

Modeling of Barriers of Northern Indian SMEs in Food Processing Industry: An ISM approach

 KAUSHAL KUMAR¹, MOHAMMAD AALAM^{2*}, MOHAMMAD FAIZ³ and R.B. GAUTAM⁴
^{1,2,3,4}MCAET, Ambedkarnagar.

*Corresponding author email id: mohammadaalam@gmail.com

Abstract – The aim of this research is to examine barriers of food process based small and medium scale manufacturing enterprise growth in Northern India. From the analysis it was found that there are various factors that could prevent the food processed based SMEs to grow. The findings will contribute to the growth and development of the SMEs in particular in the food processing industry. In our study on food processing we have find out eight barriers of food processing industries for SMEs which are modeled using ISM approach. In our result resistance to change and lack of ethical values were top rated barriers. Lack of finance is second level barrier, government regulations and lack of market consumptions is third level barrier, lack of R&D technology and lack of new technology & information were fourth level by government regulations values bottom rated barrier. Further these barriers were classified on their driving power and dependency power.

Keywords – India, Food processing, Barriers, SMEs, ISM, Modeling.

I. INTRODUCTION

India is the world’s second largest producer of food next to China and has the potential of being the biggest in the World. Food and food products are the biggest consumption category in India, with spending on food accounting for nearly 21% of India’s GDP and with a market size of \$181 billion [1]. The Indian domestic food market is expected to grow by nearly 40% of the current market size to \$258 billion by 2015 and \$344 billion by 2025 (World of Food India, 2011). India’s agricultural base is quite strong but wastage is very high and processing of food products is very low. While processing of food to consumable standards are at levels of up to 80% in some developed countries, the overall processing level in India has recently reached 10%. Therefore, India’s food processing sector comparatively is small and its share in exports of processed food in world trade has remained at about 1.5 percent or \$3.2 billion [2].

Generally, in developing country markets, higher incomes result in diet upgrades, with increased demand for meats, dairy products, and other high value products. In India also sustained economic growth and increasing urbanization are fueling rapid growth in demand for high value food commodities like fruits, vegetables, milk, meat, eggs and fish [3]. In the affluent and middle class (estimated to be around 350-375 million), the percentage share of food expenditure vis-à-vis other products has dropped, the total expenditure on foods has increased across all classes. There is an increasing trend of a shift from food security to nutritional security and convenience shopping. Increased mobility, exposure, increased aspiration and availability of a wide range and products have also contributed to shifts in spending (World of Food India, 2011).

Food processing is a large sector in India that covers activities such as agriculture, horticulture, plantation, animal husbandry and fisheries. It also includes other industries that use agricultural inputs for manufacturing of edible products. The Ministry of Food Processing, Government of

India divides the industry into six segments: Dairy, fruits & vegetable processing; Grain processing; Meat & poultry processing; Fisheries; and Consumer foods are including packaged foods, beverages and packaged drinking water. In Table 1 various segments of India’s food processing industry and examples of products produced in these sectors are presented.

Table 1. Segments of Food Processing Industry and Products Produced in India.

Sectors	Products
Dairy	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 from egg powder
Consumer Foods	Snack food, namkeens, biscuits, ready to eat food, alcoholic and non-alcoholic beverages

Food processed based small and medium Enterprises (SMEs) has been recognized as one of the most important contributors for the economic development of many countries [4]. Over last few decades, research on SMEs development has concentrated in various disciplines, such as economics, strategy, psychology, network and innovation. Nevertheless, research on small firm growth is still limited [5]. According to [6] the existing literature is highly fragmented. For example, [7] focused on the behaviour of the entrepreneurs, [8] and [9] concentrated on strategy of growth; whereas [10] focused on the relation between growth and firm size. To our understanding, none of them has exclusively focused on the determinants and barriers of growth of firm in the food industry. Therefore, this current research will identify the barriers to growth in the food-processed SMEs in India.

[11] Argues that the process might affect the total chain of far-reaching technical and economic changes in the production and processing of food, as well as in society, thus affect the growth of the firms in this industry.

