FACTORS AFFECTING ORGANIC FRUITS AND VEGETABLES BUYING BEHAVIOUR OF CONSUMERS IN KERALA

Thesis Submitted to the

COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY

for the award of the Degree of

Doctor of Philosophy

under

THE FACULTY OF SOCIAL SCIENCE

by

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FEBRUARY 2019

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Certificate

Certified that this thesis entitled "**FACTORS AFFECTING ORGANIC FRUITS AND VEGETABLES BUYING BEHAVIOUR OF CONSUMERS IN KERALA,**" submitted to the Cochin University of Science and Technology, Kochi for the award of the Degree of Doctor of Philosophy under the Faculty of Social Science is the record of bona fide research carried out by Ms. Heerah Jose, under my supervision and guidance at the School of Management Studies, Cochin University of Science and Technology. This work did not form part of any dissertation submitted for the award of any degree, diploma, associateship, fellowship or any other similar title or recognition from this or any other institution. All the relevant corrections and modifications suggested by experts during the pre-synopsis seminar and recommended by the Doctoral Committee are incorporated in the thesis. Also certified that this thesis was verified for plagiarism using the CUSAT facility and found satisfactory.

Place: Kochi
Date: 11/02/2019

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Declaration

*I, Heerah Jose, hereby declare that the work presented in the thesis "**FACTORS AFFECTING ORGANIC FRUITS AND VEGETABLES BUYING BEHAVIOUR OF CONSUMERS IN KERALA**" being submitted to the Cochin University of Science and Technology for award of Ph.D degree under the Faculty of Social Science is the outcome of the original work done by me under the supervision of Prof. (Dr.) Moli P. Koshy, Former Director, School of Management Studies, Cochin University of Science and Technology, Kochi. This work did not form part of any dissertation submitted for the award of any degree, diploma, associateship, fellowship or any other similar title or recognition from this or any other institution.*

Kochi – 22 ***Heerah Jose***

Acknowledgement

*To begin with, I thank **LORD ALMIGHTY** for providing me with the opportunity and wisdom to complete my Ph.D thesis. I achieved this with the support, encouragement and prayers of all my well-wishers; therefore I take this opportunity to acknowledge them.*

*I would like to express my sincere gratitude to my supervising guide **Dr. Moli P. Koshy**, Professor (Retd.) and former Director, School of Management Studies (SMS), CUSAT, for her serenity, motivation and immense knowledge. Her guidance and patience throughout this research, especially at the time of correcting this thesis, were unconditional. I could not have imagined having a better mentor for my Ph.D study.*

I would like to thank Prof. (Dr.) D. Mavoothu, Director, School of Management Studies, CUSAT for providing all the facilities and Dr. James Manalel, Professor (Retd.), School of Management Studies (SMS), CUSAT for being my Doctoral Committee Member, providing adequate support for the completion of this study.

I express my sincere gratitude to all the former and present faculty members of SMS: Dr. Sebatain Rupert Manpilly, Dr. K. Krishan Namboothiri, Dr. Mohammed Aslam, Dr. M. Bhasi, Dr. V.P. Jagathy Raj, Dr. S. Rajithkumar, Dr. K.A. Zakkariya, Dr. Manoj Edward, Dr. Sam Thomas, Dr. Santhosh Kumar S., Dr. Santhosh Kumar P. K., Dr. Sreejesh S., Dr. Sangeetha K Prathap, Dr. Manu Melwin Joy and Dr. Devi Soumyaja for providing me with insightful comments and encouragement which incented me to approach the research study from various perspectives. I express my heartfelt gratitude to Dr. Sreejesh S. for extending his help and guidance during the data analysis stage.

I would like to thank all the office staff especially P.R. Bindu & K.P. Bindu and librarians for providing all the support in completing this study. I would like to thank all my fellow research scholars at SMS for their continued support and encouragement.

Special thanks to my best friends, Mr. Vijay Kuriakose, Mrs. Chitra Salin and Mrs. Shiji Mohan for their unconditional support, patience and encouragement which have helped me to complete this study.

Finally, yet importantly, I owe a deep sense of gratitude to my parents, Mr. Jose Kallikaden and Mrs. Lissamma Jose, and my loving sister Mrs. Priyanka Jose and her husband Mr. Vishak Joseph, who always stood by me with their constant support and encouragement at the time of ups and downs which helped me to complete this work.

Heerah Jose

ABSTRACT

The growing instance of pesticide residue in fruits and vegetables is a concern with regard to the health of people and the environment. Majority of consumers are not ready to take extra effort in procurement, and pay more prices, in spite of being aware of the hazards of the contaminants. Therefore, it is important to understand what motivate or hinder consumers in the purchase of organic fruits and vegetables (OF&V) in Kerala. Understanding the factors which take customers to regular use of organic fruits and vegetables will pave the way for facilitation in increasing the consumption of these items.

Data from 632 sample respondents show that factors such as fear, trust, health consciousness, hedonic quality, nutritional quality, production process, and convenience have significant effects in forming positive attitude and purchase intention towards OF&V in Kerala.

A positive attitude, formed during a course of time, enhances the consumption of OF&V. Social pressure, willingness to take effort, and perceived price significantly affect purchase intention as moderators. The importance that different buyers attribute to various factors in the purchase makes them fall into different groups namely regular, occasional and potential buyers. Environmental concern, found to be significant in the western countries, on the buying of organic food products was not so significant in Kerala, and only regular buyers regarded it important.

Convenience in buying and trust towards the third party respectively are the major concerns for the potential and occasional buyers. Providing availability and accessibility along with the extension of certification, labels and logos to organic fruits and vegetables will create awareness and positive attitude in the consumers to use organic food products, thereby increasing the consumption to the benefit of the society.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

OF&V	-	Organic Fruits and Vegetables
FiBL	-	Research Institute of Organic Agriculture
IFOAM	-	International Federation of Organic Agriculture Movements
MH	-	Million Hectares
Ha	-	Hectares
APEDA	-	Agricultural & Processed Food Products Export Development Authority
NPOP	-	National Programme for Organic Production
Sq Mi	-	Square Mile
MT	-	Metric Tons
MRL	-	Maximum Residue Limit
EWG	-	Environmental Working Group
IBS	-	IFOAM Basic Standards
PPM	-	Parts Per Million
EU	-	European Union
IOAS	-	International Organic Accreditation Service
FAO	-	Food and Agricultural Organization
UN	-	United Nations
WHO	-	World Health Organization
FSSAI	-	Food Safety and Standard Authority of India
USDA	-	United States Department of Agriculture
PGS	-	Participatory Guarantee System
FTDR	-	Foreign Trade Development and Regulation Act
APGMC	-	Agriculture Produce Grading, Marking and Certification Act
NCOF	-	National Centre of Organic Farming
CSE	-	Center for Science and Environment

TRA	-	Theory of Reasoned Action
TPB	-	Theory of Planned Behavior
OECD	-	Organization of Economic Co-operation and Development
NGO	-	Non-Governmental Organisations
GMO	-	Genetically Modified Organism
NCD	-	Non-Communicable Diseases
HBM	-	Health Belief Model
NAM	-	Norm Activation Model
VBN	-	Value-Belief-Norm
ATO	-	Attitude Towards Object
EFA	-	Exploratory Factor Analysis
SEM	-	Structural Equation Modeling
KMO	-	Kaiser-Meyer-Olkin
PCA	-	Principal Component Analysis
MLE	-	Maximum Likelihood Estimator
AMOS	-	Analysis of Moment Structure
CMB	-	Common Method Bias
CLF	-	Common Latent Factor
CFA	-	Confirmatory Factor Analysis
AVE	-	Average Variance Extracted
RMSEA	-	Root Mean Square Error of Approximation
SRMR	-	Standardized Root Mean Square Residual
PNFI	-	Parsimonious Normed Fit Index
CFI	-	Comparative Fit Index
MGSEM	-	Multi-Group Structural Equation Modeling

Chapter 1

INTRODUCTION

This chapter gives an overview of displacement of traditional organic farming by various agricultural practices using chemical fertilisers and pesticides, current production and marketing of organic products, organic standards and certification in India, and around the world. It also provides a background to the research problem, research gaps, objectives, limitations and organisation of the study.

1.1 INTRODUCTION TO THE STUDY

Organic farming was the way of cultivation till the 15th century all over the world. The Indus and Mesopotamian civilisations prospered under the influence of organic cultivation (Bhattacharyya & Chakraborthy, 2005). During the 16th to 19th century, modern farming methods, using chemical fertilisers and pesticides came into practice in Europe and a few developing nations. British botanist Sir Albert Howard, who worked as an agricultural adviser in Pusa, Bengal from 1905 to 1924, has documented the traditional Indian farming techniques in his book *"An Agricultural Testament"* in 1940 and considered these practices to be far superior to the conventional agricultural science of European nations (Narayanan, 2005).

The introduction of chemicals as manure in the 19th century during the industrial revolution and the advent of technology in the agricultural field after the World War II (1939-1945) have completely changed the farming practices across the globe. For instance, ammonium nitrate which was used

in weaponry, evolved into ammonium nitrate fertiliser, and organophosphate nerve gas converted to powerful insecticides (Waggoner, 2004).

During the 1950s and 60s, a drastic increase in the population and several natural calamities brought India to the brink of a food deficient country (Chandra, Mukherjee, & Mukherjee, 1999). To overcome this situation, our government introduced 'Green Revolution', where organic and natural fertilisers, and pesticides were replaced with chemical fertilisers and pesticides, under the leadership of agricultural scientist M.S. Swaminathan in the 1960s (Harris, 2000; Kesavan & Iyer, 2014). These technical advancements resulted in significant economic growth, but at the same time adversely affected human health, environment and the social dimensions of the people (Garibay & Jyoti, 2003). India took the path of green revolution when the western world started its organic farming movement in the 1960s (Kuepper, 2010) and it has taken more than a decade for Indian farmers and consumers to realise the disastrous effects of using non-organic farming and slowly convert to organic farming.

1.1.1 PRODUCTION AND MARKETING OF ORGANIC FOOD PRODUCTS- AROUND THE WORLD

Organic food products are *"those which exclude the use of synthetically compounded fertilisers, pesticides, growth regulators and livestock feed additions at the time of production"* (Lampkin, 1990). Due to the growing awareness of ill effects of conventional farming, the organic agricultural activities widely spread all over the world. According to the National Programme for Organic Production (NPOP), under the Ministry of Commerce & Industry, conventional farming is defined as *"the farming systems dependent on the input of artificial fertilisers and/or chemicals and*

pesticides or which are not in conformity with the basic standards of organic production".

According to the latest report (2018) of FiBL-IFOAM (Research Institute of Organic Agriculture- International Federation of Organic Agriculture Movements), organic activities started to be implemented in 178 countries. The growth of organic farming is evinced by its growth from .3% (11 Million Hectares- MH) in the year 1999 to 1.2% which constitutes 57.8 MH (including in-conversion organic land - land which has not completed three consecutive years of organic farming) in the year 2016, when we consider the total agricultural land (Figure 1.1). The growth of organic agricultural land has increased 15% in 2016 when compared with the year 2015 (Willer, Lernoud, & Kemper, 2018).

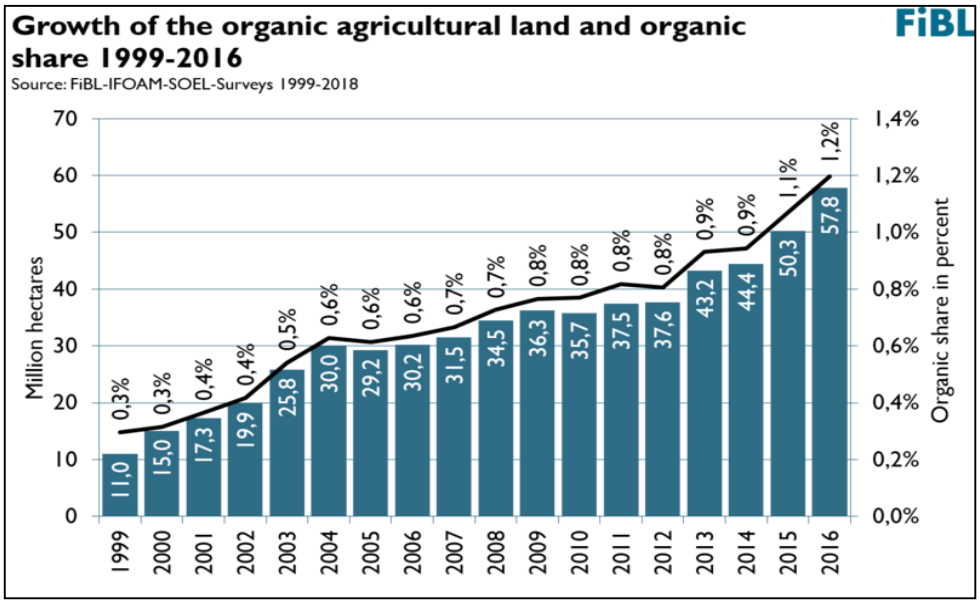


Figure 1.1 Growth of the Organic Agricultural Land and Organic Share, 1999-2016

The country with the largest area of agricultural land is Australia (27.15 MH), followed by Argentina (3.01 MH), China (2.28 MH) and USA

(2.03 MH). India is in the top ten countries with the largest area of organic agricultural land with 1.49 MH. Thus these top ten countries have a combined total of 44.2 MH which constitute three-quarter of world's organic agricultural land. Apart from the organic agricultural land, wild collection area such as forest and mountains where non-organic fertilisers and chemicals were never used constitutes 39.7 MH. Thus a total of 97.5 MH of land across the globe is under organic cultivation.

According to FiBL-IFOAM report though over 90% of organic agricultural land use and crop details were available, very little or no specific information is available about the land use of countries like India, Australia, China and Brazil. As per the available data in the world over, 10.6 MH of arable land cultivates rice (4.1 MH), green fodder (2.8 MH), oilseed (1.3 MH), and dry pulses and textile crops (.5 MH each). The permanent crops accounts to 4.5 MH and cultivates coffee (more than 0.9 MH), olives (almost 0.7 MH), nuts (almost 0.6 MH), grapes (almost 0.4 MH), and tropical and sub-tropical fruits (over 0.3 MH).

