in shopping areas in several localities. The retail boom can be seen in every nook and corner. Smaller shops, which not so long ago struggled for survival, have started expanding and at least three-four supermarkets exist in almost every locality. In some cases, the established large kirana shops have morphed into still bigger stores. Karnataka is one of the richest states in India (Table 3) and the GSDP growth rate during 2005-2009 was 7.85 per cent (Table 4). Bangalore is the principal administrative, cultural, commercial, industrial, and knowledge capital of the state of Karnataka. A short description about the history and growth of Bangalore is elucidated here.

Table 3: Some of the Rich and Poor States in India

Rich States	Poor States
Delhi	Jharkhand
Maharashtra	Orissa
Goa	Chattisgarh
Sikkim	Nagaland
Himachal Pradesh	Madhya Pradesh
Punjab	Bihar
Kerala	Assam
Karnataka	Uttar Pradesh
Andra Pradesh	West Bengal

Table 4: GSDP Growth of Select States in India

	2000 - 2004	2005 - 2009
All India	6.3	8.33
Karnataka	4.9	7.85
Tamil Nadu	4.2	8.21
AP	6.1	8.46
Delhi	7.1	10.57

The topography of Bangalore makes it an unlikely spot for a metropolis, since it lies on a semi-arid plateau between 900 and 1,000 metres above sea level, with no major rivers running near the city. Its early history was unremarkable. By the ninth century, the agricultural economy rested on irrigation through artificial lakes (tanks) along with gardening and dry farming. The construction of tanks required the mobilization of local labour to raise artificial bunds that trapped run-off water, with small irrigation channels feeding water to fields lying downstream. Near this fields stood small villages in which local notables founded the construction of temples, and on the temples, they inscribed records of their religious donations. The relative paucity of surviving temples and inscriptions from the Bangalore region probably reflects a mixture of such village farming communities with extensive areas where animal husbandry and hunting-and-gathering lifestyles remained important.

There are many malls in Bangalore. To name a few, the Forum Mall (3.5- lakh sq ft), Garuda Mall (2.3-lakh sq ft), Bangalore Central and Mantri Square (1.7 million sq ft), etc. deserves a special mention. Bangalore is expected to have about 30 malls in the near future (Table 5). Further, Organized Food Retail Chains in Bangalore include Food Bazaar, Reliance Retail, Aditya Birla More, Food World, @Fresh and Spencer's. These corporate chains have set up a number of outlets in the city. There are many standalone retail outlets as well. Bangalore is a hot bed for innovations. As the city represents mini India, one could find people from all parts of the country. With the above citations and studies, it is justified that Bangalore is an ideal place for conducting the research study of this kind.

Table 5: Malls in Bangalore in Karnataka

Operational	Under Construction	Upcoming
Forum Mall	Brigade Metropolis	Soul Space Arena
Sigma Mall	Brigade Gateway (Yeswanthpur)	Orion Mall
Garuda Mall	Forum Mall (Shantiniketan, Whitefield)	Soul Space Spirit
Esteem Mall	G Corp Lido Centre (old Lido Theatre) in Ulsoor	Signature mall
Eva Mall	Galaxy Embassy (old Galaxy Theatre) on Residency Road	Phoenix Market City
Total Mall	Mantri House (Sarjapur Road)	Alliance mall
Vaswani Cosmos	Ozone (Factory Outlet, Whitefield)	Innovation Mall
Gopalan Legacy Mall	Sigma Grand	Karle Mall
Oasis Mall	Sobha Minerva (Minerva Mills)	Royal Meenkshi Mall
The Collection	Tata Imperial (Old Imperial Theatre) off Brigade Road	ITPL Mall
Garuda Swagath Mall	Poorva Mall on Old Madras Road	Inorbit Mall
Arch Mall		Maximus Mall
Forum Value Mall		Central (International brands)
Total Mall		Viva City (office+retail)
Mantri Square/ Mantri Mcube mall		

Retail Supply Chain Management

The supply chain in retailing is different from a traditional manufacturing supply chain. In a manufacturing supply chain, a manufacturer gets raw materials and components from its suppliers to make the finished goods. Materials can come directly to the manufacturer's factory or can be outsourced or can be consolidated at a warehouse and supplied. These materials are processed in the plant, converted into the finished goods and delivered to customers through warehouses, distributors, dealers, regional offices and retailers (Figure 2).