Consequently, looking at the growth of SMEs in the food industry in India context, we foresee that the chain of processing food products have significant impacts on the entire processing chain of agricultural production, and food processing up to the distribution of food to end consumers. We argue that along the process, the SMEs might encounter issues with internal and external environments, institutional, availability of both tangible and intangible resources, organizational and managerial and others that most likely will affect the growth of the firms. Therefore, this current research will identify the barriers to growth in the food-processed SMEs in India. The main purpose of this paper is to examine the determinants that influence the growth of Indian SMEs in the food industry and to identify the most important variables affecting the growth. The findings will contribute to the growth development of the SMEs in particular in the food processing industry. The paper finalizes with some conclusions for policy, industry and other actors, and also future research.

II. LITERATURE REVIEW

Some studies describe factors thought to influence SMEs growth. The main factors that influence on growth of SMEs are strong need of achievement, availability of financial capital [12]; behavior, personality, attitude [13], their capabilities, including education and training that create higher expectations in some industry sectors [14], and their social capital which influences access to resources [15]. Secondly, [13] also identified previous management experience, family history, functional skills and relevant business sectors knowledge as the major determinants for SMEs growth. While the aforementioned determinants generally help firm growth, there are also factors that inhibit firm's growth [16]. These factors are considered as growth barriers. Most of the SMEs are more like face problem when they enter into the business and also when they are growing compare to the large business. Commonly addressed barriers for small businesses include institutional barriers and financial barriers [6]. Institutional barriers are mainly discussed with the focus on firms' interaction with government, including legalization, taxation, and government support amongst others. [17] Studied from both theoretically and empirically and strongly argue that certain institutions intentionally discriminate against the growth of SMEs which in turn act as a growth barrier. It is not difficult to imagine that SMEs would have a tough period when they face unfavorable tax system, discriminatory regulations and complicated laws. Financial barriers represent lack of financial resources. [18], [19], [20] have been argued that credit constraints, lack of external debt, and equity capital are the main obstacles to the growth of SMEs. Evidence suggests that banks are more conservative when they provide loans to SMEs. According to [21] SMEs are more likely to be charged relatively high interest rates and asked for high collateral and loan guarantees. Furthermore, SMEs could also face external barriers, internal organizational barriers and social barriers which cover aspects of market position of a firm, access to qualified human capital, and access to network [22]. [23] Studied on Macedonian SMEs

found some barriers inhibit their growth in business. The study reveals that the most prominent institutional problems related to start-up enterprises were the difficulties in acquiring the necessary documents from state institutions and their bureaucratic procedures. The main obstacles to growth were associated more with the general economic climate and included high taxes, high interest rates and a lack of demand for the product. This study also indicated in their research, the lack of finance and the high costs of investment capital are particularly acute problems in spite of the efforts which have been made to alleviate them. The most important social barriers are the lack of support from the state; the lack of trust in society (the economy) the lack of support from the Chamber of Commerce; inadequate information on finance; and inadequate information on the market. The main internal barriers found in that survey was low quality of equipment. In Malaysia, several setbacks affecting the SMEs growth suggested by [24] focus mainly on the internal aspect in term of resources such as human resource, marketing, operations and production, financial and strategic planning of the enterprises. A qualitative study by [25] on internationalization of Malaysian SMEs reveals that, governmental policy related barriers including lack of standardization, lack of transparency, incompetent implementations, mindsets of policymakers, regulations related barriers including long procession time, bureaucracy, firm capability related barriers including resources, production capability, managerial capability and political barriers including interference, protocol and personal-interest are major internal barriers hinders SMEs growth in the global market.

III. MATERIALS AND METHODS

The aim of this paper is to examine the relationships among various barriers of food processing for SMEs and to rank them with reference to various performance measures. Here, the ISM is used to examine the contextual relationships among enablers of innovation for SMEs.

Interpretive Structural Modelling (ISM)

ISM methodology was suggested by [26] and [27] is an adaptation of paired-comparison approach. ISM methodology is an interactive learning process, whereby a set of different and directly related elements are structured into a comprehensive systematic model. This model shows the structure of a complex problem, a system or a field of study, in a carefully designed pattern involving graphics as well as words [28].

