

The Global Confluence of Food Retailing Systems: Process and Determinants

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Abstract:

The technological advances such as microcomputers, uniform product code system, digital liquid crystal price tags, sale retail scanners, and electronic funds transfer at retail and between retailers and manufacturers has increased the scope of improving quality and cost effectiveness by adopting these technologies. As more and more companies in different countries adopt these common food business management techniques, food management systems in these countries have started converging on a more homogeneous food management system with comparable structural and design features, enabling food retailing companies to develop synergies in their food retailing business spread across countries. An essential component of the modern food chain management system rotates around finding solutions of issues such as quality management, inventory management, logistic management, scheduling and shelf space management. Tools and techniques used for making decisions related to these areas are borrowed from different functional areas of managerial science such as human resources, finance, and marketing or decision science areas such as operations research, statistics and mathematics. To study the convergence process, an online SQL-based data capturing format was developed and experts working in food industry were requested to participate in the study by filling out the questionnaire. In total, 385 responses were received from August 1, 2010 to November 1, 2011. Information thus obtained was processed and analysed, and appropriate inferences were drawn.

Keywords: *Global, Food Management, Retailing Systems*

Introduction:

The growth of organized food retailing in modern marketing formats is relatively new in the developing economies such as Thailand, Malaysia China and India. In these countries, growth of organized food retailing has been very fast in last two decades and was propelled by both multinational and domestic retailers. As a natural consequence of this, food retailing environment in developing economies is changing very fast which is influencing functioning of food marketing and trade itself (Reardon et al., 2003; Currah and Wrigley, 2004; Wrigley et al., 2005; Minot and Roy, 2007). The present trend of declining share of local food retailers in emerging economies had been observed in north America and Western Europe markets two decades back (Ducatel & Blomley, 1990). Only differentiating point is that in Asian economies, wet markets have not been driven out by the growth of organized retail market chains. (Goldman et al. 1999, 2002). Impact largely remained restricted to dependency of consumer on traditional traders. Reardon et al. (2007) and Dries et al. (2004) in their studies found that in emerging economies investments in food retailing systems by large scale food retailers is reducing dependency on traditional traders of food commodities.

Food retail studies suggest that in of Europe and North America during immediate post-war period, local retail stores were dominant players and dominated food sales (Ducatel & Blomley, 1990). However, over the period of time, these local stores lost their prominence and became largely peripheral players in terms of market share (IGD, 2009). Thus growth pattern of modern organized food retail systems can be regarded as internationally similar only the rate and timing of structural change varies geographically primarily on account of uneven economic development across the countries (Reardon et al., 2003). In the transformation from traditional to modern retail structures, Asia is thus a late comer, compared to North America and Western Europe, but not unique.

Factors influencing consumer choice in favour of modern food retail market also differ significantly in different countries. For example in studies for USA/Europe by Lindquist (1974), Davies and Brooks (1989) and Ness et al. (2002) observed that factors such as cleanliness and food safety do not appear as attributes influencing choice of people in favour of modern food retail market but these factors emerged as critical factors, contributing to the declining use of wet markets in Asia (Ho, 2005).

Rise of major organized food retail players in some Asian countries such as Thailand radically restructured their supply chains in the late 1990s onwards. Large investment in new distribution networks by these large organized retailers created economies of scale advantage to these companies (Dries et al., 2004). These new distribution and procurement centers allow supermarket chains to bypass wholesale markets and obtain better terms from suppliers. International procurement is particularly useful for yielding cost advantages on private label goods. These factors emerged primary value levers Brown et al. (2005) and Levy et al. (2005)

In some cases a general reluctance of fresh producers to deal directly with supermarket chains has been observed (Goldman et al. 1999). However, string of mergers and acquisitions in the late 1990s gave supermarkets increased order size, and consequently privileged access to primary agriculture markets. The major supermarket chains in Thailand now incorporate greater prominence given to fresh produce than what is typical in North America (Posri et al., 2007).

The importance of food safety is becoming very critical in Asian markets (Posri et al., 2007; Wang, Mao, & Gale, 2008). In these markets terms such as customer satisfaction and product/service quality are becoming too important to ignore (Allen 2004). Empirical studies conducted on organized food retailing reveals that the frequency of supermarket visits is positively related to the importance given by the consumers to factors such as good marketing ambience, convenient location, assortment and special offers. This has influenced the development of smaller, neighborhood stores alongside "big box" outlets as they significantly improve access to supermarkets and overcome difficulties associated with a lack of private transport (Figuie' & Moustier, 2009; Mergenthaler et al., 2009).