1.1.1.1 Region-Wise Production and Marketing

Largest area for organic agricultural land is in Oceania (47%), followed by Europe (23%), Latin America (12%), Asia (9%), North America (6%) and Africa (3%). However, 80% of organic producers are in Asia, Africa and Latin America. Compared to 2015, 13% increases in organic producers are reported from five countries, like India, Uganda, Italy Mexico and Vietnam in 2016. **Based on the report, 'The World of Organic Agriculture Statistics and Emerging Trends 2018' by FiBL-IFOAM, a leading organisation in developing statistics about organic farming all over the world, the spread of organic agricultural land and production by the end of the year 2016 is given in sections a to f (Figure 1.2).**

a) Oceania

Oceania region constitutes half of the world's organic land which comprises of New Zealand, Australia and Pacific Islands countries like Papua New Guinea, Fiji, Vanuatu, Tonga etc. Thus 27.3 MH of organic land in the Oceania region is managed by 27,000 producers.

Australia has more than 99% of organic land in this region comprising 27.1 MH. The highest share of organic agricultural land compared to total agricultural land in this region is in French Polynesia (31.3%-over 14,000 hectares-Ha), followed by Samoa (22.4%- almost 36,000 Ha) and Australia (6.7%-27.1 MH). The largest number of organic producers is in the region of Papua New Guinea (15,000 producers) followed by Australia (2,000) and the Solomon Islands (1,500).

The organic agricultural land is mostly grassland/grazing area (96%-26 MH) for rearing livestock. Permanent crops such as coconut (93,000 Ha) and coffee (15,300 Ha) are also grown in this region.

In the Oceania region, Australia has the largest market for organic food products, and distribution has increased through major retailers and supermarket. By the end of 2015, total retail sale of organic products has reached 1.1 billion euros, where Australia reported an organic retail sale of 941 million euros and New Zealand of 124 million euros. Furthermore, it was reported that the per capita consumption of organic food products in Australia was 40 euros whereas in New Zealand it was 27 euros. The producers in Australia and New Zealand mainly focus on export and their main targeted market is the United States followed by Asian countries such as China, South Korea, Hong Kong and Singapore (Lawson, Monk, & Cosby, 2018).

The key commodity for export in the Oceania region was beef which constitutes 20% of all exports in the year 2016. Dairy products, horticulture produce and wine constitute 5% of exports. 56% of organic beef imported in the United States is coming from Australia. The other commodities exported to the United States are certified lamb, horticultural products, tea, coffee and snacks.

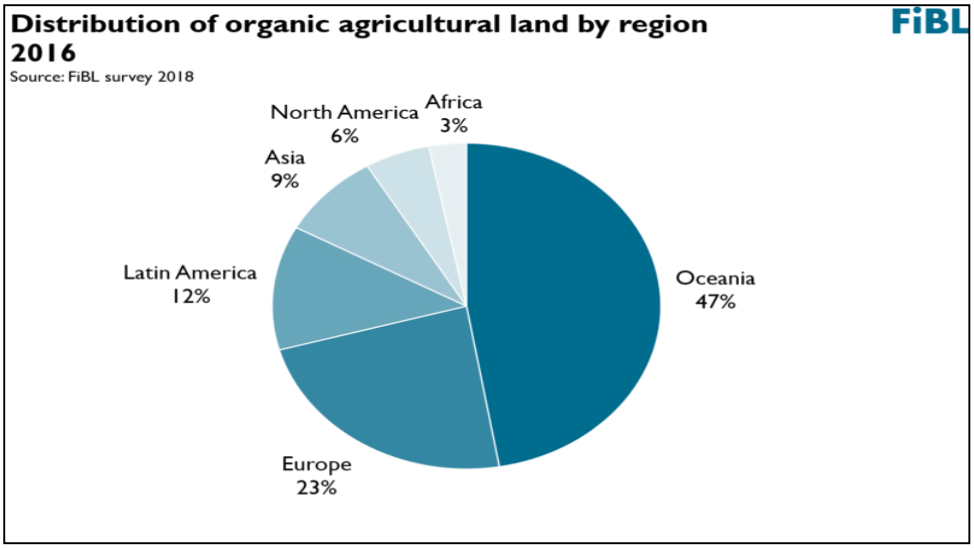


Figure 1.2 Distribution of Organic Agricultural Land by Region, 2016

b) Europe

Europe has 13.5 MH (2.7% of total agricultural land) of land managed by 3, 70,000 producers. The European Union has a total area of organic coverage of 12.1 MH (6.7% of total agricultural land) managed by over 2, 95,000 producers. Spain has the largest organic agricultural land (2 MH) followed by Italy (1.8 MH) and France (1.5 MH). Main cultivation in this area is olive followed by nuts, grapes and temperate fruits.

The retail sales of organic products have reached 33.5 billion euros in Europe and 30.7 billion euros in European Union in 2016, an increase of 11% over the previous year. Organic food sales are concentrated mainly in

Western Europe. Thus, the largest market for organic products is Germany (9.5 billion euros) followed by France (6.7 billion euros) and Italy (2.6 billion euros). Central and Eastern European countries such as Hungary, Poland and Ukraine are concentrating mainly on organic agricultural production.

The main characteristics of the European market are its large networks of organic food products distribution through supermarkets, discounters, drugstores and speciality shops. These stores have developed their own private labels also. Majority of retail outlets are in Germany, France and Italy. *Dennree* is an organic food company which operates in Germany and Austria with more than 250 *Denn's Bio* organic supermarkets. *Biocoop* food chain has more than 430 organic shops in France, and there are more than 200 *CuoreBio* organic stores in Italy (Willer, Meredith, Moeskops, & Busacca, 2018).

c) Latin America

Latin America has 7.1 MH of organically grown agricultural land managed by over 4, 60,000 producers in 2016. Since the year 2000, there has been an increase (80%) of organic agricultural land by 3.2 MH. Mexico and the Dominican Republic have converted 90,000 Ha and 40,000 Ha respectively to organic agricultural land. Argentina has the largest area covered under organic agriculture (3 MH) followed by Uruguay (1.7 MH) and Brazil (0.75 MH). Majority of organic producers are in Mexico (2,10,000), thus becoming the third largest organic producers in the world after India and Uganda. Large quantities of organic products (mainly coffee, bananas, and cocoa) which are cultivated in Latin American countries are exported rather than being sold in the domestic market.

Most (62%) of the organic agricultural land is used as grassland/grazing area; 14% for permanent crops and only 7% utilised for arable crops. Argentina (2.6 MH), Uruguay (1.7 MH) and the Falkland Islands (1, 34,000 Ha) have the largest grassland/grazing areas. Cereals are the key organic arable crops cultivated in this region. Bolivia (87,000 Ha- quinoa and amaranth), Mexico (40,000 Ha- wheat and maize) and Argentina (26,000 Ha- wheat) grow most of the cereals in this region.

The organic wild collection also plays an important role in organic agricultural land of Latin America. It covers almost 4.2 MH of land with fruits (1.2 MH), nuts (1.1 MH), palmito (1, 48,000 Ha), rose hips (71,000 Ha) and beekeeping (4, 20,000 Ha). Mexico has the largest organic wild collection in this region (1.3 MH) followed by Brazil (1.2 MH), Bolivia (0.9 MH) and Argentina (0.4 MH).

Latin American countries constitute 70% of the world's organically cultivated permanent crop - cocoa; remaining 30% is in Africa. Brazil is the leading producer of coffee in the world. More than 45% of the world's organically cultivated coffee comes from Latin America, and Africa contributes 41%. The key export commodities of Argentina and Uruguay are meat and temperate fruits. Brazil is one of the leading domestic markets among Latin American countries. Other Latin American countries such as Peru, Argentina, Colombia and Chile are focusing on exporting of organic food products (Flores, 2018).

d) Asia

Almost 4.9 MH of agricultural land are dedicated to organic farming in Asia, the majority of which is in China leading with 2.3 MH, followed by India (almost 1.5 MH). Compared to 2015, there was an increase of 34% (0.9 MH) in organic agricultural land in Asian countries, especially in China

(42% increase; 0.67 MH increase) and India (0.3 MH increase). Asia has the largest number of organic producers in the world (1.1 million), and the majority of them are in India (8, 35,000) followed by Philippines (1, 66,000). Majority of organic products which are cultivated in Asian countries like China and India are exported, whereas, Japan and South Korea consume organic food products produced domestically as well as imports. Key organic crops are cereals, oilseed and cotton. Southern Asian countries such as India, Pakistan and Thailand produce organic cotton. India is the largest producer of organic cotton not only in Asia but also globally, which comes to a share of 55.7%.

Forty-nine percent of farmland in Asia is used for cultivating organic arable crop such as wheat and rice (2.4 MH), and 16% is used for permanent crops (7, 75,500 Ha). Most of the organic arable crops are grown in China (over 8, 11,000 Ha) and Kazakhstan (1, 30,000 Ha). Organic rice (2, 76,000 Ha) and wheat (1, 47,000 Ha) are mainly cultivated in China. Over 7, 75,500 Ha of organic farmland of Asia are used to cultivate permanent crops such as coconut (1, 99,900 Ha), coffee (1, 12,000 Ha), temperate fruits (1, 00,000 Ha) and tea (93,000 Ha). The Philippines have the largest area for cultivating organic coconut in Asia, covering 75% of the total organic area. 97% of the organic coffee cultivating area is in Indonesia (82,000 Ha) and its neighbouring country Timor-Leste (28,000 Ha). Furthermore, 2.6% of organic tea cultivating area is in China (79,000 Ha) followed by Myanmar (3,500 Ha).

The wild collection also forms an important part in organic cultivation in Asia which covers 6.3 MH. India has the largest organic wild collection in this region (4.2 MH) followed by Tajikistan (1 MH) and China (0.8 MH).

Even though the majority of the organic products are exported, recently there is a growing domestic demand for organic food products, both from China and India due to the rise in contamination in food products. China is experiencing a considerable growth in organic market, due to various food scandals such as selling rotten and contaminated pork and beef and finding industrial chemical melamine in infant drinks and dairy products (Lernoud, Willer, & Schlatter, 2018), reporting an organic sale of 5.9 billion euros, making China the fourth largest market for organic food products.

e) North America

The total area dedicated to organic agriculture in North America is 3.1 MH of agricultural land. Out of this, the United States of America has the largest share of 2 MH followed by Canada (1.1 MH). Almost 77% of organic producers in North America are in the United States, which comes to 18,422 producers, whereas in Canada it is 4,200. There have been 60% increase in the number of organic producers in 2016 compared to 2002. By the end of 2016, 46% of organic agricultural land used as grassland/grazing area (1.4 MH), 38% of agricultural land utilised for arable crops (1.2 MH) and only 3% utilised for permanent crops (1, 04,000 hectares). The United States and Canada, have 9, 33,000 Ha and 5, 06,000 Ha of grassland/grazing area respectively. Main organic arable crops in this region are cereals and organic vegetables which constitutes 46% and 8.3 % respectively. The key permanent organic crops are temperate fruits- plums, cherries, and apples (13,000 Ha), grapes (12,000 Ha) and berries (10,000 Ha). The organic berries mainly grow in this region are blueberries (7500 Ha) and cranberries (800 Ha).

The United States is the single largest organic market (47 billion US dollars) in the world, out of which 43 billion US dollars are from food sales in 2016. Fruits and vegetables have the highest market followed by milk and

dairy products. Canadian organic sector is also growing steadily with an approximate organic sale of 4.1 billion US dollars in 2016 compared to the sale of 3.6 billion US dollars in 2015 (Loftsgard & Guerra, 2018). In 2016, Canada imported organic food products like olive oil, unroasted coffee and banana for 489 million US dollars and exported green and red lentils and red spring wheat.

Canada reported 2.6% of the total retail sale in organic products whereas, the United States share in the retail sale was 5.3%. Furthermore, consumer's per capita consumption in the United States was 121 euros whereas in Canada it was 83 euros. The major share of organic products is sold through conventional grocery channels, such as Amazon's *Whole Food Market* and Danone's *Whitewave Foods* (Haumann, 2018).

f) Africa

Compared to other regions, Africa has the lowest organic agricultural land distribution in the world. The total area dedicated to organic agricultural land is 1.8 MH in 2016, representing 0.2% of total agricultural land of Africa and 3% of the global organic agricultural area, which is managed by 7,41,000 organic producers. Compared to 2015 there is an increase of 7% in organic agricultural land which is approximately 1, 19,000 Ha. Tanzania has the largest area covered under organic agriculture (2,70,000 Ha), whereas Uganda has the largest number of organic producers (more than 2, 10,000). The countries with the highest share of organic agricultural land compared to total land is in the island of Sao Tome and Principe (13.8%), followed by Egypt (2.8%) and Comoros (1.9%). Majority of organic products cultivated in Africa are exported.

The wild collection forms an important part in organic cultivation in Africa which constitutes over 12 MH of certified land. Zambia (6.7 MH),

Namibia (2 MH), South Africa (1 MH), Somalia (almost 8, 50,000 Ha) and Zimbabwe (3, 00,000 Ha) are the largest wild collection in Africa. Out of the 6.7 MH of organic land in Zambia, 5.9 MH are used for organic beekeeping.

Tunisia, Ethiopia, Uganda, Tanzania and Kenya have the largest organic permanent crops. The major permanent organic crop is coffee which covers 12.7% (3, 80,000 Ha) of the total area. Ethiopia (over 1, 60,000 Ha) and Tanzania (almost 94,000 Ha) are the leaders in coffee production. Another key permanent crop in Africa is cocoa, which covers 1.7% of the total area. Democratic Republic of Congo (37,000 Ha), Tanzania (29,000 Ha) and Sierra Leone (20,300 Ha) are leaders in organic cocoa cultivation. Other key organic crops are oilseed (1, 96,000 Ha), nuts, olives and cotton (Gama, 2018).