Interpretive Structural Modelling (ISM) for Barriers of Food processing Industries for SMEs

In this section we described the development of ISM model

- V: Criterion *i* will help to achieve criterion *j*;
- A: Criterion *i* will be achieved by criterion *j*;
- X: Criterion *i* and *j* will help to achieve each other
- O: Criterion *i* and *j* are unrelated

Table1. SSIM of Food Processing

Sr. no	Factor	8	7	6	5	4	3	2
1	Resistance to change	A	A	O	V	A	A	A

2	Lack of R&D and technology	V	X	V	A	A	A	
3	Lack of farmer	O	V	O	A	V		
4	Lack of educated farmer	X	V	O	A			
5	Government regulation	V	V	V				
6	Lack of market consumption	O	A					
7	Lack of new technology and information	O						
8	Lack of ethical values							

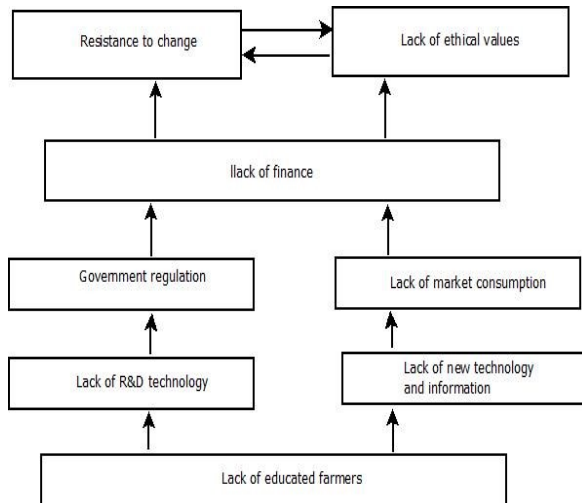


Fig. 2. Model of barriers of food processing industries.

IV. RESULT AND DISCUSSION

ISM can only act as a tool for imposing order and directions on the complexity of relationships among the variables. ISM technique has been found appropriate to model the critical factors (eight in number). In our result resistance to change and lack of ethical values are the top rated barriers of food processing industries whose result was similar to the results found in [29]. Lack of finance is second level barrier, government regulations and lack of market consumptions is third level barrier, lack of R&D technology and lack of new technology & information were fourth level by government regulations values bottom rated barrier. Further these barriers were classified on their driving power and dependency power.

V. CONCLUSION

The Government plays a predominant role in growth of SMEs of food processing industry. Hence it has to follow certain successful strategies in order to become a better partner. ISM technique is used to establish a structural model of the selected critical factors. The decision makers had to answer a few questionnaires depicting the strength of the selected critical factors and this process enhances/refines the current decision-making process.

In this paper, an attempt has been made to identify the major barriers of food processing for SMEs that can be useful for successful in implementation in growth and profit

of SMEs in India. In the present work, eight variables are identified for modeling factors of food processing to SMEs. By using an ISM approach a relationship model among factors of innovation to SMEs has been developed. But this model is not statistically validated.

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AUTHORS PROFILE



Dr. K.K. Maurya has completed his masters in Post-Harvest Engineering from I.I.T. Kharagpur in 1984 and Ph.D. in Process and Food Engineering from GBPUA&T Pantnagar, Uttarakhand. He has published several research papers in various reputed journals. Presently, he served as a post of Dean in MCAET Ambedkar Nagar.
email id: kkumar_nduat@rediffmail.com



Mohammad Aalam has completed his B.TECH in Mechanical Engineering from Aligarh Muslim University and M.TECH in Production and Industrial Engineering from Jamia Millia Islamia, New Delhi. He has published several research papers in various reputed journals. Presently, he served as a post of Guest Faculty in Mechanical Engineering Department in MCAET Ambedkar Nagar. His comprise area ISM, TISM, IRP and FUZZY-MICMAC approach for modeling.



Mohammad Faiz has completed his Masters in Information Technology from Madan Mohan Malaviya University of Technology, Gorakhpur. He has served in various reputed educational institutes in India and presently working in MCAET Ambedkar Nagar. His comprise area Distributed Data Base, Information Technology. email id: faiz.techno20@gmail.com



Dr. R.B. Gautam has completed his Masters in Process and Food Engineering from G.B Pant University and Ph.D. in Process and Food Engineering from GBPUA&T Pantnagar, Uttarakhand. He has published several research papers in various reputed journals. Presently, he served as a post of Head of Department in Process and Food Engineering in MCAET Ambedkar Nagar.
email id: rksh_gautam@yahoo.co.in