The growth of organized food retailing in modern marketing formats have important impact on food marketing and trade in different countries (Reardon et al., 2003; Currah and Wrigley, 2004; Wrigley et al., 2005; Minot and Roy, 2007). Modern food retailing highlighted importance of factors such as convenience, quality, product diversity and lower prices arising from efficiency gains associated with the supply chain investments made by the modern retailers (Minten and Reardon, 2008). Studies by Landes and Burfisher, 2009 revealed that efficient food retailing may lead to indirect gains in output and consumption. In south Asian economies such as in India, organised food retailing is constrained by the underdevelopment of the supply chain, lack of infrastructure, Govt. concern with increasing food prices etc. (NABARD 2011). It is estimated that share of organised food retailing in India is about 1.44% of the size of total food retail market. Value of total food retail market was estimated at Rs. 154 billion for 2008-09. Thus, the size of organised food retailing is very small compared to the size of food retailing. However, it is growing at the rate of nearly

150% . Factors such as higher disposable income, growing proportion of youth in overall population, gradual increase in the share of population living in urban areas and increasing proportion of enrollment of women employees into the job market are factors contributing in growth of organized food retailing in India (NABARD 2011). Same is true for East Asia where small scale food retailers and wet markets are dominant players and organized supermarkets and hypermarkets have a secondary role (Goldman, Krider, & Ramaswami, 1999; Goldman, Ramaswami, & Krider, 2002; Ho, 2005).

The growth of organized food retail market has important implications for socio economic development as it affect welfare of local farmers (Huang, Zhi, Huang, Jia, & Rozelle, 2009; Neven, Odera, Reardon, & Wang, 2009; Reardon, Barrett, Berdegue, & Swinnen, 2009). Studies by Minten, Randrianarison, & Swinnen, (2009) indicated that though in some cases, the spread of organized food retail chains diminishes the market opportunities for small and marginal farmers but in majority of the cases it also stimulated improvements in adoption of more efficient technology and improvement in productivity and employment (Goldman, 1974). Emergence of organized food retailing may also lead to reduced opportunities for domestic entrepreneurs and those displaced may not easily gain employment with organized retail organisations (Reardon & Gulati, 2008).

Research on organized food retailing thus indicate that all over the world food and agribusiness chain management systems are showing signs of global convergence. This convergence is in terms of adoption of types of technology, supply chain, quality, marketing and retail management systems. Recent technological advances such as microcomputers, uniform product code system, digital liquid crystal price tags, sale retail scanners, and electronic funds transfer at retail and between retailers and manufacturers has increased the scope of improving quality and cost effectiveness in food retailing. As more and more companies in different countries adopt these common food business management techniques, food management systems in these countries have started converging on a more homogeneous global food management system with comparable structural and design features, enabling food retailing companies to develop synergies in their food retailing business spread across countries. An essential component of the modern food chain management system rotates around finding solutions of issues such as quality management, inventory management, logistic management, scheduling and shelf space management. Tools and techniques used for making decisions are borrowed from different functional areas of managerial science such as human resources, finance, and marketing or decision science areas such as operations research, statistics and mathematics. In majority of the cases use of common problems solving techniques initiate the process of global convergence at the system management level.

However, experts differ on magnitude of food retail convergence process. On one side in the body of literature, we find studies such as Goldman et al. (1999, 2002) suggesting that food retailing differ significantly between Asia and Western markets because of structural and cultural differences, researchers on the other side argue that emerging economies are going through process of the globalization of food retailing, characterized by the growing dominance of grocery retail chains, which marginalize traditional formats. (Dries et al., 2004; Reardon et al., 2003). This debate calls for further, research. The present paper is an attempt in this direction.

Present study therefore attempt, an analysis of perceptions of functionaries of food chain about convergence of food retail processes in developing economies. Study also identifies factors influencing food retailing processes in developing countries. Magnitude of perceptual divergence on convergence process within the food chain and impact of organized food retailing on the farming community, including small/marginal farmers has also been studied in the present study.

