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A study on evolution of frozen meat products in food business

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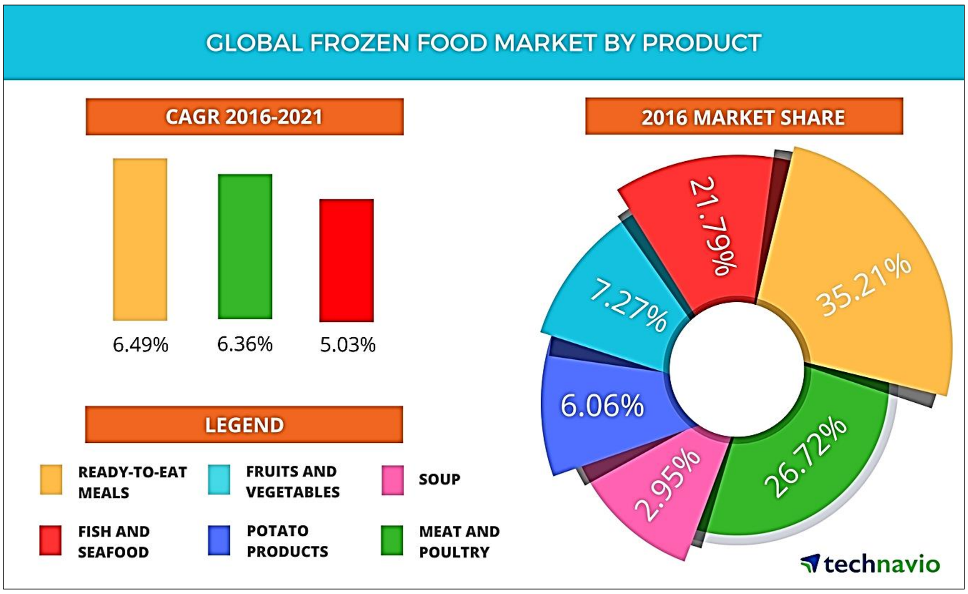
Abstract
Indian meat sector contributes to a sustainable growth and development of the farmers and thus provides employment opportunities. The production and consumption of meat in the year 2017 has been 6.67 and 4.84 million tonne respectively. The meat industry has evolved into several processing firms consisting of ready-to-eat foods, beverages, frozen fruits, vegetables and frozen meat products. 48.51 per cent of total frozen foods are frozen meat products. The frozen meat sector is expanding tremendously in all regions of India. Several players are emerging locally and nationally in frozen meat product sector, with the introduction of several varieties and types of products. Frozen meat products have turned to be brighter food business opportunity in India since the consumers have started preferring a convenient standard of living.

Keywords: Frozen meat, food business, convenient

Introduction
Meat is defined as any forms of animal flesh which is consumed by people around the world. Cultural aspects, religion, customs and economic situations have an effect on meat consumption worldwide. It also provides additional employment in processing sectors and increases the livelihood of farmers in rural areas and provides additional income to weaker sections of the society.
There are two major forms of protein say animal based protein and plant based protein which differs in their digestibility. The protein from animal source possesses digestibility of 90 to 97 per cent whereas protein from plants has digestibility of 75 to 99 per cent.



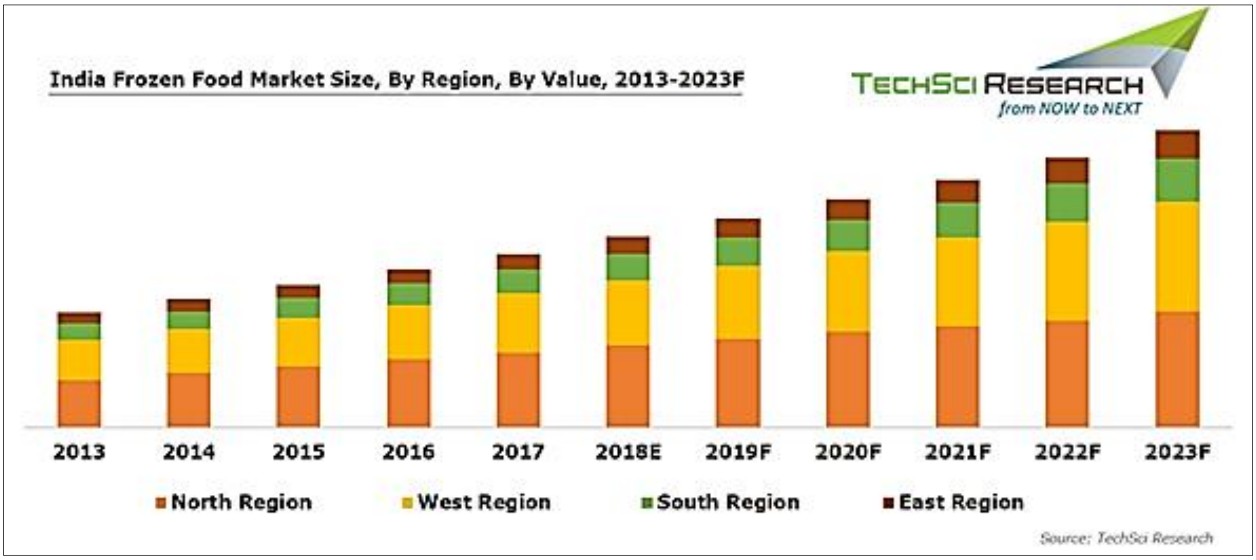
(Source: Technavio, 2016)

It is comprehensively understandable from figure 1.1 that the market share for ready-to-eat meals, fruits and vegetables, soup, fish and sea food, potato products and meat and poultry in

India for the year 2016 was 35.21 per cent, 7.27 per cent, 2.95 per cent, 21.79 per cent, 6.06 per cent and 26.72 per cent respectively (Technavio 2016).

