

Small and Medium Food Processing Units in Odisha: An Empirical Study on Competitiveness

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Abstract

There is tremendous growth and opportunities in food processing industry in Odisha. The sample includes only companies with fewer than hundred employees and those that operate in the food processing industry. Market orientation, innovation, and business performance have been taken as proxy of competitiveness. Mean comparison statistics was used to compare market orientation, innovation and business performance of clustered and dispersed SMEs. The main findings were found through data analysis, notably there was significant difference between clustered and non clustered SMEs in market orientation, innovation and business performance.

1. Introduction

Small enterprise promotion has continued to remain an important and integral part of Indian development strategy much before the First Five-Year Plan, even dating back to 1938 when the National Planning Committee documents were being prepared. The concerted policy emphasis upon small firms as a vital vehicle of progress draws upon this sector's crucial historical role in generating substantial employment and income at the regional level and acting as a shock-absorber during periods of economic crisis. The small enterprise sector has continued to contribute immensely in creating large scale job opportunities across space and, in the process, helped reduce inter-regional and rural-urban disparities in growth. The role of micro, small and medium enterprises (MSMEs) in the economic and social development of the country is well known. It is the nursery for entrepreneurship, often driven by the individual creativity and innovation, with a significant contribution in the country's GDP, manufacturing output, exports and employment generation. MSMEs contribute 8 per cent of the country's GDP, 45 per cent of the manufactured output and 40 per cent of our exports.

Keywords

*Industrial clusters,
Competence barrier,
Knowledge management,
Industrial aggregations*

The European Union makes a general distinction of businesses on the basis of number of employees. If number of employees is zero, it means the business is self employed. If number of employees are between 2-9 then the business is micro, 10-49 employees is small business and 50-249 is medium size business. In the Indian context, micro, small and medium enterprises as per the MSME Development Act, 2006 are defined based on their investment in plant and machinery (for manufacturing enterprise) and on equipments for enterprises providing or rendering services. In case of manufacturing if the investment is upto Rs.25 lakhs, the business is micro. If the investment is

upto Rs.5 crore, then the business is small and more than Rs.5 Crore and upto Rs.10 Crore, then the enterprise is medium enterprise.

2. Food Processing Industry In India

The Food Processing Industry in India offers unique opportunities in production and export of processed food. The food market is worth approximately Rs 10.1 lakh crore out of which the Food Processing Industry comprises 53% or Rs 5.3 lakh crore. The food processing industry employs 13 million people directly and 35 million people indirectly.

2.1 Composition of the Industry

The Indian Food Processing Industry is varied in its production. The major categories under which food is processed in India are : Fruits & Vegetables, Milk and Milk Products, Meat & Poultry, Marine Products, Grain Processing, Beer & Alcoholic Beverages, Consumer Foods i.e. confectionery, chocolates and cocoa products, soya-based products, mineral water, high protein foods, soft drinks, ready-to-eat and ready-to-cook products, salted snacks, chips, pasta products, bakery products and biscuits. Table1 narrates the segments of food processing industry.

Table-1
Segmentation of food processing industry by Products

Segment	Products
Diary	Whole Milk Powder, Skimmed milk powder, Condensed milk, Ice cream, Butter and Ghee, Cheese
Fruits & Vegetables	Beverages, Juices, Concentrates, Pulps, Slices, Frozen & Dehydrated products, Potato Wafers/Chips, etc
Grains & Cereals	Flour, Bakeries, Starch Glucose, Cornflakes, Malted Foods, Vermicelli, Beer and Malt extracts, Grain based Alcohol
Fisheries	Frozen & Canned products mainly in fresh form
Meat & Poultry	Frozen and packed - mainly in fresh form, Egg Powder
Consumer Foods	Snack food, Namkeens, Biscuits, Ready to eat food, Alcoholic and Non-alcoholic beverages

Source: Ministry of Food Processing India, Annual Report 2011

2.2 Opportunities Galore in Food Processing Industry

There are abundant opportunities for food processing companies in India. In terms of volumes of production,

India ranks amongst the highest in the world in some of the food products. Table-2 shows areas of Food Processing in India which have considerable output.