Research Methodology used in the study:

As it is difficult to find an accepted definition of "modern retail," in literature (Thomas Reardon, Bart Minten, 2011), we have defined organized food retail as marketing space with market features such as use of "self-service", organized IT enabled procurement, inventory and retail system.

Sampling Design:

To study the convergence process, an online SQL-based data capturing format was developed and uploaded on the website (<http://www.mkawasthi.info/FRC.php>). Experts working in food industry and have significant experience (10 years or more) in food business were then approached through emails to participate in the study by filling out the online questionnaire. In total, 385 responses were received during study period i.e., during 01/08/2012 - 01/11/2012. Information thus obtained was processed and analysed, and appropriate inferences were drawn.

Analytical Framework:

For general analysis of perceptions of different functionaries in food chain simple ratio analysis was performed.

Discriminant Analysis

In order to examine perceptual divergence across food chain functionaries discriminant analysis technique was used. The discriminant method seeks to obtain a set of coefficient (L_i) such that squared difference between the mean score of one group and the mean score of other group is as large as possible in relation to the variation of discriminant score (Z) within the groups. With the discriminant function, it is possible to measure the net effect of a variable by holding the other variable constant and relative importance of variables in regard to their power of discrimination between the two groups of the data. The general form of discriminant function applied on the combined set of data from the sampled population is given below:

$$Z = \sum_{i=1}^k L_i \cdot X_i$$

Where,

Z = Total discriminant score

L_i = Discriminant coefficient associated with variable X_i

X_i = i th independent variable which may discriminate the population in two distinct group ($i = 1, 2, \dots, k$)

The Mahalanobis D^2 statistics was used to measure the distance between the two groups. D^2 statistics was then transformed into 'F' statistics, which was then used to see if the two groups were different from each other. The percentage contribution of each individual characteristic (X_i) in the total distance measured (D^2 value) between the two groups was computed as follows:

The difference between the two groups in respect of each variable $X_1, X_2, \dots, X_k$ and called $d_1, d_2, \dots, d_k$ respectively were obtained by unidimensional substractions of mean score of respondents from retailing and non retailing areas of food retail chain. Coefficients of discriminant function were then multiplied by the difference of the means of the respective variables. The values so obtained in respect of different variables were expressed as percentage of D^2 value (total distance measured between the two groups).

In the discriminant function analysis finally only those variables were retained whose percentage contribution in D^2 was found to be positive and more than or equal to one per cent. This was done to screen out those variables, which had very low discriminating power.

At the preliminary stage, several variables with alternative specifications of some of them were programmed in search of representative variables.

Validation of Analysis:

Findings of the study were presented in "Second International Food Studies Conference 2012 at The University of Illinois, Champaign Urbana, USA, 4-5 October 2012. Suggestions received in the conference have been incorporated in the final analysis.

Sample Profile:

Profile analysis of respondents reveals that about 54 percent respondents were involved directly in retailing or have the significance experience in organized food retailing. People directly involved in HR function of food retailing are next prominent group with about 19 percent of total sample. Proportion of logistics and academicians in sample is about 7 and 6 percent respectively. All of respondents have experience of more than 10 years (Table) 1.

Table 1: Profile of sample:

Sl. No.	Area of Expertise	Sample Size			
		USA	Asia	Europe	Total
1.	Marketing	57	119	38	214
2.	Operations	9	26	14	49
3.	Logistics	13	6	8	27
4.	HR	28	32	12	72
5.	Academics	9	10	5	24
Total		116	193	77	386

Impact of Location:

Huge majority (86 percent) of respondents strongly feel that convergence is taking place in food retailing. Respondents from Asia have more strong feeling about convergence process than their USA or European counterparts (Table 2).

Table 2 : Location of work and perception about Convergence Process:

Sr No.	Location of the Expert	Strongly feel Convergence is taking place in food retailing (In percentage)
1.	USA	78
2.	Asia	92
3.	Europe	83
Overall		86

Area of expertise and perception about Convergence Process

Study revealed that across the regions, academicians and marketing workforce is more positively inclined about convergence process. It is very interesting to observe that academicians and marketing professionals are at the same perceptual footing on account of convergence of food retailing (Table 3).