The market for frozen foods in 2018 is accounted as USD 219.9 billion, whereas by 2023 it is forecasted to be around USD 282.5 billion with a CAGR of 5.1 per cent. Technological innovations in cold chain structures and developments in retail channels have been the major reasons for such tremendous growth (Markets and Markets, February 2019).

Fig. 1.2 Market Size of Frozen Foods in India by value (2013 – 2023F)



(Source: www.techsciresearch.com, 2017)

It is revealed from figure 1.2 that frozen food market is continuously growing and is forecasted to grow for next five years in all regions of India, say, North, West, South and East. According to the graph, growth of frozen foods in east regions of India is comparatively lower than the other regions. North and west regions show higher rates of growth in market size of frozen food products.

Frozen meat is the meat that has been subjected to rapid freezing and is kept frozen until used. Normally, microorganisms do not grow at food temperatures below -9.5 degree celsius. There are two types of freezing the meat, namely, mechanical and cryogenic. 1st trial shipment was done during 1868 by Darling Harbour (Sydney) owned by Thomas Sutcliffe Mort. Freezing and defrosting at home is not similar to frozen meat because the temperature regulation is difficult in domestic refrigerators.

The segmentation of frozen meat product market is normally seen as Europe, North America, Asia-Pacific and the remaining parts of the world. North America is considered to have a slower growth, while Europe has gained dominance in this sector with the expectation that by the end of 2023, it reaches USD 31.47 billion. During the period of 2017-2023, Asia-Pacific is expected to put forth a tremendous growth. It is forecasted that China dominates the Asia-Pacific region with a predicted CAGR of 5.01 per cent during 2017-2023 (Erie News Now, March 2019).

Globally, India is the second fastest growing processed meat and poultry market with a CAGR of 22 per cent. However, Indonesia stands first in this category with 26.7 per cent CAGR between 2011 and 2015 followed by Vietnam at 15.5 per cent, China at 13.9 per cent and Brail at 10.9 per cent. Global innovation in meat sectors have increased over the years tremendously in Asia Pacific regions, especially in India (Indian Council of Food and Agriculture 2016). In this 22 per cent, Indian frozen meat market is estimated to grow at 4.36 per cent CAGR. By taking into consideration the Asia-Pacific region, China is one of the dominant retail markets of the world. India, Malaysia, Kazakhstan, Turkey and Indonesia are being ranked higher in terms of development of retail sector (Erie News Now, March 2019).

"India's growing middle-class is pushing the growth of the meat sector. Research shows that there will be around 80% growth in meat demand by 2022 driven by convenience. This will bolster the adoption of frozen meat, fish, and poultry products. The Indian meat market is US$31 billion growing at a CAGR 20% and it will reach US$65 billion by 2022" (Vivek Gupta and Abhay Hanjura – Founders of Licious).

The managing director of Suguna, Mr B Soundararajan said that in our domestic market, 2500 tonne of frozen chicken is sold per month with a growth rate of 10-15 per cent (99Business.com, March 2019).

India exports both frozen and chilled meat to more than 60 countries of the world. The major items of export include deboned and deglanded frozen buffalo meat, which accounts for approximately 97% of total meat export (Indian Council of Food and Agriculture 2016).

Kerry Group Plc. in Ireland, Associated British Foods Plc. from U.K., BRF S.A. and Marfrig Group from Brazil, Cargill Incorporated, Tyson Foods, Inc. and Pilgrim's Pride Corporation from U.S. are the rulers of frozen meat product market globally. These players have succeeded in creating traceability to meat products. The market segmentation for frozen meat products is seen based on different types of products, targeted customer or the end user, the supply chain employed and region of production (Erie News Now, March 2019).

The major market players of frozen meat products in India are Al – Kabeer, Venky's, Sumeru, Buffet, Godrej Yummiez, Suguna, ITC, Darshan Foods Pvt Ltd (Lumiere Business Solutions 2017).

The different products under frozen meat category includes, nuggets, leg, wings, boneless cut pieces, whole chicken, chicken sausages, prawns, burger patty, chicken fingers, chicken pops, fish fillets, fish fingers, etc.

Kalogianni (1996) [18] inferred that consumers of Greece believe that frozen meat was of poor taste and it smells bad. But they do not think that frozen meat was unhealthy. The quantitative research had shown that people mostly preferred local meat instead of imported meat and fresh rather than frozen meat for different reasons.