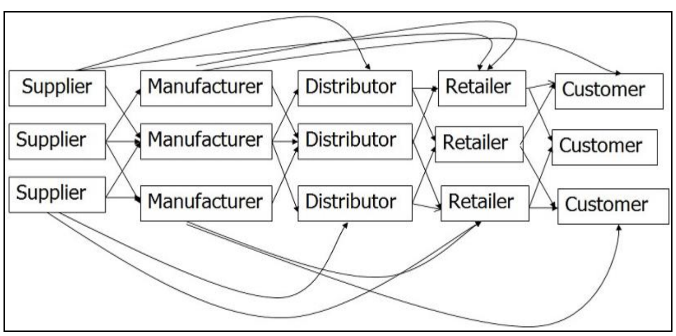

Fig 2: Stages in a Manufacturing Supply Chain

In a retail supply chain, items are sourced from a supplier or directly from the manufacturer. These items can be delivered directly to the store, or at the retailer's distribution centre from where it is distributed to the stores. Further the items are purchased or sold to the customers. There may be a backward distribution flow in case of deficiency, poor quality or for any other reason from customer to retailer to the supplier (Figure 3).

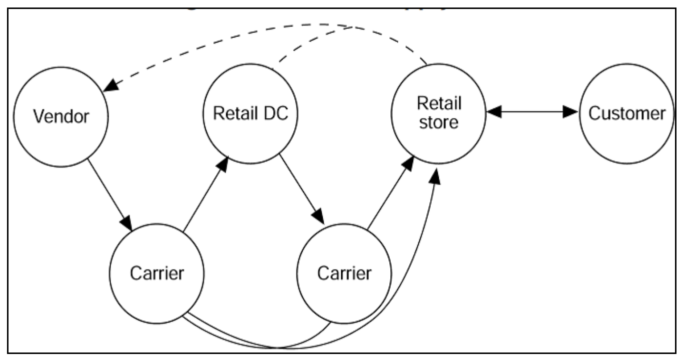

Fig 3: Retail Supply Chain

In the organized retail market in India, the role of supply chain is very important for Indian customer is price and quality conscious. It is the supply chain that ensures various offerings to the customers that a company decides, be it cost, service, or the quickness in responding to ever changing tastes of the customer. The Indian organized retail sector is growing; so the role of supply chain becomes all the more important. It needs to become all the more responsive and adaptive to customers demand. There is also need for the supply chain to be more cost efficient and collaborative to win the immense competition in this sector.

Conclusion

The Indian organized retail sector is growing; so the role of supply chain becomes all the more important. In the first phase of the retail revolution, the focus of food retailers had been largely on capturing the consumers' attention and providing them with a new shopping experience. The increasing scale of organised retail distribution network and increasing competition are forcing the players to focus on restructuring the whole supply chain to improve productivity and provide a better deal to customers. In this regard, the paper attempted to provide insights into some of the research papers in the field of food retail and retail supply chain in India. Retailing in India is gaining momentum over the years. The city such as Bangalore in Karnataka has great potential for food and grocery sector. The research study examines the drivers of retail supply chain in detail as practised by the retailers, distributors and supply chain executives in Bangalore in Karnataka. Towards that the study identifies the areas where the outlets are doing better and also enlists the areas where they have to improve upon. This gives the scope for the retailers for enhancing the customer service, product availability etc. The paper is a trigger to the researchers and academicians to explore the research possibilities in this emerging area which may help the food retailers and other stakeholders of the trade in achieving supply chain efficiency.

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