Table-2:
Food processing categories in India and quantity of annual production

Food Processing Category	Quantity/Volume Processed Annually (in Million Tons)	Rank in the world in terms of production
Milk and milk products	88	1 st
Fruits and Vegetables	150	2 nd
Rice	132	2 nd
Sugarcane	289	2 nd
Fish Production	6.3	3 rd
Wheat, Groundnuts, Tea, Coffee, Spices, Sugar, Eggs and Oilseeds	-	Amongst the top five producers in the world

Source: Ministry of Food Processing India, Annual Report 2011

In India around 2% of fruits and vegetables are processed, 37% of milk is processed 1% of meat and poultry is processed and 12% of fish is processed. Comparing this to 80% quantity produced being processed in developed countries; it has been realized that a massive opportunity exists in the food processing business in India. These opportunities were not fully realized till after the liberalization of the Indian economy. The Government since has approved of joint ventures, foreign collaboration and foreign direct investment (FDI) in this sector. The government has also implemented many schemes to develop this industry. De-licensing, establishment of food parks, establishing packaging centers, and integrated cold chain facilities are some of the initiatives taken by the government. The Industry has also been opened to Foreign Direct Investment (FDI), up to a 100%.

3. Literature Review

Arvid Andersson, Carl-Filip Clausson, Daniel Johansson (2009) studied in detail, "Competence Barriers to Innovation in case of Small Enterprises". As per the findings of the research, innovation is, in most cases, a necessity for firms in today's changing market place. However, innovation is no easy process and there are many barriers and impediments to innovation that needs to be overcome in order to efficiently innovate. The purpose of this Research Report is to investigate into competence barriers to innovation within Small Enterprises and the consequences these barriers might result in.

Ramayah, Thurasamy, et al (2009) proposed to develop an integrated model to explain technology adoption of SMEs in Malaysia. Although, resource has been an issue among SMEs they cannot lie low and ignore the technological advancements that are taking place at a rapid pace. With that in mind this paper proposes a model to explain the technology adoption issue among SMEs.

Daiva Radzeviciene (2008) analysed the role of knowledge management in small and medium-sized enterprises in Lithuania by looking at information and knowledge resources, the development of information technology which supports the business process and the main processes of KM inside companies. There appears to be a strong awareness of KM. However, the development of adequate methods to make IM and KM fully effective appears to be lacking or only partially realized. There is some evidence to suggest that Lithuanian SME managers are becoming more psychologically prepared to work within KM.

3.1 Industrial Cluster

Anderson (1994) defines industry cluster as a group of companies that rely on an active set of relationships among themselves for individual efficiency and competitiveness. According to Porter (2008), a cluster is a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by communalities and complementarities. He describes cluster as networks of companies, suppliers, services firms, academic institutions and organizations in related industries that, together, bring

new products or services to the market. Yingming (2010) says that industrial clusters are industrial aggregations formed by industrial sectors with close economic links in a specific territory. In addition, Long and Zhang (2011) argues that the literature on clustering has highlighted at least three key positive externalities of industrial clusters: better access to the market and suppliers, labor pooling, and easy flow of technology know-how. However, they argue that the main advantage of clustering in developing countries with limited financial development is in helping firms alleviate financial constraints.

3.2 Market Orientation and Innovation

Some empirical studies found a positive relationship between market orientation and managers' perceptions of overall firm performance i.e., Jaworski and Kohli (1993), managers' perceptions and financial performance i.e., Pelham and Wilson (1996); Slater and Narver (1994), and managers' perceptions and new product performance i.e., Atuahene-Gima (1996). At the same time, several studies did not support a direct positive relationship between performance and market orientation i.e., Han et al., (1998). A possible explanation for the lack of clear relationship with market orientation is that it is a more complex relationship than those tested for in previous studies i.e., Pelham (1997). However, market-orientated firms have been demonstrated to be successful at maintaining a strong competitive position (Wang, et al. 2011). It occurs because market-oriented behavior lead the firms to be more innovative. Johnston et al. (2011) argue that market-oriented firms are strategically and tightly aligned with the market in such a way that they are able to put their customers' expressed needs when creating new product.