1.1.1.2 Global Market for Organic Food Products

The global market for organic food products has reached 80 billion euros in 2016. Even though India has the largest number of organic producers (8, 35,000) in the world, followed by Uganda (2, 01,352) and Mexico (2,10,000), which are developing nations, organic food consumption is mostly in the USA and Europe. The largest retail market for organic food is in the United States of America (38.9 billion euros) followed by Germany (9.5 billion euros) and France (6.7 billion euros). However, countries which have the highest share for organic products in food products market is in European Union (EU) such as Denmark (9.7%), Luxembourg (8.6%), and Switzerland (8.4%).

More than 90% of retail sales are concentrated in North America (41,939 million euros) and Europe (35,526 million euros) making organic food products consumption in other geographic areas negligible. The retail

sales in other regions reported by the end of 2016 are: Asia (7,343 million euros), Oceania (1,065 million euros), Latin America (810 million euros) and Africa (16 million euros), which indicates that the organic market share in all most all other countries are below 1%. Thus organic food sale in Australasia, Asia and other regions put together comes to 7.1 billion euros (Sahota, 2018). An overview of organic agriculture and key indicators is given in Table 1.1.

Table 1.1 Organic Agriculture: Key Indicators and Top countries

Indicator	World	Top countries
Countries with organic activities[1]	2016: 178 countries	
Organic agricultural land	2016: 57.8 million hectares (1999: 11 million hectares)	Australia (27.1 million hectares) Argentina (3.0 million hectares) China (2.3 million hectares)
Organic share of total agricultural land	2016: 1.2 %	Liechtenstein (37.7 %) French Polynesia (31.3 %) Samoa (22.4%)
Wild collection and further non-agricultural areas	2016: 39.9 million hectares (1999: 4.1 million hectares)	Finland (11.6 million hectares) Zambia (6.7 million hectares) India (4.2 million hectares)
Producers	2016: 2.7 million producers (1999: 200'000 producers)	India (835'000) Uganda (210'352) Mexico (210'000)
Organic market	2016: 89.7 billion US dollars*[2] (more than 80 billion euros) (2000: 17.9 billion US dollars)	US (43.1 billion US dollars; 38.9 billion euros) Germany (10.5 billion US dollars; 9.5 billion euros) France (7.5 billion US dollars; 6.7 billion euros)
Per capita consumption	2016: 12.1 US dollars (11.3 euros)	Switzerland (304 US dollars; 274 euros) Denmark (252 US dollars; 227 euros) Sweden (218 US dollars; 197 euros)
Number of countries with organic regulations	2017: 87 countries	
Number of affiliates of IFOAM – Organics International	2017: 1'003 affiliates from 127 countries	India - 111 affiliates Germany - 88 affiliates United States - 63 affiliates China - 56 affiliates

Source: FiBL survey 2018, based on national data sources and data from certifiers
**Global market: Ecovia Intelligence (formerly Organic Monitor) 2018*

1.1.2 PRODUCTION OF ORGANIC PRODUCTS IN INDIA

According to the FiBL-IFOAM report in 2018, India ranked ninth among the top ten countries with the largest area of organic agricultural land and first among the largest number of organic producers in the year 2016. According to Agricultural & Processed Food Products Export Development

Authority (APEDA), at the end of 31st March 2018, organic agricultural land registered under National Programme for Organic Production (NPOP) is 3.56 MH, out of which 1.78 MH are cultivable land, and another 1.78 MH are covered by wild collection (Table 1.2).

The largest area under organic cultivation, including wild collection, is in the state of Madhya Pradesh (11, 56,881 Ha) followed by Rajasthan (4,42,133 Ha) and Maharashtra (3, 04,074 Ha), with least in Bihar (6, 95 Ha) among the states. New Delhi, a state formed in the year 1992 under the national capital territory act, with a land area of 573 square miles (sq mi) has 9 hectares of organic agricultural land. Pondicherry which is a union territory, with a total land area of 186 sq mi has 2 hectares of organic cultivation. The state of Kerala has 34,160 Ha of organic agricultural land, comprising of 31,660 Ha of cultivable land and 2,500 Ha of land coming under wild collection, producing 16,134 Metric Tons (MT) of organic products.

The state of Madhya Pradesh (5,75,346 MT) tops in organic production followed by Maharashtra (3, 77,308 MT), Karnataka (1, 54,922 MT), Uttar Pradesh (1, 17,358 MT) and Rajasthan (94,029 MT). Arunachal Pradesh with an organic agricultural area of 6,179 hectares produces 29 MT of organic food products. Jharkhand state which was formed in the year 2000 by dividing Bihar into two states, with an organic land area of 17,387 hectares has produced 2 MT. Bihar has the least area and produces (3 MT) in organic agriculture. Punjab which is called the 'Cancer Capital of India' has only 1,384 Ha of organic agricultural land, producing 112 MT of organic products.

India produces a total of 1.7 million MT of certified organic products including wild collections. Our organic production encompasses oilseeds

(5,39,109 Tons), sugarcane (3, 18,405 Tons), cereals & millets (2, 84,314 Tons), cotton (2, 47,437 Tons), pulses (67,050 Tons), medicinal plants (46,558 Tons), spices (45,641 Tons), plantation crops-tea/coffee/coconut (43,707 Tons), fruits (33,448 Tons), vegetables (20,628 Tons) dry fruits (8,127 Tons) etc. Out of total production, 27% (certified organic) which comes to 4.58 lakh MT is exported, generating revenue of 515.44 million US dollars (Rs. 3453.48 crores). 1.2 million MT of certified organic products are sold in the domestic market, generating revenue of Rs. 4,000 crores and estimated that, by the end of 2020, the sale of organic products in India would reach anywhere in between Rs.10,000–Rs.12,000 crores (ASSOCHAM-EY, 2018).

Table 1.2 Total Area and Production of organic products in India 2017-18

Sl. No.	State Name	Cultivated (Organic +In-conversion)	Wild Harvest	Total	Total Cultivable Land Production (MT)
1	Madhya Pradesh	613395.458	543485.956	1156881.414	575346.290
2	Rajasthan	208571.126	233562.600	442133.726	94029.215
3	Maharashtra	235690.552	68384.260	304074.812	377308.220
4	Uttar Pradesh	55197.527	137536.879	192734.406	117358.599
5	Chhattisgarh	20530.745	170933.915	191464.66	6265.409
6	Andhra Pradesh	29748.650	155000.000	184748.65	8516.650
7	Jammu & Kashmir	22870.344	158000.000	180870.344	47214.952
8	Himachal Pradesh	14153.468	156000.000	170153.468	2620.636
9	Odisha	105616.236	12294.068	117910.304	74642.114
10	Karnataka	86945.981	18569.040	105515.021	154922.933
11	Uttarakhand	42304.664	61830.000	104134.664	35644.323
12	Gujarat	81268.942	4131.770	85400.712	75304.612
13	Sikkim	76076.178	0	76076.178	435.127
14	Jharkhand	17387.934	33800.000	51187.934	2.395
15	Meghalaya	40335.660	0	40335.66	612.804

16	**Kerala**	**31660.142**	**2500.000**	**34160.142**	**16134.295**
17	Assam	28011.811	60.000	28071.811	52846.607
18	Tamil Nadu	17247.284	2823.222	20070.506	15893.297
19	Punjab	1384.769	16616.000	18000.769	112.900
20	Goa	11900.179	3798.800	15698.979	2875.655
21	Telangana	8919.821	0	8919.821	1381.476
22	Nagaland	8839.864	0	8839.864	1369.657
23	Haryana	6872.139	40.260	6912.399	4245.483
24	Arunachal Pradesh	6179.689	0	6179.689	29.451
25	West Bengal	5811.483	0	5811.483	10207.136
26	Manipur	5397.900	0	5397.9	NA
27	Tripura	2251.190	0	2251.19	237.314
28	Mizoram	998.950	0	998.95	NA
29	Lakshadweep	895.513	0	895.513	NA
30	Bihar	17.800	678.000	695.8	3.150
31	New Delhi	9.230	0	9.23	NA
32	Pondicherry	2.835	0	2.835	NA
Total		**1786494.064**	**1780044.77**	**3566538.834**	**1675560.700**

Source: APEDA 2018 (http://apeda.gov.in/apedawebsite/organic/data.htm#cultivated_wild_harvest), NA- data not available

Major countries to which India export organic food products are USA with a volume of 2.23 lakh MT, followed by European Union (1.29 lakh MT), Canada (82,132.MT), Switzerland (8,925 MT), Australia (2,690 MT), Israel (1,974 MT), South Korea (1611 MT), Vietnam (1446 MT), New Zealand (1282 MT), Japan (1073 MT) etc. The items which acquire great demand in the international market are oilseeds (47.6%) followed by cereals & millets (10.4%), plantation crop products - tea & coffee (8.9%), dry fruits (8.8%), spices & condiments (7.7%) and others.

1.1.2.1 Production and Marketing of Fruits and Vegetables in India

According to the report *'Agricultural Statistics at a Glance, 2016'*, by the Ministry of Agricultural and Farmers Welfare, India has a total of 156

MH of arable agricultural land in the year 2014 (GoI, 2017a). Another report, *'Horticultural Statistics at a Glance 2017'* by the same ministry reported that 6.4 MH of agricultural land produced 92 million MT of fruits and 10.2 MH of agricultural land produced 168.6 million MT of vegetables during the year 2016-17 (GoI, 2017b). India is the second largest producer of fruits and vegetables in the world, after China. Ninety percent of total horticultural production accounts for vegetables and fruits namely okra, potato, mango, papaya, banana, areca nuts and cashew nuts.

Among vegetables, India is the largest producer of ginger (1 million MT) and okra (6.1 million MT) in the world and ranked 2nd in production of potatoes (46 million MT), onion (21 million MT), brinjal (12 million MT), cabbages (8.9 million MT), cauliflower (8.4 million MT) etc. Among fruits, India ranked 1st in the production of bananas (29 million MT), mangoes (19 million MT) and papayas (6.1 million MT). By the year 2017-18, India exported 655.90 Million US dollars and 804.03 Million US dollars worth of fruits and vegetables respectively to Bangladesh, Nepal, Saudi Arabia, UAE, Malaysia, Qatar, Sri Lanka, Netherland and UK (APEDA, 2018).

Compared to the production of conventional fruits and vegetables, Organic Fruits and Vegetables (OF&V) are scarce. The total production of OF&V are 33,448 tons and 20,628 Tons respectively (Table 1.3), out of which 10,383 Tons of organic fruits (14.8 million US dollar) and 2,060 Tons of organic vegetables (11.4 million US dollar) are exported to USA, European Union and Canada.

Table 1.3 State Wise Productions of Organic Fruits and Vegetables, 2017-18

Sl. No.	State Name	Fruits	Vegetables	Total
1	Gujarat	9464.42	822.15	10286.6
2	Madhya Pradesh	195.83	7921.68	8117.51
3	Karnataka	7716.44	229.7	7946.14
4	Tamil Nadu	6291.35	66.315	6357.67
5	Andhra Pradesh	5497.43	0	5497.43
6	Maharashtra	1336.352	2909.021	4245.37
7	Rajasthan	51.616	3625.802	3677.42
8	Odisha	2281.65	178.3	2459.95
9	Kerala	76.6	1549.52	1626.12
10	Uttarakhand	16.73	1585.041	1601.77
11	Nagaland	330	579.85	909.85
12	Uttar Pradesh	0	786.864	786.864
13	Chhattisgarh	0	231.12	231.12
14	Himachal Pradesh	176.71	0	176.71
15	Meghalaya	0	60	60
16	Telangana	0	51	51
17	J&K	13.5	0	13.5
18	Punjab	0	6.6	6.6
19	Assam	0	2.72	2.72
20	Gujarat	9464.42	822.15	10286.6
Total		33448.63	20628.75	54077.38

Source: APEDA 2018, (http://apeda.gov.in/apedawebsite/organic/data.htm#Statewise_Categorywise production)

1.1.3 IMPORTANCE OF ORGANIC FOOD IN OUR DIET

According to the statistics produced by the Food and Agriculture Organisation of the United Nations (FAOSTAT), in the last 50 years (1961-2011), the eating habits of the Indian consumers have changed drastically. The daily intake of an average Indian in 1961 was 2,010 calories, consisting of 43% grains, 23% produce (vegetables, fruits, starchy roots), 12% dairy and eggs, 12% sugar and fat, 2% meat and 8% as others. In 2011 the daily intake became 2,458 calories consisting of 34% produce, 32% grains, 18% dairy and eggs, 10% sugar and fat, 2% meat and 4 % as others (Plummer,

2017). Along with these dietary changes and sedentary habits, lifestyle diseases have increased considerably.

The pesticide residue in food products also acted as a catalyst for an increase in lifestyle diseases. *Body Burden: Lifestyle Disease,* a book published by *Center for Science and Environment and Down To Earth* in 2017 stated that high exposure to pesticides could cause cancer and new data has emerged to link the ill effects of pesticides on causing diabetics (DownToEarth, 2017).

According to the Department of Agricultural and Indian Agricultural Reseach Institue, the highest amount of pesticides above the Maximum Residue Limit (MRL) set by the Prevention of Food Adulteration Act, 1955, is found in fruits, vegetables, poultry and milk. Some of the food items which contain a high amount of pesticides are cauliflower, poultry, milk, butter, cardamon, brinjal, wheat, rice, apple and tomatoes (Misra, 2015). These statistics have led the Indian consumers to demand OF&V at a high level among the organic food category (Nandi, Bokelmann, Gowdru, & Dias, 2016).

Similarly, the Environmental Working Group (EWG) which is a non-profit organisation in the UK, who started to release the *Dirty Dozen* list since 1995, have stated that fruits and vegetables contain the highest amount of pesticides above MRL. As per the *Dirty Dozen* list released in 2018, strawberries, spinach, nectarines, apples, grapes, peaches, cherries, pears, tomatoes, celery, potatoes and sweet bell peppers contain high levels of pesticide residues (Kubala, 2018).

