Evaluation of Marketing Efficiency and Development Strategies of Cooperative’s Food Distribution Centers

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01 Introduction

- The efficient agricultural marketing system ensures efficient connection between farmers and consumers, and rapid transfer of consumers’ needs to production process.

- Cooperative marketing is important in enhancing income of farmers in developing countries.

- In Korea, National Agricultural Cooperatives Federation (NACF) operates food distribution centers in a more efficient manner than agricultural wholesale markets.

- This paper summarizes situation of cooperative’s food distribution centers, and compares marketing efficiency between cooperative’s food distribution centers and agricultural wholesale markets. Also suggested is development strategies of cooperative’s food distribution centers.
Agricultural Marketing System and Situation of Cooperative’s Food Distribution Centers in Korea
A complex distribution system due to small farming units and small food retailers.

Marketing channels

- Rice: farmers → rice processing centers (RPCs) or milling complexes → retailers → final consumers.
- Fruits and vegetables: farmers → local shipping organization → wholesale markets → retailers → consumers.
- Livestock products: farmers → slaughter houses (wholesale markets) → retailers → consumers.
1. Agricultural Marketing System in Korea

**Marketing Channels of Agricultural Products in Korea**

- **Consumers**
  - Retailers
  - Food Service
  - Large-scale Retailers

- **Producers**
  - Wholesale markets
  - NACF Marketing Centers
  - B2B Electronic commerce
  - Assemblers
  - Cooperatives

Direct Marketing (Farmers markets, B2C)
1. Agricultural Marketing System in Korea

- At the first handler level, agricultural products are mainly distributed through local cooperatives (43%), local assemblers (26%), or local markets (15%).

- At the wholesale level, fruits and vegetables are distributed through wholesale markets, NACF (National Agricultural Cooperative Federation) distribution centers, and direct marketing between retailers and shippers.

- Major retail outlets of agricultural products are discount stores, supermarkets, department stores, and small grocery stores.

- Large scale food retailers have strengthened their position in the retail market through economies of scales generated by chain operation system and direct purchasing of agricultural products from local shippers, such as local cooperative and farming associations.
1. Agricultural Marketing System in Korea

- Total annual sales of discount stores have increased sharply from 2.1 trillion won in 1996 to 47.5 trillion won in 2014. Food items account for 58.6 percent of total sales: fresh food 26.4% and processed food 27.3% (Table 1).

- Supermarkets also increased total sales as the number of stores increased. Especially operators of discount stores, such as E-Mart, Homeplus, Lotte Mart, increased affiliated small and medium size supermarkets in recent years, replacing traditional small scale local groceries.

- In contrast, market share of department stores decreased although their total sales increased from 12.5 trillion won in 1996 to 29.3 trillion won in 2014.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Retail Sales</th>
<th>Department stores</th>
<th>Supermarkets</th>
<th>Discount stores</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>90.9</td>
<td>12.5</td>
<td>6.3</td>
<td>2.1</td>
</tr>
<tr>
<td>2000</td>
<td>117.7</td>
<td>15.2</td>
<td>6.3</td>
<td>10.6</td>
</tr>
<tr>
<td>2004</td>
<td>151.4</td>
<td>16.5</td>
<td>11.5</td>
<td>21.5</td>
</tr>
<tr>
<td>2007</td>
<td>231.7</td>
<td>18.7</td>
<td>11.8</td>
<td>28.9</td>
</tr>
<tr>
<td>2014</td>
<td>359.7 (100.0)</td>
<td>29.3 (8.1%)</td>
<td>35.4 (9.8%)</td>
<td>47.5 (13.2%)</td>
</tr>
</tbody>
</table>

(Unit: Trillion Won)

Note: 1 US dollar is equivalent to 1,200 Korean Won in 2015.
2. Situation of Agricultural Wholesale Markets

- Wholesale markets play an important role in distribution of agricultural products, especially fruits and vegetables.

- There are two types of agricultural wholesale markets in Korea: public wholesale markets and private wholesale markets.
  
  - **Public wholesale markets** are constructed using budgets of the central and local governments, and operated by the local governments.
  