Table 3 : Area of expertise and perception about Convergence Process:

Sr No.	Area of Expert	Strongly feel Convergence in food retailing is taking place (In percentage)			
		USA	Asia	Europe	Overall
1.	Marketing	89	93	86	90.69
2.	Operations	77	83	79	80.76
3.	Logistics	79	81	84	80.93
4.	HR	73	87	82	80.72
5.	Acadimics	93	95	89	93.00
	Overall	78	92	83	86.00

Criticality of factors in convergence process:

Respondents were asked to identify most critical factor, which the feel are responsible for confluence of food retail management across the countries. Majority of respondents identified, procurement management system, billing system, inventory management system, product display and retailing ambience as most critical factors which are driving food retailing confluence in developing economies. Promotional methods have more localized strategies (Table 4).

Table 4 : Criticality of factors in convergence process:

Sr No.	Factor	Criticality of factor (Percentage of respondents)		
		Most critical	Critical	Not critical
1.	Procurement Management System	53	34	13
2.	Billing System Management	68	29	3
3.	Inventory Management	62	33	5
4.	Promotional Systems and Strategies	38	4	58
5.	Product display	76	21	3
6.	Retailing Environment management	74	19	7

Factors influencing convergence process:

Response analysis suggest that factors such as rising consumer exposure and expectation, cross country operation of food companies, regulatory compulsions, cost effectiveness, competition , low retail innovations, fgrowth of organized retail, easy availability of retail technology are important factors which are pushing food retailing process toward homogeneity (Table 5).

Table: 5 Factors influencing convergence process:

Sr No.	Factor	Criticality of factor		
		Most critical	Critical	Not critical
1.	Rising Consumer exposure	33	58	9
2.	Consumer Expectation	49	44	7
3.	Cross Country Operation of food companies	58	19	23
4.	Regulatory Compulsions	37	25	38
5.	Cost effectiveness	34	35	31
6.	Competition	26	45	29
7.	Low retail innovations	46	40	14
8.	Fast growth of organized retail	45	36	19
9.	Easy availability of retail technology	31	46	23

Probable Impact of convergence process:

Study found that those who are working in food chain have more strong feeling that the organized food retailing will lead to uniform business environment, standardization of consumer expectation, food safety, cost effectiveness and better information flow in retail chain which broadly confirm direction of impact revealed by the earlier work of researchers in this sector.

Table: 7 -Probable Impact of convergence process:

Sr No.	Factor	Impact			
		Very strong	Strong	Moderate impact	No impact
1.	Uniform business environment	38	22	31	9
2.	Standardization of consumer expectation	26	38	30	6
3.	Food safety	19	48	33	0
4.	Cost effectiveness	37	15	36	12
5.	Better information flow in retail chain	12	24	41	23

Perception Divergence:

Discriminant analysis technique has been used to assess overall divergence in perceptions of marketing and non marketing functionaries of food retail. This was done to examine if perceptions of marketing and non marketing professionals about convergence in global food retailing differs significantly or not.

Table 8- Discriminant analysis

SL NO.	Discriminant variable	Percent contribution in divergence
1.	Cross Country Operational Experience	34
2.	Level of Education	24
3.	Diversity of Experience	20
4.	Length of experience	17

Findings of the study reveal that cross country operational experience, level of education, diversity of experience, length of experience are factors which significantly influence convergence process at the perception level.

Summary and Conclusions:

Findings of study reveal that there is very strong feeling (86 percent) that convergence is taking place in food retailing. However, respondents from Asia have more strong feeling about convergence process than their USA or European counterparts. It is very interesting to observe that Academicians and marketing professionals both are at the same perceptual footing on account of convergence of food retailing.

Factors such as procurement management system, billing system, inventory management system, product display and retailing ambience emerged as as most critical factors which are driving food retailing confluence in developing economies. Promotional methods have more localized strategies. Factors such as rising consumer exposure and expectation, cross country operation of food companies, regulatory compulsions, cost effectiveness, competition, low retail innovations, fast growth of organized retail, easy availability of retail technology are important factors which are pushing food retailing process toward homogeneity.

Study found that those who are working in modern food retailing strongly feel that organized food retailing will lead to uniform business environment, standardization of consumer expectation, food safety, cost effectiveness, better information flow in retail chain which broadly confirm direction of impact of impact revealed by earlier work of researchers in this sector.

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