1.1.4 ORGANIC STANDARDS AND CERTIFICATION

During the 1950s and 60s when organic farming started to grow in western countries, there was a lack of proper code of conduct and inspections to test the soil. Thus various stakeholders of organic movement joined together and formed International Federation of Organic Agricultural Movement (IFOAM) in 1972. By 1980 they formulated an organic standard '*IFOAM Basic Standards' (IBS)* for Organic Agriculture, to provide guidance to new members to correctly identify the concept of organic farming and practices. As the organic market developed, the relationship of consumers with farmers got detached, and this made consumers questioning the genuineness of the product, paving the way for the evolution of certification of organic products by different bodies to gain the confidence of consumers.

Over a period of time, the certifying bodies increased and the members concerned requested the IFOAM to formulate an accreditation program in 1992 to evaluate the performance of the certifying bodies. As more certifying bodies started to evolve, in 1997, the IFOAM accreditation program formulated a separate legal entity namely, International Organic Accreditation Service (IOAS). By the end of 2017, IFOAM has 1007 affiliated members from 127 countries (Willer et al., 2018).

IFOAM standards may not be applicable for certification in all member countries but act as a guideline for certification program. Across the globe, member countries set up their own national or regional standards, taking into account local condition and formulating stricter standards than IBS. Hence, as the demand for organic food products started to increase, various states in the USA such as Oregon and California adopted organic legislative standards in 1970, while in Europe, countries such as France,

Spain and Denmark implemented their own legislative standards (Bowen, 2002).

However, too much of organic legislative standards within European countries created uncertainty and the use of fraudulent organic labels which forced EU to formulate a regulatory framework that can be executed across Europe and European Economic Community Council Regulation 2092/91 was introduced in 1991 (Alemanno, 2009). EU regulation was considered as a base for developing regulations in USA, Canada, Japan and other countries and also for the formulation of Codex Alimentarius Guidelines in 1999 by the Codex Alimentarius Commission which is a joint body of Food and Agricultural Organization/ World Health Organization (FAO/WHO) of the United Nations (UN) organizations (Commins, 2003).

According to the Research Institute of Organic Agriculture (FiBL) survey, at the end of 2017, eighty-seven countries have drafted organic standards, and 18 countries are in the process of drafting organic legislative standards. Most of the countries in Africa and Asia have adopted national standards for the produce of organic agriculture.

1.1.4.1 Organic Standards and Certification in India

Food safety standards and control in Indian domestic market were not well coordinated due to lack of proper monitoring and enforcement of law. The various laws related to food products, formulated under different ministries in India, created confusion and chaos in implementing it (Table 1.4), leading the government of India to follow the guidelines of Codex Alimentarius Commission and international legislation and instrumentalities. Thus, the Food Safety and Standards Act, 2006 was enacted under the Ministry of Health and Family Welfare which integrated eight existing food laws namely *The Prevention of Food Adulteration Act, 1954, Fruit Products*

Order, 1955, Meat Food Products Order, 1973, Vegetable Oil Products (Control) Order, 1947, Edible Oils Packaging (Regulation) Order, 1998, Solvent-Extracted Oil, De-Oiled Meal, and Edible Flour (Control) Order, 1967, The Milk and Milk Products Order, 1992 and any other order issued under the Essential Commodities Act, 1955 relating to food safety (FSSAI, 2018), under an apex regulatory body known as, ***Food Safety and Standards Authority of India (FSSAI).***

Table 1.4 Food Laws in India

Food Laws	Implementing Ministry
1) Prevention of Food Adulteration Act, 1954	Ministry of Health and Family Welfare
2) Fruit Products Order, 1955	Ministry of Food Processing Industries
3) Meat Food Products Order, 1973	Ministry of Food Processing Industries
4) Vegetable Oil Products (Control) Order, 1947	Ministry of Consumer Affairs, Food, and Public Distribution.
5) Edible Oils Packaging (Regulation) Order, 1998	Ministry of Consumer Affairs, Food, and Public Distribution.
6) Solvent-Extracted Oil, De-Oiled Meal, and Edible Flour (Control) Order, 1967	Ministry of Consumer Affairs, Food, and Public Distribution.
7) The Milk and Milk Products Order, 1992	Ministry of Agriculture
8) Any other order issued under the Essential Commodities Act, 1955	Inter-ministerial through the issuance of control orders

Source: www.fssai.gov

The Food Safety and Standards (Organic Foods) Regulations, 2017 was formulated authorising FSSAI to regulate production, distribution, selling or import of organic foods as per the stipulations laid under the section 22 of Food Safety and Standards Act, 2006. The 2017 regulation recognised the already existing two certification systems, National

Programme for Organic Production (NPOP) under the Ministry of Commerce and Industry; and Participatory Guarantee System (PGS) implemented by Ministry of Agriculture and Farmers Welfare.

a) National Programme for Organic Production (NPOP)

NPOP was launched in 2001 for providing standards for organic production, procedures and criteria for accreditation of certification bodies and regulations governing the use of national logo for organic food products. These standards and procedures, formulated based on other international standards to regulate organic import and export, are governed by twenty-nine accredited certifying agencies in India. It is managed by Agricultural & Processed Food Products Export Development Authority (APEDA) as its secretariat under the Ministry of Commerce and Industry (APEDA, 2018).

NPOP regulates the export and domestic market based on two different acts. Exporters should strictly follow the rules and regulations stipulated in *Foreign Trade Development and Regulation Act (FTDR)* to export food items, and domestic and import producers/sellers should follow the *Agriculture Produce Grading, Marking and Certification Act (APGMC)*. Thus products certified under NPOP only can be exported which has equivalence with organic food regulations of EU, countries such as Switzerland; and a confirmatory assessment accepted by the United States Department of Agriculture (USDA). Hence, all the products certified by the accredited agencies under NPOP can be exported without any re-certification to USA and EU (FSSAI, 2018).

b) Participatory Guarantee System (PGS)

PGS-India was launched in 2011, managed by National Centre of Organic Farming (NCOF) as its secretariat under the Ministry of Agriculture and Farmers Welfare. It is a local body of producers and traders to ensure high quality of organic food products which are sold in the domestic market, and it operates outside the framework of third-party certification. Thus the PGS programme is a decentralised certification system operating through 563 regional councils providing nationwide coverage. By the end of March 2017, 1, 43,817 ha of agricultural land are certified under PGS-India. The guiding principles on which PGS-India programme function is participation, transparency, shared vision, and trust (PGS-INDIA, 2018).

c) Labelling in India

The products certified under NPOP and PGS-India programme must display their labels, Figure 1.4 and Figure 1.5 respectively.

In the case of single-ingredient products where all the requirements of NPOP have been met, the product must be labelled as 'Organic'. However, in the case of multiple ingredient products where 95% of the ingredients used are certified organic, the product must be labelled as 'Certified Organic'. Name of the accredited certification body, accreditation number and FSSAI logo must be displayed on the label in both the cases.

In the case of both single and multiple ingredient products where all the requirements of PGS-India have met, the product can be labelled as 'PGS-Organic' along with the display of PGS logo, FSSAI logo and Unique Identification (UID) code on the label (PGS-INDIA, 2018; FSSAI, 2018).

Figure 1.4 India Organic

Figure 1.5 PGS-INDIA ORGANIC

However, direct sales carried out by the organic producers or producers' organisation are exempted from making any verification of compliance either to NPOP or PGS-India. In 2017, a unified logo was introduced, which act as an identification mark to distinguish the organic from non-organic products. Jaivik Bharat logo (Figure 1.6) also came into effect on 1st July 2018 which can also be used along with India organic and PGS-India (Mishra, 2018).

Figure 1.6 Jaivik Bharat

1.2 BACKGROUND TO THE RESEARCH PROBLEM

As discussed in the beginning, organic cultivation is not a new way of cultivation which various countries have adopted. Civilisations developed and flourished around the world due to the settlement of nomadic people involving themselves in agricultural activities. Their agricultural practices

were in liaison with nature, devoid of any kind of pesticides. After World War II in 1945, various chemicals which were used in arms and ammunition were used in the agriculture field. The adoption of 'Green Revolution' by transferring technology to agricultural field resulted in an imbalance between human and the environment. The repercussions can be seen across the globe where these pesticides are polluting the air, water and soil.

In India, 'Green Revolution' was first introduced in the state of Punjab. The after effects of this initiation is the conversion of Malwa region in Punjab into a cancer belt and the state of Punjab is now called the Cancer Capital of India where we can find 90 cancer patients for every 1, 00,000 people, whereas the national average is 80 per every 1, 00,000 people (Singh, 2013; Das, 2016). The excess use of a variety of pesticides and chemical fertilisers without any protective measure along with after use of empty pesticide cans for keeping food and water add to the effect of pesticides on individuals. The Center for Science and Environment (CSE) found high levels of pesticide residue in the blood samples taken from Bathinda and Ropar districts of Punjab (Sethi & Singh, 2015) which clearly shows the impact of pesticides on human beings.

We can assume that many people have succumbed to cancer due to direct contact with the pesticides, whereas the Minamata disease in Japan in 1956 have shown that very low levels of pesticides measured in parts per million (ppm) ingested have a huge impact on humans and other living beings. The waste water discharged from the chemical plant called Chisso Corporation Ltd. to the Minamata Bay from 1932, contaminated the marine life displaying high levels of methylmercury (MeHg). The ingestion of the marine products such as fish and shellfish, which are the staple food of Japan on a daily basis created a biomagnification process, where MeHg get

accumulated in the predator's body which leads to neurological disorder in humans and living beings (Harada, 1995).

The maximum level of mercury recorded among the victims of Minamata Bay was 705 ppm when the average level of mercury present among individuals living outside Minamata was 4 ppm. Thus, over a period of time, i.e. from 1932, the biomagnification process started to occur, and the first discovery of Minamata disease in 1956 was an eye-opener.

The State of Kerala is also not spared from the ill effects of conventional farming. For over 20 years, Plantation Corporation of Kerala aerially sprayed endosulfan in the state-owned cashew plantation in Cheemeni estate in Kasargod district, three times a year from 1978 onwards (Misra & Joshi, 2017). This has drastically affected the biodiversity of the Kasargod district. These pesticides mixed up with drinking water system which in turn affected the humans and animals alike and various species of flora and fauna were destroyed. Deformed newborns were seen among calves in early 1979 and in 1990 health disorder such as birth defects, mental retardation, cerebral palsy, epilepsy, physical deformities and hydrocephalus (water in the brain) came to limelight among humans, especially among newborns (Mathew, 2016).

As a remedy to the contamination which has an adverse effect not only on the environment but also on the human health, farmers are trying to convert their conventional agricultural practices to organic farming. However, compared to the total agricultural land, organic agricultural land growth is only 1.2% during 1999 to 2016.

Along with this, even though consumers' attitude towards organic food products are positive; their buying is very limited as organic market

share is only 1% of the total food market in most of the countries (Yussefi & Willer, 2003; Briz & Wardb, 2009). As stated earlier, the largest market for organic food products is the USA followed by Europe, there also the market share is less than 7% (Willer & Lernoud, 2017). In this background, the following research problems are identified with regard to this study.

1.3 STATEMENT OF THE PROBLEM

The advent of technology in the agriculture field has brought in 'Green Revolution' and it also adversely affected the environment and the health conditions of human beings. Food products which we consume are highly affected and the highest amount of pesticides is found in fruits and vegetables. The concerns regarding these, call for organic farming using fertilisers and pesticides of natural origin. Though most of the consumers are concerned about the presence of harmful substances in agricultural produce, enthusiasm in procuring and using organic products is found low in our communities. A few consumers are regularly buying organic food products, while there are consumers who buy occasionally. Thus, this study looks into the factors which motivate or hinder consumers in purchasing organic fruits and vegetables in Kerala, thereby trying to identify factors to promote organic fruits and vegetables consumption.

1.4 OBJECTIVE

This study is designed to assess the various internal and external factors which can influence consumers to buy organic fruits and vegetables (OF&V). The study also tries to present a holistic view of interrelation among the variables which have an influence on consumers' purchase intention of OF&V.

Specific Objectives

- To identify and determine the effect of various motivational factors to purchase organic fruits and vegetables.
- To ascertain the impact of situational factors on consumers' intention to purchase organic fruits and vegetables.
- To study the factors which differentiate the regular buyers from occasional and potential buyers on their intention to purchase organic fruits and vegetables.

1.5 LIMITATIONS OF THE STUDY

The limitations of the study are given below:

- The current study is only focusing on OF&V, thereby neglecting other categories of organic products such as organic cereals and pulses, organic cosmetics, organic dress materials etc.
- The current study is only focusing on the consumers' intention to purchase OF&V; it has omitted the production and supply side.
- As the current study used the questionnaire method, the subjective self-reporting of the construct without objectively analysing buying habits can affect the study.
- There might be other factors which can influence the purchase of OF&V which the study might have overlooked.

1.6 ORGANIZATION OF THE STUDY

The study is organised into five chapters. The first chapter deals with the introduction of the study, production and marketing of organic products-

around the world and in India, organic standards and certification in India, background of the study, problem statement, research gaps, objectives, and limitations of the study. Chapter two provides a detailed review of literature of various constructs used in the study along with their linkage between the constructs. Reviews of literature also help to identify the gaps which exist in the area of research, thereby developing a conceptual model which is discussed in detail in this chapter. Chapter three deals with various aspects of research methodology including research design, research hypotheses, theoretical and operational definitions of the constructs, sample design and structure of questionnaire used in the study. Chapter four deals with the analysis of data which comprise of exploratory factor analysis for identifying the uni-dimensionality of the scale, the profile of the respondents, consumption pattern and awareness of respondents about organic food products. This chapter also deals with the hypotheses testing for fulfilling the objectives of the study.

Finally, Chapter five is an assimilation of findings and discussion to evaluate whether the objectives and problems stated in the study were fulfilled or not. It also deals with the implications, limitations and conclusion of the study.