  - **Private wholesale markets**, once a dominant form of agricultural wholesale markets, have become less important in agricultural marketing than before. As the number of public wholesale markets have increased, the number of private wholesale markets has decreased in recent years.
2. Situation of Agricultural Wholesale Markets

Functions of wholesale markets

- Assembling, distribution, payment, price formation, collection and diffusion of market information
- Administration offices, corporate wholesalers, jobbers, related merchants, retailers
- Trading methods: auction 90%, private treaty 10%

Distribution Process in Agricultural Wholesale Markets

Producers ➔ Coops Collectors ➔ Wholesale Corporations ➔ Jobbers ➔ Retailers ➔ Consumers

- Transportation
- Auction
- Delivery
2. Situation of Agricultural Wholesale Markets

Situation of Garak Market in 1985

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Space</td>
<td>542,920 m²</td>
</tr>
<tr>
<td>Building Space</td>
<td>198,682 m²</td>
</tr>
<tr>
<td>Number of Merchants</td>
<td>6,031</td>
</tr>
<tr>
<td>Space of Parking Lots</td>
<td>174,800 m²</td>
</tr>
<tr>
<td>Number of Visitors</td>
<td>100,000 persons/day</td>
</tr>
<tr>
<td>Total Cost</td>
<td>95.3 billion won</td>
</tr>
<tr>
<td>Total Period of the Project</td>
<td>7 years 11 months</td>
</tr>
</tbody>
</table>

Distribution system in Garak Wholesale Market
2. Situation of Agricultural Wholesale Markets

Problems of wholesale markets in Korea

- High distribution cost and low efficiency
  - auction fee(4~7%), high physical distribution cost

- Low efficiency in physical distribution
  - lack of loading dock, forklift, pallets, etc

- Unfair trade practice of merchants

- Small operating scale of merchants (jobbers)

- Inefficiency of administrating offices
3. Situation of Cooperative Marketing in Korea

- Agricultural cooperatives account for 40% of total marketed agricultural products

- **Multi-function cooperatives**: credit, insurance, marketing, supply, other services

- **Two stage organization structure**: local cooperatives and national federation (NACF, National Agricultural Cooperative Federation)

- NACF (National Agricultural Cooperative Federation) operate various wholesale and retail business

- **PPP (Public and Private Partnership)**
  - Participation in various governmental marketing programs, such as buffer stock programs, price stabilization programs, construction of marketing facilities, and etc.
3. Situation of Cooperative Marketing in Korea

Characteristics of Agricultural Cooperatives in Korea

- Local cooperatives providing major selling outlet to members, replacing roles of local assemblers

- **Local cooperatives operates marketing facilities** such as RPC (rice processing centers) and APC (agricultural product processing centers). Construction costs of these facilities is partly subsidized by the government.

- Pooling products among members is not strong.
  * Cooperative transportation type selling arrangement.
3. Situation of Cooperative Marketing in Korea

Integrated Food Distribution Centers of NACF

- Wholesale distribution center+ retail outlet
  - Currently 15 centers are operated.
  - Retail is emphasized in Korean wholesale food distribution centers of NACF
- No auctions: **Private treaty**
- Lower marketing margin and higher efficiency than food wholesale markets

Functions of distribution centers
- unloading, unpacking, inspecting, receiving, handling, storing, consolidation, picking, retrieving, replenishing, packing, sorting, palletizing, loading/shipping, order processing, documentation, cycle counting, inventory control, tracking
Integrated Food Distribution Centers of NACF
3. Situation of Cooperative Marketing in Korea

Functions of Integrated Food Distribution Centers of NACF

Producers →
- Cooperatives
- Packing houses
- Processors
- Rice Millers
- Local Markets

Distribution Center:
- Pricing
- Storing
- Delivery
- Processing
- Packaging
- Information
- Distribution

Order →
- NACF stores
- Stores of local cooperatives
- Discount stores
- Supermarkets
- Food service

Direct Selling

Consumers →
- Producers
- Consumers
3. Situation of Cooperative Marketing in Korea

Ansung Agro-food Distribution Centers of NACF
3. Situation of Cooperative Marketing in Korea

- Ansung Agro-food Distribution Centers of NACF

  - 100% of sales are wholesaling.
    - 90% by stores operated by NACF and local cooperatives
    - 10% by discount stores and supermarkets
  
  - Fruits: 46%, Vegetables: 45.4% of total sales, Organic or non-pesticide fruits and vegetables: 8.4% of total sales.
    - Consumer packages and fresh cut products account for about 7% of total sales.
  