3.3 Innovation and Performance

Innovation in the food processing industry is a rather complex process and can involve different parts throughout the food system, from the development of new ingredients to the formulation of new food products, from the improvement of methods of food preservation to new ways of packaging (Earle, 1997). Innovation, according to Verhees and Meulenberg (2004) can be defined as the process of developing a new item, the new item itself, and the process of adopting new item. In a small firm, innovativeness implies a willingness of the owner to learn about and to adopt innovation, both in the input and output markets. Raymond and Pierre (2010) argue that innovation is a concept that has been defined and characterized in many ways by researchers. Forsman (2010) defines innovation as the generation and implementation of new or improved processes, services, products, production methods or single actions aimed at increasing the competitiveness of enterprise. Parrilli and Elola (2011) argue that competitiveness is guaranteed by innovation and quality upgrade.

4. Research Model And Hypotheses

Based on the literature above it is suggested that, the performance of SMEs in the food processing industry is affected by innovation. Innovation is one of the most important factors to enhance competitiveness either in

small companies or in large companies because in many cases product of SMEs also competes with product of large companies. Market orientation (customer orientation, competitor orientation, and inter-functional coordination) will affect innovation due to market oriented companies usually always monitor their customers' needs and wants, at the same time they have to deal with competitors better. In order to satisfy their customer and compete with competitors, companies should develop innovative product based on the customers' needs and wants.

The hypothesis is intended to examine the difference of cluster and non cluster SMEs in terms of business performance, innovation and market orientation. The hypotheses are described as followed:

H1: There is mean difference in business performance between clustered and dispersed SMEs in food processing industry.

H2: There is mean difference in innovation between clustered and dispersed SMEs in food processing industry.

H3: There is mean difference in market orientation between clustered and dispersed SMEs in food processing industry.

5. METHODOLOGY OF RESEARCH

5.1 Sample and Data Collection

To analyze the differentiation between clustered and dispersed SMEs food processing in Odisha, a survey has been conducted on SMEs food processing located in cluster and dispersed. For clustered SMEs, the data have been collected from SMEs food processing industry in four clusters located in Odisha. Firstly, it has been decided that four clusters which represent food processing industry in Odisha will be taken and those are (1) Pickles cluster located in Ganjam District, (2) Fishery cluster in Balasore District, (3) Temple Food cluster located in Khurda District, (4) Poultry cluster in Mayurbhanj District. Sample taken from each cluster proportionately depend on the number of firms in each cluster and depend on the willingness of managers or owners of firms to be interviewed. For dispersed SMEs, we collected data from SMEs food processing industry located far from cluster area but in the same district.

The respondents involved in this research comprised of 100 managers and owners who had knowledge of past and present organization practices comprehensively, particularly with regard to market orientation, innovation, and business performance. Out of 100 respondents, 50 respondents were collected from cluster area and the rest were collected from outside cluster. Sample needed in this research should fulfill several criteria. First, SMEs should be located both in cluster and non cluster area. This consideration had been taken in accordance with the research objectives, i.e., to compare clustered and dispersed SMEs food processing. Second, the sample includes only those SMEs which are having investment less than Rs.5 crores and those which operate exclusively in the food processing industry.

5.2 Factors considered for the Study

Business performance is operationalized as a composite of three measures; sales volume, market share and profitability. To measure business performance, we used the subjective measurement method. This method was selected due to SMEs in Odisha generally have no good and consistent records, especially monthly and yearly record of finance and production. By such condition, it was better to use subjective measurement to measure performance instead of objective measurement. The concept of innovation used in the survey is rather broad. It includes both small improvement in product, processing techniques and marketing strategy and more radical changes such as the introduction of new products, processes and marketing strategies. To compare clustered and dispersed SMEs, we did mean comparison analyses.

6. RESULTS AND DISCUSSION

6.1 Clustered and dispersed SMEs: the Performance Gap

This section contains empirical evidence on performance differences between clustered and dispersed SMEs in Odisha's food processing industry. We argue that clustered SMEs must be better in terms of business performance compared to their dispersed SMEs counterpart. It is because clustered SMEs receive more support from government and also geographic proximity among SMEs create many opportunities for SMEs to improve their performance.