Chapter 2

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

A comprehensive review of the constructs under study is given in this chapter. The major constructs which were considered vital for this study such as fear, trust, health consciousness, environmental concern, hedonic quality, nutritional quality, production process, convenience, perceived price, social pressure, willingness to take effort in procurement, consumers' attitude towards organic fruits and vegetables (OF&V) and their purchase intentions were thoroughly reviewed to form a theoretical framework. This chapter also gives the ***research gap*** *in the area of study,* ***hypotheses*** *and a* ***conceptual model****.*

2.1 CONCEPT OF ATTITUDE AND PURCHASE INTENTION

The field of social psychology was defined itself as the scientific study of individual's attitude (Thomas & Znaniecki, 1918; Watson, 1925). Attitude became an indispensable term in contemporary American social psychology as no other concept has frequently appeared in theoretical and experimental literature (Allport, 1935). The contributions of various psychologists and psychoanalysts moulded the concept of attitude. Discovering the concept of attitude, not only as an unconscious activity of humans but also as a conscious activity gave pace and breathe to the study of attitude. By changing the perception that attitude is not an abstract construct rather it is a measurable construct erased all doubts confirming that feelings

which an individual have towards object can be measured (Banaji & Heiphetz, 2010).

Thus, currently from the traditional broad concept of attitude which encompasses cognitive, affective, behavioural and motivational (Tri-component model) components to an evaluative component, the growth of this construct is profound. In the early period, Allport (1935) defined attitude as "a mental and neural state of readiness, organised through experience, exerting a directive and dynamic influence upon the individual's response to all objects and situations with which it is related". However, after more than a decade, Eagly and Chaiken (1993) defined attitude as "**a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour**". Therefore, the new theoretical approach conceptualised attitude as an evaluative component which can have an influence on and inferred from the traditional tri-components such as belief, affect and behaviour. This bi-polarity in the direction was considered as the unique characteristics of attitude which predicts the behaviour.

However, various researchers have questioned the core concept of attitude in predicting the behaviour (LaPiere, 1934; Wicker, 1969) at those times; studies of Martin Fishbein and Icek Ajzen were among the most influential responses for their vigorous attacks. One suggestion which they put forward to assess the attitude-behaviour relation was to measure behaviour based on specificity, i.e. if we are trying to study specific behaviour such as recycling waste, then specific attitude questions which focus on attitude towards recycling waste can give better understanding than asking general attitude questions (e.g., attitude towards environment conservation). This suggestion was supported by others, stating that attitude is not a stable construct and minor changes in question-wording, format or

order can attribute to measurement error in the study (Schuman & Presser, 1981). Therefore, to correctly assess the attitude, specificity is the key.

Another solution put forward by Fishbein is by providing the Theory of Reasoned Action (TRA), which focused on attitude-behaviour relation (Ajzen & Fishbein, 1980). This theory tried to explain the causal sequence of attitude-behaviour relation by linking the attitude, behavioural intention and behaviour in a sequential manner. According to TRA, behaviour is determined by the intention which an individual has towards the behaviour under consideration, and they stated that attitude of an individual does not directly determine the behaviour, rather they influence the intention, which in turn leads to behaviour. Thus, intention is considered as the best predictor of an individual's actual behaviour and is defined as the **"agent's subjective probability that he or she will perform the behaviour"** (Fishbein & Ajzen, 1975).

Thus according to TRA, individual's intention is determined by two factors: 1) individual's attitude, and 2) subjective norm. The attitude in the sequential linkage which determines the individual's likes or dislikes in performing the behaviour and the subjective norm is the belief which the significant others (family, friends and peer group) think about performing or not performing the behaviour. Later, TRA model was criticised as its explainability is limited to an extent where an individual can decide whether to perform behaviour or not, thus when the control over their behaviour is within their limit or when the volitional controls are high, TRA model is applicable (Montano & Kasprzyk, 2000). Thus TRA model was criticized as it failed to incorporate the importance of external influence. Various researchers such as Belk (1975), Hines, Hungerford and Tomera (1986/87), Stern, Dietz and Guagnano (1995), Vermeir and Verbeke (2006) have stated

that behaviour is the function of both internal and external factors and positive attitude does not always lead to buying.

Ajzen (1991) proposed the Theory of Planned Behavior (TPB) as an extension to TRA to explain the behaviour of an individual when the volitional controls are low. He added the perceived behavioural control (PBC) to incorporate the external factors which are not in control of individuals while performing the behaviour. Thus, in this study also, the influence of external factor is also analysed, which will be dealt with in detail in section 2.7.

Thus, the TPB proposes that individual behaviour is guided by the belief about the possible consequence or outcome of behaviour (behavioural belief), belief about other people's normative expectation (normative belief), belief about the factors that motivate or hinder the performance of behaviour (control belief). These beliefs jointly create a favourable/unfavourable or positive/negative attitude towards behaviour. This attitude generated by the individual along with social pressure and perceived behavioural control formulates an individual's intention to perform behaviour, which is assumed to be the best predictor of human action or behaviour (Ajzen, 991).

2.1.1 Use of Theory of Planned Behaviour in Food Sector

The theory of planned behaviour is one of the most influential and widely accepted behavioural theories in studying consumer food choice (Grunert, 1995). A study conducted in New Zealand which tried to find the intention of consumers to buy genetically modified food, used TPB model and found that presence of genetically modified (GM) food products will activate a negative attitude towards the brand (Fortin & Renton, 2003). In addition, a study conducted in Spain also found that attitude which an

individual has towards GM foods had a significant impact on their buying intention (Rodríguez-Entrena, Salazar-Ordóñez, & Sayadi, 2013).

The study conducted to analyze the effect of perceived resource constraint on consumer convenient shopping behaviour and convenient product usage while buying food products found that even though there exist perceived resources constraint related to product choice and store choice, it won't directly lead to convenient buying unless the respondents have a positive convenient orientation or positive attitude towards convenience (Scholderer & Grunert, 2005).

Another study conducted among Norwegian consumers to analyse their attitude towards seafood consumption found that sensory pleasure, health and convenience motivated the consumers to form a positive attitude towards consumption of seafood, thereby becoming the most important predictor of consumers' frequency to buy seafood (Olsen, 2003). The study conducted among Belgium respondents, to understand the consumer acceptance of functional food also found the influence of positive attitude in their subsequent behaviour (Verbeke, 2005).

While discussing the purchase intention of organic food products, various researchers from across the globe, for instance from **UK** (Michaelidou & Hassan, 2008); **Italy** (Magistris & Gracia, 2008; Arvola, et al., 2008; Pino, Peluso, & Guido, 2012); **Finland** (Tarkiainen & Sundqvist, 2009); **Sweden** (Magnusson, Arvola, Hursti, Åberg, & Sjödén, 2001); **Belgium** (Vermeir & Verbeke, 2008); **Europe** (Ruiz de Maya, López-López, & Munuera, 2011); **Czech Republic** (Zagata, 2012); **China** (Zhou, Thøgersen, Ruan, & Huang, 2013); **Taiwan** (Teng & Wang, 2015); **India** (Singh & Verma, 2017) have resorted to TPB model for explaining the significance of attitude in influencing the buying of organic food products.

Thus, it is clear that positive attitude needs to be generated, for creating intention among the consumers. Therefore this relation needs to be checked for which the following hypothesis is stated:

> *The positive attitude of consumers toward organic fruits & vegetables has a positive impact on purchase intention* (given as Hypothesis 17 later).

2.2 CONCEPT OF FEAR

During the last two decades, there is a growing turmoil in the food system as a series of food scares and scandals were happening across the globe (Banati, 2011). The BSE (Bovine Spongiform Encephalopathy) crisis or mad cow disease, Irish pork crisis or dioxin crisis, avian flu (H5N1), swine flu (H1N1), Chinese Milk scandal, Maggi Noodles scandal etc. were a few among the many scandals happened around the world (Verbeke, 2005; Banati, 2011; Roy, Tata, & Parsad, 2017). Along with these scandals evolved many food scares issues (e.g., antibiotics and hormones, preservatives, pesticide residue and genetically modified food crops, etc.) which predicament the consumers' mind, thereby creating fear about the quality of food products which are available in the market (Paasovaara & Luomala, 2009; Banati, 2011; Laros & Steenkamp, 2004).

Fear is defined as **"negatively valenced emotion that is usually accompanied by heightened physiological arousal"** (Gore, Madhavan, Curry, & McClurg, 1998). It can also be defined as **"an emotional response to a threat that expresses, or at least implies, some sort of danger"** (Tanner, Hunt, & Eppright, 1991). Therefore, fear is an emotion which motivates an individual to avoid or escape uncontrollable and/or uncertain events (Bagozzi, Baumgartner, & Pieters, 1998; Verhoef, 2005).

2.2.1 Fear as an Emotion

Even though human beings are rational, majority of their decisions are influenced by their emotions. The traditional models were primarily focused on cognitive factors in which emotions occur in the post-purchase scenario. However, in the last couple of decades, the importance of affective factors while taking decisions were taken into account (Bell, 2011). According to Ortony et al. (1988) emotion is "a valenced affective reaction to perceptions of situations". Various researchers have conceptualised emotions in a generalised way such as positive or negative (Richins, 1997), while there are others who studied one or several specific emotions such as fear,empathy and guilt (Verhoef, 2005), mood (Honkanen & Frewer, 2009), anger (Bougie, Roger, Pieters, & Zeelenberg, 2003), pleasure, arousal, and dominance (Mazaheri, Richard, & Laroche, 2012) etc.

Emotions are generally evoked when uncertain circumstances are evolved, thereby creating a change of plan. When the circumstance is positive, positive emotions such as contentment, happiness, love and pride are generated and individuals decide to stick to the current plan and on the other hand, negative emotions such as anger, fear, sadness, and shamefulness will be generated when an individual's set plan is failed or interrupted, thereby initiating alternative problem solving and planning process (Bagozzi et al., 1998; Laros & Steenkamp, 2005). Thus, these positive or negative emotions are stimulated by an individual in a particular situation (Verhoef, 2005).

However, this approach of evaluating the influence of emotion in a generalised or structured dimension has been criticised by the appraisal theorists where they argued that each emotion has a distinct characteristic or appraisal and treating it in a generalised dimension would hinder its capability of interpretation (Laros & Steenkamp, 2005).

A specific emotion, i.e. 'fear' which is significant in the case of food consumption is taken into consideration for the current study. Early in 1920s, fear has been used as a unique marketing tool in persuading consumers to buy a product. The first fear appeal advertisement was aired by Listerine in the 1920s which projected a minor flaw such as bad breath in an individual as a socially unacceptable or unpardonable offence (Holloway, 2015). Later in the 1950s, a systematic empirical researches were carried out to understand how fear motivates individual to perform a set of behaviour, and various theories were evolved out of it (Dillard, 1994).

In 1953, Janis and Feshbach hypothesised that fear-arousing content and acceptance of message had a curvilinear relation, however, through their research, they found a contradicting result which showed that there existed a negative linear relation between the constructs. Their investigation laid the foundation for the development of Drive Reduction Models (Hovland, Janis, & Kelley, 1953; Janis, 1967). Thereafter further models such as Parallel Response Model (Leventhal, 1970, 1971), Protection Motivation Theory (Rogers, 1975) and Extended Parallel Processing Model (Witte, 1992) were developed.

In ***Drive Reduction Model***, the drive is an unpleasant psychological situation (e.g. fear, anxiety, hunger or thirst) which people strive to reduce or eliminate. Janis (1967) proposed that fear is a drive state which creates an unpleasant tension which motivates them to get rid of fear and too much of fear can lead to a maladaptive situation such as avoidance or denial. However, later this theory was rejected on the ground that fear reduction does not affect the intention rather it is the fear arousal (Rogers, 1975; Mewborn & Rogers, 1979; Beck & Frankel, 1981).

Based on the Drive Reduction Model, Leventhal in 1970-71, developed the ***Parallel Response Model***, in which more focus was given to the cognitive process than the affective or emotional process. He argued that an individual's adaptive behaviour is guided by danger control process (cognitive process), whereas fear is controlled by the emotional responses. Even though these processes are independent, at the time of decision making they may affect each other (Leventhal, 1970, 1971; Craig, 1974).

Consumer behaviour researchers had borrowed the ***Protection Motivation Theory*** from psychology and had adapted it to predict consumers' behavioural intention. The basic foundation of this theory development is that individuals are motivated to protect themselves from the social, physical and psychological threats when an individual is confronted in a fearful situation. This fear initiates two cognitive processes: a) threat appraisal, and b) coping appraisal. Threat appraisal evaluates the severity of threat whereas; coping appraisal evaluates the effective and available coping strategy. Therefore, in order to generate this fear, it is essential to communicate the threat (e.g., pesticide residue in food products), so that they can change from a maladaptive behaviour (e.g., eating conventional food products) to an adaptive behaviour, for instance, eating organic food products (Rogers, 1975; Scarpa & Thiene, 2011).

Finally, in the ***extended parallel processing model***, Witte (1992) tried to combine the concepts from Leventhal's (1970) Parallel Response Model and Roger's (1975) Protection Motivation Theory. He argued that when the threat and coping strategy proposed in the communication is high, there is significant high chance for respondents to change their attitude and behaviour, and vice versa. However, if the threat is high and available coping strategy is poor, respondents try to control their fear either through avoiding or denial. For instance, people are fearful towards the pesticide

residue in their food products, but when the organic food products are not accessible to an individual due to non-availability, price and effort, there is a chance for them to either reduce the consumption or avoid non-organic food products which they think have high pesticide residue. Therefore, when the coping strategy is poor, Witte (1992) argued that there wouldn't be any change in attitude or behaviour.

This study is mainly focusing on the concept put forward by the Drive Reduction Model and Protection Motivation theory. Drive Reduction Model states that when an individual is confronted by danger, he will be fearful and will be motivated to protect himself and when fear is eliminated there is no longer a drive for action (Janis & Feshback, 1953). In addition, individuals who are fearful can bypass the cognition process in an extreme situation (fight or flee); thereby forcing them to take extreme measures (Tucker-Ladd, 1996). The Protection Motivation Theories driving element is that fear arouses a cognitive process which induces a change in behaviour (Scarpa & Thiene, 2011). Thus from the theories, it is seen that fear can have a direct effect on consumers' behaviour or it can influence individuals in forming an attitude thereby leading to behaviour, however in an extreme condition it can bypass the cognitive process also.