  - Ansung distribution center purchases fruits and vegetables mainly from **local agricultural cooperatives, and federation of local cooperatives**.
Evaluation of Efficiency in Agricultural Marketing System
1. Goals of Agricultural Marketing Policies

- **Enhancing Physical Efficiency**
  - Relates to costs incurred in the process of food marketing. Output/input

- **Improving Pricing Efficiency**
  - Relates to keeping market prices to be competitive

- **Enhancing Stability**
  - It is desirable that prices of agricultural products are stabilized

- **Minimizing Transaction Cost**
  - Costs generated by opportunistic behaviors of market participants, such as search cost, enforcement cost and etc.

- **Enhancing Accessibility**
  - Access of small farmers.
2. Comparison of Marketing Efficiency between Wholesale Markets and Distribution Centers

- **Efficiency** of the food marketing system may be evaluated by the ratio of marketing margin to consumer prices.

- The ratio of marketing margin to consumer prices is calculated by the below formula.
  - Marketing margin consists of costs and profits incurred during marketing of agricultural products

\[
\text{Marketing Margin Ratio} = \frac{\text{Consumer Price} - \text{Producer Price}}{\text{Consumer Price}}
\]
2. Comparison of Marketing Efficiency between Wholesale Markets and Distribution Centers

- Korea Agro-fisheries & Food Trade Corporation (KAFTC) analyzes and publishes marketing margins of major agricultural products every year.

- An average marketing margin ratio of 48 agricultural products is 43.9%, which consists of 14.1% of direct cost, 14.9% of indirect cost, and 14.9% of profit.

- Marketing margin ratio of the agro-food distribution center channel is, on average, lower than those of the wholesale market channel.

- When comparing 20 items, average marketing margin ratio of the distribution center channel was 6.7% point lower than that of the wholesale market channel in 2012 (45.5% versus 52.2%)
## 2. Comparison of Marketing Efficiency between Wholesale Markets and Distribution Centers

### Differences in Marketing Margin Ratios (2012)

<table>
<thead>
<tr>
<th>Item</th>
<th>Margin Ratio of the Wholesale Market Channel (A)</th>
<th>Margin Ratio of the Distribution Center Channel (B)</th>
<th>A-B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring Potato</td>
<td>66.7</td>
<td>64.4</td>
<td>2.3</td>
</tr>
<tr>
<td>Chinese Cabbage (Summer crop)</td>
<td>72.2</td>
<td>62.4</td>
<td>9.8</td>
</tr>
<tr>
<td>Spring Radish</td>
<td>68.9</td>
<td>51.9</td>
<td>17</td>
</tr>
<tr>
<td>Radish (Summer crop)</td>
<td>73.3</td>
<td>55.6</td>
<td>17.7</td>
</tr>
<tr>
<td>Water Melon</td>
<td>37.6</td>
<td>24.8</td>
<td>12.8</td>
</tr>
<tr>
<td>Korean Melon</td>
<td>44.8</td>
<td>34.9</td>
<td>9.9</td>
</tr>
<tr>
<td>Grape Tomato</td>
<td>54.3</td>
<td>30.9</td>
<td>23.4</td>
</tr>
<tr>
<td>Strawberry</td>
<td>41.7</td>
<td>36</td>
<td>5.7</td>
</tr>
<tr>
<td>Garlic</td>
<td>44.7</td>
<td>50</td>
<td>-5.3</td>
</tr>
<tr>
<td>Green Onion</td>
<td>70.4</td>
<td>56</td>
<td>14.4</td>
</tr>
<tr>
<td>Cucumber</td>
<td>43.1</td>
<td>33.8</td>
<td>9.3</td>
</tr>
<tr>
<td>Apple (Storage)</td>
<td>57.1</td>
<td>53.4</td>
<td>3.7</td>
</tr>
<tr>
<td>Apple</td>
<td>42.0</td>
<td>44.4</td>
<td>-2.4</td>
</tr>
<tr>
<td>Pear (Storage)</td>
<td>57.3</td>
<td>51.5</td>
<td>5.8</td>
</tr>
<tr>
<td>Pear</td>
<td>45.8</td>
<td>40.7</td>
<td>5.1</td>
</tr>
<tr>
<td>Grape</td>
<td>40.6</td>
<td>39.1</td>
<td>1.5</td>
</tr>
<tr>
<td>Mandarin</td>
<td>51.9</td>
<td>45.1</td>
<td>6.8</td>
</tr>
<tr>
<td>Persimmon</td>
<td>50.4</td>
<td>54.8</td>
<td>-4.4</td>
</tr>
<tr>
<td>Peach</td>
<td>37.4</td>
<td>32.2</td>
<td>5.2</td>
</tr>
<tr>
<td>Beef</td>
<td>44.6</td>
<td>48.8</td>
<td>-4.2</td>
</tr>
<tr>
<td>Average</td>
<td>52.2</td>
<td>45.5</td>
<td>6.7</td>
</tr>
</tbody>
</table>
• Lower marketing margin ratio of the distribution center channel can be explained by shortening marketing stages by the distribution center.