Becker *et al.* (2000) [3] told that consumers were much intended towards country of origin of meat and place of purchase of meat. Fresh meat was preferred over the other forms of meat. The safety of meat was much attributed towards the country of origin and freshness. People also felt that the most trusted source of information for safety of meat would always be given by the butcher. The characters which were most difficult to measure, like, the flavor and smell were much attributed to freshness of meat.

Candel (2001) [5] revealed that convenience was one of the major aspects that forces consumers to move towards convenience meals. The convenience in food consumption was found to be negatively related to convenience of food preparators and also the term convenience was less related to time saving, mental and physical energy saving. People were much influenced by the term convenience because of changing lifestyles and thus convenience meals and processed foods products gained their importance.

Kubíčková and Šerhantová (2005) [10] suggested that healthy lifestyle of the consumers force people to prefer sliced meat than frozen meat. People also preferred local vendors for meat purchase rather than frozen and chilled products in hypermarkets and supermarkets. Among the sample respondents 13.4 percent preferred frozen meat products while ready to eat meat products were the least preferred. 27.5 percent of the sample respondents told that they often bought meat at local butchers' and only then in hypermarkets, supermarkets, small self service groceries and groceries over the counter.

Damen *et al.* (2007) [6] said that consumers' knowledge about freezing meat at home was different from their real behavior of freezing and defrosting. Everything was much related to ensure microbial safety of meat. Consumers must have possessed a clear knowledge and complete information regarding freezing the meat for storage purpose. After freezing, the quality of meat might get improved and lead to improved microbial safety for consumption by consumers.

Liana *et al.* (2010) [13] suggested that consumers' perceptions are much related to health consciousness and government campaigns. Consumers at present were found to be highly educated and aware of several factors influencing the purchase compared to the past. Good manufacturing practices were also being noticed by consumers for selection of meat. Along with GMP, packaging and labeling also proved to be important factors for purchase of safe meat product.

Shiferaw *et al.* (2012) [17] revealed that more number of women than men consumed frozen food mostly in the form of vegetables, fruits and nuts, rather than frozen meat**.** Men consumed meat higher than women while women consumed organic products and vegetarian products than men. Also, more women than men believed that carbohydrates need to be controlled in order to lose weight.

Aral *et al.* (2013) [1] concluded that people on a regular basis do not prefer to consumer frozen or ready-made meat products. People consumed chicken on a higher scale comparatively than any other meat products, irrespective of their origin or whether they were fresh or frozen or whether there was any risk perception towards diseases. Moreover, the study also reported that the percentage of the purchase of branded and packaged chicken meat, which had been around 51 per cent prior to the bird flu epidemic rose to 78 per cent in the period after the crisis.

Pirvutoiu and Popescu (2013) [14] concluded that consumers shown much importance towards sensorial characteristics like quality, pre packing grade etc., for purchase products. These became the major reasons for lower awareness of consumers towards frozen meat. So that the producers had to inculcate all these attributes in their meat products to commercialize. It was concluded that producers must pay more attention to these aspects in their future strategy for producing and commercializing frozen poultry meat.

Vanhonacker *et al.* (2013) [19] said that fish consumption was highly preferred diet among consumers for higher level of protein diet. Fresh fish was perceived the most healthy fish product, followed by frozen, preserved and ready-meal fish products. Ready-meal fish were least preferred because of health consciousness. Perception scores were highest correlated with self-reported fish consumption in the Mediterranean countries. With the exception of Romania, perceived barriers only poorly explained self-reported consumption frequencies of the different fish product categories.

Saifullah *et al.* (2014**)** [15] revealed that consumers' health conscious was increasing and they preferred frozen foods to overcome the contamination in open groceries. The availability of frozen foods plays a major role in selection of frozen foods. Though frozen foods had been considered as artificial forms of food, in the present era of time and health consciousness it had become an integral part in our grocery shopping.

Bouzari *et al.* (2015) said that frozen foods were being preserved by specialists under optimum temperature and pressurized conditions. But refrigeration led to loss of vitamins due to lack of knowledge about optimum conditions of storage of specific products. The vitamin content of the frozen commodities was comparable to and occasionally higher than that of their fresh counterparts.

Fiolet *et al.* (2018) [8] said that minimally processed foods like frozen foods are opposites of ultra-processed foods literally. According to them, processing resulted in negative health impacts and also included that ultra-processing will lead to breast cancer. The study majorly focused on the Ultra – processed foods of the NOVA group, namely, sweetened drinks, instant noodles, soups, mass produced packaged breads and buns, sodas and meat products, with preservatives other than salt.

Kiran *et al.* (2018) [9] concluded that consumer awareness of frozen meat was very low compared to fresh meat in Southern India. The willingness to purchase frozen meat (16.9 per cent) and awareness of processed meat (33.1 per cent) indicated huge opportunity for meat industry in future. So, the processing companies needed to improve the marketing and advertising strategies. Also, the consumers were much concerned about the quality of frozen meat. The manufacturers need to ensure that their product is of high quality.

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