2.2.2 Concept of Fear in Food Sector

Based on these theories which were developed over a period of time, various researchers have identified the importance of fear in the behavioural intention of consumers as their fear is enhanced by various fearful messages which they encounter in day to day life (Laros & Steenkamp, 2005). Fear as a persuasive factor has been studied in advertisements (Cochrane & Quester, 2005), pro-environmental behaviour (Kollmuss & Agyeman, 2002), health

sector (Ruiter, Kessels, Peters, & Kok, 2014), internet shopping (Bhatnagar & Ghose, 2004) etc.

Previous studies had identified the importance of fear, while consumers intent to buy food products. The study conducted by Brewer and Prestat (2002) showed that 40% of the respondents were more fearful of pesticide residue in their food products than illness caused by microbial origin. Further, a study conducted on Dutch consumers revealed that, respondents felt a high amount of fear towards genetically modified products followed by functional food. However, their variance of fear (low) was fairly homogenous towards organic and regular food products (Laros & Steenkamp, 2004). Verhoef (2005) had measured fear using Richins' scale and found that fear concerning the safety and quality of organic meat was also an important factor while choosing organic meat. However, McEachern and Willock (2004) stated that, the factors which affect consumers to buy organic meat could not be generalised into other organic products.

Myers (2010) in his book titled *'Psychology'* has dealt with various aspects such as psychological, biological and socio-cultural which have influence on human behaviour. He stated that feeling of emotion could vary across cultures. A study conducted on understanding the effect of cross-cultural difference of persuasive effect of fear among the consumers of China and Canada, the researchers found that, in a collectivist country like China, social threat appeal has more effect than physical threat appeal, and in Canada, which is an individualistic country it was vice versa (Laroche, Toffoli, Zhang, & Pons, 2001). A similar cultural difference was found between Malaysians and Australians when they perceived the advertisements based on fear (Cochrane & Quester, 2005). However, this discrepancy is not limited to the cultural difference between west and east, within western countries we can see this discrepancies as found in the study conducted by

Lumbers, Eves and Skourtas (2003), who stated that when compared to British consumers, Greek consumers have significantly less confidence in food supply and are more fearful about pesticide residue in their food products (as cited in Krystallis & Chryssohoidis, 2005).

Thus from the previous literature, it is found that fear plays a vital role in buying food products, however studies performed on organic meat cannot be generalised on other organic fruits & vegetables, as the current study is mainly focusing on organic fruits and vegetables. Further, from the literature it was confirmed that fear as an emotion could vary across cultures; therefore understanding it, in the Indian context would be a contribution to the stakeholders who are interested in developing an organic market in India.

In the following section, more details of how fear as an emotional factor exists among Indian consumers is elaborated.

2.2.3 Fear towards Conventional Food Products in India

As per the United Nation's estimates, India is a growing economy with 1.3 billion population, out of which 300-350 million are from middle class and around 400 million belong to poor category (Banerjee, 2017). India ranked 100 in the Global Hunger Index (GHI) with a score of 31.4 indicating a serious hunger (Yadavar, 2017). So food is still a necessity for the majority of Indians, however the food policies and food regulations in India are underdeveloped and/or inefficient creating an easy environment for outbreaks, fraud, adulteration and various food safety issues (Dandage, Badia-Melis & Ruiz-García, 2017). In 2009, the National Centre for Disease Control reported that 51% of food commodities in India are contaminated with pesticide residues (Sharma, Krishnan, Chattopadhya, Aggarwal, & Bahl, 2009). Further, in 2014, the Council for Food Research and Development reported that 10 out of 44 vegetables found in Kerala contains

organo chloro residue (Pillai, 2014), which are endocrine disruptors—chemicals that have the capacity to increase the birth defects, sexual abnormalities and reproductive failure (Mnif et al., 2011; Jayaraj, Megha & Sreedev, 2016).

Apart from this, a double standard approach of the Indian government on food safety and standards is causing a high level of insecurity among the Indian consumers. India is the second largest producer of fruits and vegetables, and a large part of it are being exported (Mohan, 2016). Like all other developing nations, India also complies to the food safety standards, however these compliances were only for those food items which are being exported, and the products which are sold in the domestic market does not meet the standards (Jairath & Purohit, 2013). In 2017, Secretary General, Quality Council of India, Dr. R.P. Singh in his speech at 'The Food Safety Conclave at India Food Forum 2017' again reconfirmed the existence of this double standard food safety measures in India by saying that "the need for harmonising Indian regulations with globally accepted norms of consumer safety and making available the same quality of food products to domestic consumers as that which is exported" (Food Service India Bureau, 2017) is essential to free the Indian consumers from the fearful situation. There exist a high amount of fear among the Indian consumers with regard to the food products which are available in the Indian market. However, domestic sale of organic food products is confined to 0.13 billion euros compared to the United States and Germany which have the largest organic market.

Thus by applying the concept of Drive Reduction Model and Protection Motivation Theory, the researcher is trying to identify, to what extent fear towards conventional food products (which are not grown organically) is creating a positive attitude towards OF&V, thereby creating

an intention to buy organic fruits and vegetables. Hence the following hypotheses are formulated:

Hypothesis 1: *Consumers' fear towards conventional food items which are not in conformity with the basic standards of organic production has a positive impact on purchase intention of organic fruits & vegetables.*

Hypothesis 2: *The relation between consumers' fear and purchase intention is mediated by attitude toward organic fruits & vegetables.*

2.3 CONCEPT OF TRUST

Trust in the broad sense had been studied in various disciplines including sociology (Luhmann, 1979; Barber, 1983), psychology (Oskarsson, Dawes, Johannesson, & Magnusson, 2012), economics (Camerer, Loewenstein, & Rabin, 2003), management (Mishra & Morrissey, 1990) etc. However, various disciplines have treated trust differently, leading to great confusion in conceptualising trust (Mayer, Davis, & Schoorman, 1995; Lewicki, Tomlinson, & Gillespie, 2006). Generally, there are two broad schools of thought in which trust has been categorised. In the first one, trust has been treated as an individualistic characteristic which can either be deeply rooted in an individual's personality or developed through socio-demographic characteristic (e.g., age, gender, income, education, status etc.). The second one treats trust as a property of social unit rather than a personality trait of an individual (Lewis & Weigert, 1985; Delhey & Newton, 2003). Section 2.3.1 to 2.3.3 deal with these theories in detail.

2.3.1 Trust in Psychology

Trust has been treated as a psychological trait which is deeply rooted in an individual, and it is developed in the early stages of an individual's life (Erikson, 1950). This deeply rooted individual characteristic is also called as 'propensity to trust' (Rotter, 1967), generalized trust' (Stack, 1978), and 'dispositional trust' (Kramer, 1999) and it varies from person to person. The 'Eight Stages of Development' proposed by a psychiatrist, Erik Erikson in 1956 stated that trust is generated in an individual in his/her's first two years of life, therefore if an individual is grown in a secure and trustful environment, his/her's subjective well being will be more and vice verse. Thus, based on the cultural, social and economic background in which an individual grows, propensity to trust has two subconstructs- 'faith in humanity' and 'trusting stance' (McKnight & Chervany, 2001).

Faith in humanity means a general assumption regarding other people that they will be honest, benevolent, dependable and predictable, whereas trusting stance is a personal strategy or a choice an individual takes. Thus in this personal strategy, individual will assume that dealing with people will bring out better outcomes, regardless of their belief about other person's underlying nature (McKnight, Cummings, & Chervany, 1998). Even though these two constructs constitute to form trust propensity, they are different based on the assumptions they are built upon. Faith in humanity talks about an attribute of a person whereas trusting stance is based on trusting intention which may not be related to the belief which an individual has about another person (McKnight & Chervany, 2001).

Thus trust has been defined as a " psychological state comprising the intentions to accept vulnerability based on positive expectations of the actions of the trustee" (Rousseau, Sitkin, Burt, & Camerer, 1998). Numerous studies have been conducted based on the concept where trust was treated as

a personality trait in the areas including organisational behaviour (Mayer et al., 1995), online shopping (Matthew & Lee, 2001; Chen, Yan, Fan, & Gordon, 2015), food shopping (Hsu & Chen, 2014) etc. In all these studies, it was stated that individuals with high trust propensity have a positive expectation of the trustee thereby leading to positive action.

2.3.2 Trust in Economics

In a neo-classical scenario where market was considered perfect, the purpose of trust was negligible (Platteau, 1994) however, due to global financial and economic crisis in 2008, Angel Gurría, Secretary-General of Organization of Economic Co-operation and Development (OECD), stated that "trust is the spinal cord of economics" (Gurría, 2009). In the real world, markets are not perfect and dishonest behaviours are bound to happen when opportunity strikes. Williamson (1975) through his transaction cost theory, which focused on human attributes and transaction-specific characteristics, was able to capture this imperfection to a certain extent, however it was later criticised for not being able to explain the behaviour of agents in various situations of exchange. Further, it was argued that legal enforcement mechanisms such as courts and police could not prevent an agent from behaving opportunistically, thereby realising the importance of trust by various economists (Fiewal, 1987; Moore, 1994).

Therefore, economists conceptualised trust as the probability that the agents involved in the transaction will perform a particular action. Further, the risk associated with acting on such probabilistic process and the contextual factors which can alter the utility obtained from trusting behaviour were conceptualised (Gambetta, 1988; Williamson, 1975).

To understand the role of trust in a transaction, economists used various game theories like Prisoner's Dilemma (Flood, 1958), Assurance

Game (Dasgupta, 1988; Platteau, 1994) etc. These games helped the economists to analyse the behaviour of agents in an artificial environment. However, it lacks validity in the external environment as various social, cultural and experience factors can influence an individual to trust or not to trust (Levitt & List, 2007).

2.3.3 Trust in Sociology

Individuals live in a society as a collective unit and not in isolation, therefore trust acts as a prerequisite for the proper functioning of the society (Luhmann, 1979). It helps to reduce the elements of risk, complexity and uncertainty which are unavoidable in a social relationship. Thus, society being a collectivist unit, rather than treating trust as a psychological state of an individual, it is applicable to the relationship among individuals. So the interaction of individuals can contribute to or benefit from social, cultural and political institutions thereby developing a trusting attitude and behaviour (Delhey & Newton, 2003).

Sociologists conceptualised trust in terms of an individual's relational characteristics at the individual level, community level, population level, organisational level, and societal level (Cook, Hardin & Levi, 2006; Lewis & Weigert, 1985).

Many studies of trust mainly focused on trust between person-to-person (Uslaner, 1999), organization-to-organization (Doz & Hamel, 1998; Zaheer, McEvily, & Perrone, 1998), person-to-computer system (Matthew & Lee, 2001) and society-to-society (Inglehart, 1999). Trust varies between more democratic and less democratic countries (Paxton, 2002), rich and poor (Cusack, 1997), gender groups, age groups and people of different levels of education (Patterson, 1999; Putnam, 1993; Newton, 2001). So, studying the

concept of trust in the Indian context is inevitable as we have a diverse social, cultural and economic background in the country.

Following the previous works in social psychology, Fishbein (1963, 1967) proposed the expectancy-value model of attitude where he predicted the components of attitude as expectancy (belief) and value (evaluation). He further proposed that attitude is developed by the belief or expectancy which an individual has towards the object under consideration and evaluation of the belief which an individual holds. For instance if we consider trust as a belief which an individual has toward the claims made by the third party such as producers, sellers and certifying agencies, then his/her attitude will be developed by the belief or expectancy which he/she has about these agencies and the evaluation of those beliefs will strengthen those attitudes (Cohen, Martin, & Ahtola, 1972).

2.3.4 Concept of Trust in Food Sector

The growing variety of food items available in the market made it a hard task for individuals to choose food products which they regard as safe for consumption (Almås, 1999). In addition, the locations of production of food items departing from local sites to national and international sites have lost its connection at the community level (Torjusen, Lieblein, Wandel, & Francis, 2001). This has created a gap between the producers and consumers. Hence, it is time to replace the age-old marketing strategies like mass production and market segmentation with 'relationship marketing' where the relationship between the customers and retailers are intensified (Nwakanma, Jackson & Burkhalter, 2007). For the fulfilment of this strategy, trust is the key ingredient, as the need for trust arises in a risky situation (Mayer et al., 1995).

A study conducted by IBM in 10 large cities of US revealed that less than 20% of the respondents only believed that the food which corporate manufacture are safe and healthy for consuming (IBM, 2009). A similar study report was found in India where consumers' trust is decreasing drastically as around 40% of the respondents had faced quality-related issues (PwC, 2015). The loss of trust in food and food authority is due to various food scandals and scares which have occurred during the last decades. Thus, there is a huge inclination towards mistrusting genetically modified food, functional food and even organic food products (Cook, Kerr, & Moore, 2002; Laros & Steenkamp, 2004; Hughner, McDonagh, Prothero, Schultz, & Stanton, 2007). This same negative opinion towards food products can be seen from European and American nations (Hjelmar, 2011; McEachern & Willock, 2004) and also from Asian countries such as Singapore, China, Vietnam etc. (Subrahmanyan & Cheng, 2000; Truong, Yap, & Ineson, 2012; Liu, Pieniak, & Verbeke, 2013).

As OF&V fall in the category of ***credence goods*** where analysing its quality before or after purchase is impossible, the importance of trust in certification bodies and sellers is inevitable (Hossain & Onyango, 2004). Further various researchers have identified that, lack of trust has an adverse effect on the attitude formation of consumers (Lea & Worsley, 2005; Krystallis, Vassallo, Chryssohoidis, & Perrea, 2008; Gerrard, Janssen, Smith, Hamm, & Padel, 2013). Hence, studying the role of trust in enhancing the relationship between buyer and seller is essential. However, in the academic scenario, there is a lack of clarity in the definition of trust which is creating difficulty in studying the concept of trust (Mayer et al., 1995).