• While marketing stages of the wholesale market channel are five or six, those of the distribution center channel are less than four. NACF distribution centers carry out combined functions of corporate wholesalers (auctioneer) and jobbers
2. Comparison of Marketing Efficiency between Wholesale Markets and Distribution Centers

Comparison of distribution channels

- Marketing channels of distribution centers
  - producers
  - shippers
  - Distribution center
  - retailers
  - consumers

- Wholesale market channels
  - producers
  - shippers
  - Corporate wholesalers
  - jobbers
  - retailers
  - consumers

Shortening of distribution stages
04 Development Strategies of Cooperative’s Food Distribution Centers
The Ansung agro-food distribution center needs to improve its competitiveness and to increase its sales.

Key success factors (KSFs) of agro-food distribution centers.
- 1) Satisfying interests of retail customers and local cooperatives equally and efficiently.
- 2) Providing not only good products, but also excellent services to retail customers.
- 3) Providing state-of-art logistic services in the area of order fulfillment, delivery, operation, and etc.
- 4) Decreasing logistics cost by automation, standardization, scaling up, reducing labor cost, and etc.
Development Strategies of Cooperative’s Food Distribution Centers

01 Strengthening fresh cut product business

- Fresh cut products are new markets and source of profits.
- Ansung center should increase sales of fresh cut products through diversifying sales outlets to large discount stores, supermarkets, school lunch, and etc.

02 Provision of retail support services

- Providing retail support service to customers is quite crucial for the success of the distribution center business.
- Defined as the activities which can help to increase competitiveness of retail customers, retail support services (RSS) include education and training, consulting services to the retail customers.
### Development Strategies of Cooperative’s Food Distribution Centers

#### 03 Integrated supply of various products, including rice and livestock products
- To increase convenience of retail customers, it is desirable to supply *rice and livestock products* together with fruits and vegetables.

#### 04 Expanding various sales outlets
- Currently, sales of Ansung agro-food distribution center rely too much on retail stores operated by NACF or local cooperatives.
- Need to increase sales to discount store and supermarket
- Need to organize small scale retailers as the voluntary chain.
Development Strategies of Cooperative’s Food Distribution Centers

05 Strengthening Education and Training of Employees

- Securing sufficient experts in wholesaling, such as merchandising managers, logistics managers, sales managers, and so forth.

06 Establishment of supply chain management system

- Connecting retail customers and local cooperatives on line.
- Utilizing the SCM system, retail customers can order merchandise on line to the distribution center, and successively the distribution center can order merchandise on line to the shippers.
- Adopting advanced SCM technology such as VMI (Vendor Managed Inventory), which makes the distribution center manage inventory itself using inventory data provided by retail customers.
Development Strategies of Cooperative’s Food Distribution Centers

Concept of Supply Chain Management

Material Flow

Information Flow

Cash Flow

Farmers → Shippers → Distribution Center → Retailers → Consumers
07 Improvement of logistics service

- Needs to improve logistics accuracy of order fulfillment and delivery time, and etc.
- Needs to save logistics cost by using labor saving logistics equipment, such as forklifts, conveyers, and the digital assortment system.
THANK YOU