Table-3:
Comparison of performance between clustered and dispersed SMEs

Factors	Cluster		Non cluster		Difference		t-value
	Mean	Standard Deviation	Mean	Standard Deviation	Mean Difference	p-value	
Sales	3.56	0.736	3.18	0.829	0.36	0.034	2.538
Market share	3.42	0.717	3.12	0.917	0.31	0.041	2.049
Profit	3.56	0.823	3.12	0.871	0.46	0.043	2.616

Source: Own Calculation by SPSS Package

As illustrated in Table-3, there are significant difference between clustered and dispersed SMEs in terms of sales, market share and profit. We can say that these three performance indicators show the performance gap between clustered and dispersed SMEs. Hypothesis 1 predicts that there are mean difference in business performance between clustered and dispersed SMEs. This research result supports hypothesis 1. Therefore, this result of study also makes us clear that clustered SMEs have higher performance compare to non clustered SMEs. The research result in line with another study related to cluster i.e. Folta et al., (2006), Waits, (2000).

6.2 Market Orientation and Innovation Gap

After observing the performance gap between clustered and dispersed SMEs, the question is whether this is (mainly) due to market orientation or innovation activities. In this section, the different levels of market orientation and innovation between clustered and dispersed SMEs have been observed. This observation will answer the question why clustered SMEs have better performance than dispersed SMEs.

Table-4:
Comparison of market orientation and innovation

Variable	Cluster		Non cluster		Difference		t-value
	Mean	Standard Deviation	Mean	Standard Deviation	Mean Difference	p-value	
Market Orientation							
Customers Orientation	3.48	0.890	3.11	0.882	0.37	0.023	2.300
Competitors Orientation	3.60	0.907	3.17	0.951	0.43	0.012	2.552
Internal Coordination	4.06	0.928	3.89	0.889	0.26	0.111	1.607
Innovation							
Product Innovation	2.93	0.954	2.58	0.944	0.35	0.046	2.020
Process Innovation	2.62	0.846	2.27	0.936	0.35	0.034	2.149
Marketing Innovation	3.37	0.736	3.03	0.901	0.34	0.028	2.219

Source: Own Calculation by SPSS Package

As can be seen in Table-4, two components of market orientation (customer orientation and competitor orientation) are significantly different between clustered and dispersed SMEs. In this case clustered SMEs have higher level of customer orientation and competitor orientation than dispersed SMEs. However, in terms of internal coordination, there is no significant difference between clustered and dispersed SMEs. Probably it is because the small number of employees do not make any difference in coordination activities between clustered and dispersed SMEs.

Eisingerich et al. (2009) suggest companies that integrate and expand information flow may benefit from more effective coordination of actions and consequently higher product innovation performance.

Table-4 shows that clustered and dispersed SMEs have significant difference in term of product innovation, process innovation and marketing innovation. It means that hypothesis 3 is confirmed by this study. In this case we can see that clustered SMEs have higher level of innovation than dispersed SMEs. This study has been completing previous study about the role of industrial cluster in increasing innovation (i.e. Aylward & Glynn,

2005; Tambunan, 2005, by providing empirical data in small and medium food processing industry. In this study we mentioned that high level of innovation in cluster area is affected by market orientation. As mentioned above market orientation is the determinant factor of innovation. Since market orientation in clustered SMEs is higher than dispersed SMEs, innovation level in clustered SMEs is also higher than dispersed SMEs.

7. Conclusions

This study has addressed the important consideration when comparing performance, market orientation and innovation across clustered and dispersed SMEs in Odisha's food processing industry. The findings indicate that business performance in clustered SMEs is significantly better or different than that in dispersed SMEs. Other findings indicate that market orientation and innovation level in clustered SMEs is significantly higher than that in dispersed SMEs. By these findings, basic hypotheses (there are mean difference between clustered and dispersed SMEs) that are proposed in this study are proven. Location factor, in this case is cluster and non cluster, has influence on competitiveness. Such conclusion has been confirmed by the fact that cluster

gives positive condition for developing market orientation and innovation in which SMEs in the cluster area can perform better than dispersed SMEs.

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