After analysing various concepts, the definitions of trust given by Dwyer and Oh (1987) as **"a belief that no partner to the exchange will exploit the other's vulnerability";** and by Mayer et al. (1995) as **"the**

willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" have been relied on for this study.

The two drivers of trust can be conceptualized as: (1) trust as a *rational choice* in which individual behaviour of actors such as farmers and retailers have an influence on individual's buying; (2) trust as a *relational value* in which relationship between individual and institutional bodies (certification bodies or labels) and organizational structures such as Non-Governmental Organizations (NGOs) can motivate the formation of perception and intention to purchase OF&V. The inter-relationships among the farmers, retailers and certification bodies or labels play key roles in the formation of an attitude toward organic food products (Dietz & Hartog, 2006). Trust is found to be an important predictor of consumers' attitude and future buying behaviour (Garbarino & Johnson, 1999; Gifford & Bernard, 2006). In addition, while analysing the relationship between trust and Theory of Planned Behaviour (TPB), trust was found to be an antecedent of consumers' attitude towards behavioural intention (Wu & Chen, 2005; Teng & Wang, 2015). It has often been noted that lack of trust in certification bodies and organic labels (Kollmuss & Agyeman, 2002; Fotopoulos & Krystallis, 2002) hinder the purchase of organic food products.

Thus, on the one hand, organic products are conceptualized as credence food products (free from pesticide residue, animal welfare etc.) the effect of which consumers cannot experience after buying or consuming it (Nelson, 1970), and on the other hand consumers are sceptic toward conventional food products, at this juncture it is essential to gain the consumers' trust for removing the barriers to purchase OF&V (Krystallis &

Chryssohoidis, 2005; Newell, Goldsmith & Banzhaf, 1998). Therefore, the following hypotheses are formulated:

Hypothesis 3: *Consumers' trust toward organic institutional bodies and market agents has a positive impact on purchase intention.*

Hypothesis 4: *The relation between trust and purchase intention is mediated by the consumers' attitude toward organic fruits & vegetables.*

2.4 CONCEPT OF HEALTH CONSCIOUSNESS

According to the World Health Organisation (WHO) report 2010, major causes for global death was Non-Communicable Diseases (NCD) such as diabetics, obesity, hypertension, respiratory diseases, cancer, cardiovascular diseases etc. In 2008, out of the 57 million deaths which occurred globally, 36 million were due to NCD. This shows the devastating effect of NCD on our current generation and further 80% of the NCD deaths are reported from low and middle-income countries. In the last couple of decades, the prevalence of NCD has reached the Indian population at an alarming rate. The researchers have found that the food which we consume has a great effect on the increased rate of NCD, although a hereditary component may exist in some cases (Sinha, Anderson, McDonald, & Greenwald, 2003).

Pesticide residue in food products also accelerates the effect of NCD in individuals (WHO, 2016). About two million tons of pesticides per year have been used for worldwide consumption, out of which 45% has been used by European countries alone, followed by the USA, which consumes 25%, and the developing countries altogether account for 25% (De, Bose, Kumar, & Mozumdar, 2014). As per the WHO report 2008, even though usage of

pesticides in developing countries is less compared to developed countries, death caused by pesticide (99%) is high in developing countries. Other than the direct intake of pesticide, this death toll has increased in developing countries due to the high intensity of pesticide usage; lack of protective measures, literacy and government control (Mekonnen & Agonafir, 2002; Mazumder, 2011).

While comparing with the rest of the world, India's share in pesticide consumption is 3.75% (De et al., 2014). Maharastra (13,496 MT), Uttar Pradesh (10,142 M.T), Punjab (5,843 MT), Haryana (4,050 MT), Telangana (3,840 MT), and West Bengal (2,624 MT) constitute 71.15% of the total consumption of pesticides in India. Kerala is not in the first six states which have, highest consumers of pesticides, however over the period of time from 2010 to 2017, the consumption of pesticides have increased from 657 MT to 1,070 MT. In this context, it may be noted that Kerala has less of agricultural land area in comparison with bigger states making it dependent on other states for vegetables, fruits etc. As per GoI (2017) consumption of pesticides by the states which supply food products to Kerala has also increased- Tamil Nadu (2,000 MT), Andra Pradesh (1,884 MT), and Karnataka (1,279 MT), thus increasing the concern for the State of Kerala.

2.4.1 Health Behaviour Theories

Numerous studies have tried understanding and predicting the health behaviour of individuals (Conner & Norman, 1996; Kumar et al., 2012), though changing a habit or routine of an individual is a difficult task (Kollmuss & Agyeman, 2002). Some prominent theories developed to understand the changes in health behaviour such as the Social Ecological Model, Transtheoretical Model and The Health Belief Model are outlined below.

2.4.1.1 Social Ecological Model (SEM)

Unlike the other health behaviour models which focus on attitude related variables at intrapersonal level, Social Ecological Model (SEM) proposed by Urie Brofenbrenner (1977) uphold that individual behaviour changes can happen at multiple levels including intrapersonal, interpersonal, institutional, community and public levels (Kumar et al., 2012).

1) Intrapersonal factors are characterised as an individual's knowledge, belief, attitude, self-concept, skill and behaviour. Most health promotion theories are focused on this level.
2) Interpersonal factors are characterised as an individual's social network and support system which can be either formal or informal such as family, friends, workgroup etc.
3) Institutional factors are characterised as social institutions such as school, colleges, workplace, church where there exist formal and/or informal policies and structure for operation.
4) Community factors are characterised as the relationship among institutions, organisations and other informal networks which are bounded by community norms.
5) Public policies refer to the local, state and national policies and law related to health practices.

A variation on Bronfenbrenner's model was adopted from the work done by Belsky (1980), McLeroy et al. (1988) and Stokols (1996) to integrate the Social Ecological Model for health promotion. This model suggests that in order for an individual to modify his/her unhealthy behaviour or lifestyle, attitude of environmental and social enhancement towards disease prevention, health protection and health promotion is necessary. In response to the other persons feeling or action in the environment, an individual's thoughts, attitude and behaviour can change

(Stokols, 1996). Thus a holistic approach to change an individual's attitude toward better health is taken into consideration under this model.

2.4.1.2 Transtheoretical Model

The Transtheoretical Model also know as 'Stages of Change Model' was proposed by Prochaska in the 1980s as an integrated approach based on the individuals' readiness to make a change in their behaviour (Simpson, 2015). It is a temporal dimension in which health behaviour evolves through six stages of change: pre-contemplation, contemplation, preparation, action, maintenance and termination (Prochaska & Velicer, 1997).

1) Pre-contemplation stage: It is the stage where individuals are not even thinking about changing their behaviour in the near future or the next six months. These individuals are either not informed or underinformed of the consequence of their behaviour. They might also have tried to change their behaviour but lacked motivation and remained demoralised about their capability to change.
2) Contemplation stage: It is the stage where individuals are willing/intent to change their behaviour in the next six months. They are well informed about the pros and cons of changing their behaviour. Due to the over-awareness of cost and benefit of changing the behaviour they procrastinate it for a long period.
3) Preparation stage: It is the stage where individuals are intended to take some action towards making a change in the immediate future or within a month. These individuals will have a plan of action to bring about a change for themselves.
4) Action stage: It is the stage where the individual reached when he/she had made an apparent modification in their behaviour for the past six months.

5) Maintenance stage: It is the stage in which individuals are able to maintain the modification which they have made in their behaviour. Individuals will be able to successfully complete this stage if they could avoid a relapse of the previous behaviour for the next six months.
6) Termination stage: It is the stage where individuals are able to overcome any situation, depressed, anxious, angry, bored, lonely, stressed, and stick with the modified behaviour.

An individual 's self-efficacy and control are needed for the success of behaviour change, however it is possible for individuals to start at varying stages and move forward or backward. Thus, change completely depends on individuals doing the right thing at the right time.

2.4.1.3 Health Belief Model (HBM)

During the 1950s several social psychologists created the concept of the Health Belief Model (HBM) to understand the widespread unacceptance of preventive practices and screening test for early detection of diseases. Later, Rosenstock (1974) gave this model a formal outline. This model hypothesised that behaviour is determined by the individual's belief about the threat towards their well being and their willingness and estimation that particular action can overcome the threat. HBM consists of the following components:

1) Perceived Susceptibility: Individual's feeling or reaction to a threat can vary. Therefore perceived susceptibility refers to the subjective perception of risk or threat which he/she is vulnerable to contracting with.
2) Perceived Severity: Seriousness which an individual gives while facing a threat can vary from person to person. Therefore perceived

severity refers to the seriousness which an individual perceives while facing a threat which can have a clinical (e.g., death, disability) and or social (e.g., can affect family, work and social life) consequence.

3) Perceived Benefit: When an individual accepts that he/she is vulnerable to the threat which he/she is facing and he/she understands its seriousness, he/she will try to take effective action or behaviour. However, the individual should believe that the recommended course of action is feasible and effective.
4) Perceived Barriers: The negative aspect which an individual find in a particular course of healthy action can act as a barrier for carrying out the recommended behaviour. A cost-benefit analysis which an individual carry out can overweigh the actions' effectiveness against the individual perception that, the course of action is expensive, unpleasant, inconvenient and time-consuming.

From this model, we can conclude that if an individual finds himself vulnerable to a threat and he understood the seriousness of it, he would try to find a course of action to overcome the threat which the perceived benefits overweigh the perceived barriers (Janz & Becker, 1984).

Thus from the theories, we can see that health consciousness of an individual depends on his/her readiness to undertake an effective action. Slater and Flora (1991) treated health consciousness as a way of living hence it was closely related to one's lifestyle. Therefore, researchers tried to understand the concept of health consciousness as a one-dimensional and also as a multidimensional factor. Gould (1988) developed four dimensions to evaluate health consciousness of an individual, they are: 1) health alertness, 2) health self-consciousness, 3) health involvement, and 4) health self- monitoring. Similarly, Kraft and Goodell (1993) have proposed four dimensions for health consciousness, they are: 1) healthy environment

sensitivity, 2) physical fitness, 3) personal health responsibility, 4) nutrition and stress management. Another set of factors provided by Dutta (2005) to be taken care of are: 1) healthy eating, 2) alcohol consumption, 3) gambling, and 4) exercising. Against these multi-dimensional factors to assess health consciousness, some researchers have found that the concept of health consciousness can be captured through a uni-dimension factor. Scales developed by researchers such as Jayanti and Burns (1998), by modifying the scale of Kraft and Goodell (1993); Michaelidou and Hassan (2008), by modifying the scale of Gould (1988) to formulate a single factor is now used widely (e.g., Kim & Chung, 2011). *In the current study consumers' health consciousness is measured using Michaelidou and Hassan (2008) scale.*

2.4.2 Consumer Perception of Health Consciousness

Health consciousness can be defined as **"an individual's readiness to undertake healthy actions"** (Becker, Maiman, Kirscht, Haefner, & Drachman, 1977). Health conscious individuals are concerned and aware about their current state of well-being and would try to maintain or improve their health by engaging in various healthy activities (Kraft & Goodell, 1993; Newsom, McFarland, Kaplan, Huguet, & Zani, 2005). Previous researchers have found that individual's response and initiatives to seek out health information is related to their levels of health consciousness (Basu & Dutta, 2008; Shim, Kelly, & Hornik, 2006).

Health consciousness is as an important factor for consumers to buy organic food products, as per studies conducted in various countries such as Germany (Kriwy & Mecking, 2012), Italy (Boccaletti & Nardella, 2000), Greece (Botonaki, Polymeros, Tsakiridou, & Mattas, 2006), UK (Padel & Foster, 2005; Makatouni, 2002), Ireland (O'Donovan & McCarthy, 2002),

Finland (Tarkiainen & Sundqvist, 2009),China (Xie, Wang, Yang, Wang, & Zhang, 2015), Vietnam (Truong et al., 2012), and USA (Lee, 2016).

However, various other studies are reporting that there are other factors which motivate an individual to buy OF&V. A study conducted in Scotland suggested that food safety concern and ethical identity are the most influential factors for creating a positive attitude towards OF&V rather than health consciousness which is the least important, however the mediating role of attitude in strengthening the relationship between health consciousness and purchase intention is established (Michaelidou & Hassan, 2008). A study conducted in Taiwan also reported that concept of health does not motivate the consumers to buy OF&V whereas Taiwanese were motivated by political values, natural content, mood, environmental protection, animal welfare and religion (Chen, 2007). However, a study conducted by Chen in 2009 found that health consciousness plays a significant role in influencing the attitude of consumers towards OF&V only when consumers lead a healthy lifestyle.

Another study which compared the motive of food choice among the consumers of Japan, New Zealand, Taiwan and Malaysia found that even though health is one of the factors for buying food products, it was not an important factor (except for Malaysia). For Japan, New Zealand and Taiwan, price; sensory appeal; and natural content respectively were the main motivating factors for buying food products (Prescott, Young, O' Neill, Yau, & Stevens, 2002).

There exist contradicting views regarding the most important predictor of buying OF&V, and these changes in the predictive factor may have occurred due to the cultural differences. As per a study conducted in Delhi, in India also, health consciousness is an important factor for buying

OF&V (Paul & Rana, 2012). Similarly, a survey conducted among agricultural and food industry experts in India suggested that health consciousness plays a key role for consumers to buy organic food products (Chakrabarti, 2010).

It is natural to expect high health consciousness and hence the sensible selection of organic food products in Kerala, where the Human Development Index (HDI) is at par with the developed countries. Therefore, following hypotheses were proposed with regard to health consciousness and purchase intention of OF&V:

Hypothesis 5: *Health consciousness has a positive impact on consumers' purchase intention of organic fruits & vegetables.*

Hypothesis 6: *The relation between health consciousness and purchase intention of consumers is mediated by their attitude toward organic fruits & vegetables.*

2.5 CONCEPT OF ENVIRONMENTAL CONCERN

Advancement of technology in the agricultural field paved the way for an industrial revolution in the 18th and 19th century (Demont, Mathijs, & Tollens, 2001), which freed farmers of hard labour. The concern for feeding the rising population gave impetus to scientists to look for high yielding varieties, which made farmers more dependent on synthetic fertilisers. This shift in agricultural practice is called Green Revolution which occurred in around 1940. Use of synthetic fertilisers helped farmers to plant the same crop, in the same field year after year. When the resistance of pests increased, scientists used biotechnology to modify the DNA of plants and came up with GMO, i.e., Genetically Modified Organisms (Waggoner, 2004). The aftermath of all these interventions was deforestation, soil erosion, contamination of groundwater (e.g., pesticides), wasteful water

consumption, reduction in wildlife species etc. (Zilberman, Khanna, & Lipper, 1997).

The depletion and degradation of our environment continue to exist and it was only in the middle of the 20th century, governments and environmental activists around the world took notice that the current human activities can have an adverse effect on the environment (Kulkarni, 2010).

Consumers around the globe had taken an interest in pro-environmental behaviour (Schultz, 2001), however it varies from countries to countries. *There are two schools of thoughts: one which claims that environmental concern has a direct effect on pro-environmental behaviour (Durham & Andrade, 2005; Loureiro & Hine, 2002) and the other which claims that it has no effect (O'Donovan & McCarthy, 2002; Bamberg, 2003).*

Previous researchers have used various terms to describe an individual's concern for protecting the environment such as pro-environmental behaviours, environmentally responsible behaviours, environmental concern behaviours and environmentally significant behaviours (Lee, Jan, & Yang, 2013). Environmental concern behaviour is defined as **"the affect (i.e., worry) associated with beliefs about environmental problems"** (Schultz, Shriver, Tabanico, & Khazian, 2004). It can also be defined as **"the degree to which people are aware of problems regarding the environment and support efforts to solve them and/or indicate a willingness to contribute personally to their solution"** (Dunlap & Michelson, 2002).

Previous researchers have used various theories such as norm-activation theory, value-belief-norm theory and theory of planned behaviour etc. to explain the environmental concern behaviour. These theories are dealt with in detail in the following section.

2.5.1 Pro-Environmental Theories

Environmental condition is degrading in most of the countries and psychologists and sociologists are trying to understand how to minimise the deterioration to perform pro-environmentally (Harland, Staats, & Wilke, 2007). The earliest model which tried to explain the pro-environmental behaviour was the simplest model which proposed that environmental knowledge leads individuals to form a concern for the environment which in turn lead them to behave pro-environmentally, however early in the 1970s this model was proved wrong (Burgess, Harrison, & Filius, 1998). Previous literature pointed out that creating awareness or educating individuals do not make them behave pro-environmentally as changing an already existing behaviour or habit is very difficult (Owens, 2000).

Various researchers have used Ajzen and Fishbein (1980) **Theory of Planned Behaviour** (TPB) to explain the pro-environmental behaviour. According to this theory, attitude alone does not influence an individual to behave pro-environmentally rather social pressure also plays an important role. Thus the ultimate determinant for an individual to perform any behaviour is based on the consequence of not performing the behaviour. The subjective norm or the social pressure which the significant others expect an individual to perform a set of behaviour plays a significant role.

In 1960, Schwartz proposed **Norm Activation Model** (NAM); and various changes were brought into the theory over a period of time. In contrast to the TPB model, NAM focused on personal norm, i.e. the moral obligation which an individual feel can motivate to act in a certain way. The personal norms are triggered in a situation through predictors such as perception of ecological problem and awareness of consequence.

In a given situation when a person perceives that the given ecological problem is significant then only personal norm will get activated. Furthermore, an individual's perception that his or her action can contribute significantly to reduce the ecological problem can also trigger personal norms (Schwartz, 1977). Thus individuals will be more willing to perform pro-environmentally only when a moral obligation of an individual is involved, as the personal cost of pro-environmental behaviour is more than personal benefit (Vlek & Keren, 1992).

As an extension to NAM which concentrated more on individual's altruistic value, Stern and Dietz (1994) proposed a **Value-Belief-Norm** (VBN) model by broadening the NAM by adding concepts such as egoistic and biospheric values. Egoistic value specifies the concern for the suffering of oneself, altruistic or social orientation represents the concern for the suffering of others and the biospheric value specifies the concern for the removal of the suffering of all living beings (Schultz, 2000). Stern, Dietz and Karlof (1993) proposed that all these value orientation exists among all individuals but in varying degree. They found that egoistic value benefitting one's needs and wants is the strongest motivating factor for an individual to behave pro-environmentally followed by altruistic and biospheric.

In this study environmental concern is operationally defined as 'the extent to which people value or are worried about the environmental problems and the measures which an individual is ready to undertake'. The awareness about the consequence of deteriorating the environment is causing individuals to worry about the environment, as it not only affect themselves but also have an impact on their loved ones. Furthermore, Garling, Fujii, Garling and Jakobsson (2003) and Fujii (2006), stated that awareness of consequence could be equated with environmental concern and Stern and

Dietz's (1994) VBN model propose that awareness of consequence may predict an individual's motive to behave pro-environmentally.

In the following section, how environmental concern affects consumers to buy organic food products is dealt with in detail.

2.5.2 Effect of Environmental Concern on Buying Organic Food Products

As organic food products are considered environmentally friendly, buying these products were generally related to the reduction of the environmental issues created by cultivating conventional food products (Chen, 2009). Numerous studies have found that the primary reason for buying organic food products is health consciousness and environmental concern is only a secondary reason (Magnusson, Arvola, Hursti, Aberg, & Sjödén, 2003; Chen, 2009), while there are others who found environmental concern as the major important factor (Durham & Andrade, 2005; Loureiro & Hine, 2002). Magnusson et al. (2003) and Lee (2016) also identified environmental concern as an important predictor of attitude towards organic food products.

It can be assumed that concern for one's own health can be regarded as egoistic value and the concern which an individual show to the environment as altruistic value (Magnusson et al., 2003). An individual involved in the altruistic way of living will have to forego personal benefit as performing the environmental friendly behaviour is too costly in terms of time, money, and effort (Wandel & Bugge, 1997; Bamberg, 2003). Diekmann and Preisendörfer (1998) stated that individuals are likely to behave more pro-environmental when the cost and inconvenience are low. However, this assumption is not accepted by all studies, as a study conducted in Germany does not find any relation between pro-environmental behaviour and low cost (Kriwy & Mecking, 2012). A study conducted in Canada found

that organic consumers are concerned about environmental issues such as animal welfare and preservation of living organisms, even though these issues are important and are not crucial (Essoussi & Zahaf, 2009).

However, Verhoef (2005) found that environmental concern does not have much effect on Dutch consumers' choice while buying organic meat. He further stated that this negative reaction might be due to the specific buying behaviour, i.e. organic meat. A study conducted in China also found that people consumed organic food products mainly due to the individualistic point of view such as concern for one's own health and also concern for the health of their family rather than concern for the environment (Sirieix, Kledal, & Sulitang, 2011).

As these kinds of contradicting viewpoints exist with regard to the influence of environmental concern leading to pro-environmental behaviour, to investigate the influence of environmental concern, the following hypotheses are formulated:

Hypothesis 7: *Environmental concern has a positive impact on the consumers' purchase intention of organic fruits and vegetables.*

Hypothesis 8: *The relation between environmental concern and purchase intention of consumers is mediated by their attitude toward organic fruits and vegetables.*

2.6 CONCEPT OF QUALITY

The concept of quality started to gain its importance after the Second World War, through its applications in military and manufacturing industries. Eminent persons such as Armand V. Feigenbaum, W. Edwards Deming, Philip B. Crosby, and Joseph M. Juran, have contributed to the

quality control and improvement of manufacturing industries (Chandrupatla, 2009).

Numerous studies have been conducted to understand and improve the concept of quality in various academic fields including strategic quality management (Garvin, 1987), service quality (Parasuraman, Zeithaml, & Berry, 1988), durable consumer goods quality (Brucks, Zeithaml, & Naylor, 2000), brand loyalty and buying intention (Fandos & Flavián, 2006), non durable consumer goods quality (Muller & Steinhart, 2007) and perceived quality (Ophuis & Trijp, 1995). The concept of quality is very complex and abstract, (Grunert, Bech-Larsen, & Bredahl, 2000) generalising this concept has become very difficult as intrinsic attributes or physical characteristics of products or services will be different (Levitt, 1981; Bonner & Nelson, 1985; Babakus & Boller, 1992).

Over the period of time, researchers approached quality in three different ways: 1) Product oriented quality, 2) Process-oriented quality, and 3) Consumer-oriented quality. Product-oriented quality controls and monitors all physical aspects of products before it leaves the firm whereas process-oriented quality scrutinises the production process. Finally, consumer-oriented quality is subjective perceived quality from the consumer point of view. By 1980s and 90s, a shift in the product-oriented quality approach to process-oriented quality approach was seen and currently the focus is on customer-oriented quality (Becker, 2000).

2.6.1 Consumer Perception of Quality

The consumer being an end user, understanding their perspective of quality is vital for any company to harvest profit (Jacoby & Olson, 1985; Steenkamp, 1990). Consumers evaluate a product based on its subjective benefits rather than its objective characteristics (Bredahl, 2004). Objective

quality refers to "measurable and verifiable superiority on some predetermined ideal standard or standards" (Zeithaml, 1988). These kind of quality assessment is carried out by the nutritional scientists and experts using standardised techniques. To a certain extent, managers also use objective quality assessment wherein they check whether they have met the specification standards kept to improve the quality of the products.

The measurable features of products are called 'product characteristics' and those features which meet the consumer demand are called 'product attributes', so there exists a clear distinction between product characteristics and attributes (Becker, 2000). This study is focusing on the subjectively perceived product attributes, as it is the consumer who ultimately decides which product attribute is good or bad and whether he/she should buy the product or not (Zeithaml, 1988; Steenkamp, 1990; Lawless, 1995).

Before 1950, economists tried to conceptualise quality by assuming that consumers had the perfect knowledge about the product, which was later realised to be highly unrealistic (Steenkamp, 1989). In 1961 Stingler with his economics of information approach, developed an economic model to understand the behaviour of poorly informed consumers while purchasing homogenous goods. Even though his study was not related to quality, it was later extended by Nelson (1970), and Darby and Karni (1973). They categorised products based on attributes which a poorly informed consumer would perceive. They classified the product attributes into three: 1) search attributes, 2) experience attributes, and 3) credence attributes.

1.Search attributes: It denotes the utility of a product which buyers can evaluate before purchasing it. To maximise the utility, the buyer will keep visiting the store

until the marginal expected cost search becomes greater than the marginal expected return. (e.g., the cost of search attributes such as brand name, brand advertisement, price etc.)

2. Experience attributes: It denotes an evaluation of the utility of a product after using it. To maximise the utility, the buyer will keep purchasing the product until the expected marginal cost of information acquired through experience exceeds marginal expected return. (e.g., taste)

3. Credence attributes: It denotes that quality of a product which cannot be evaluated even after purchasing it, thereby making the consumer rely on the judgement of others.

However, these classifications have been criticised by many researchers (Wilde, 1980; Grunert,1997; Phillips, Chang & Buzzell, 1983). Firstly, it was argued that the multidimensional notion of quality is neglected; secondly, it was pointed out that most products will possess all these attributes which are difficult to distinguish; thirdly, it failed to explain the whole process of quality perceived by the consumers; and finally it even failed to explain how the perception of experience and credence attributes which consumers believed were integrated in the overall quality estimation.

Economics of information approach failed to understand the concept of quality from a consumer point of view. Even in 1985, studies had shown that chief executive officers of various companies thought that they were providing better quality products when the actual customers stated that the quality of the products is dropping (Morgan, 1985). There exist a gap in

understanding the quality perceived by the consumers and studying the quality from their perspective is called behavioural or perceived quality approach.

Various definitions of perceived quality were evolved. It is defined as "an index that reflects the extent to which the customer feels that his need, the product, and his expectations for that product overlap" (Thurstone, 1985). A parallel point is noted by Wolff (1986) who argued that, "quality should be measured from the customer's perspective: if the customer says it's good, it's good; if he says it's bad, it's bad". Further Aaker (1991) stated that **"the customer's perception of the overall quality or superiority of a product or service with respect to its intended purpose, relative to alternatives"**. The International Organization of Standardization (ISO 8402) has also defined quality as **"the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs"**.

The ultimate evaluator of quality is the customer, thus before buying any product; customers form an impression about the products by gathering information. Nowadays consumers are either overloaded with information, and too much of information can lead to misleading in buying, or they are not fully informed, and with the limited information available they have to make their choices (Malhotra, 1982; Branco, Sun, & Villas-Boas, 2016). Information which the consumer is able to access is defined by Steenkamp (1997) as 'informational stimuli' or 'quality cues' which helps to evaluate the quality of the products. Cues can be intrinsic or extrinsic. Intrinsic cues relate to the physical attributes of the products whereas extrinsic cues are product attributes which are not physical (Grunert,1997; Bernués, Olaizola, & Corcoran, 2003).

Generally, it is the extrinsic cues which the consumers gather to form an impression, and after buying the product, consumers compare whether their quality expectations match with the quality of performance of the products which will influence the consumers in their future buying (Steenkamp & Van Trijp, 1996).

As product attributes are different for each product, understanding the quality expectation is essential. Various researchers have identified quality dimensions specific to particular products as the concept of varied attributes exist for various products. Garvin (1987) have developed eight quality dimensions for durable goods. They are: (1) performance, (2) features, (3) reliability, (4) conformance, (5) durability, (6) serviceability, (7) aesthetics and (8) perceived quality. Similarly, Brucks et al. (2000) have proposed six quality dimensions in durable goods, (1) ease of use, (2) versatility, (3) durability, (4) serviceability, (5) performance and (6) prestige. Another classification is provided by Petrick (2002), which classified quality dimensions into four: (1) superiority, (2) consistency, (3) dependability and (4) reliability. Service quality dimensions are categorised into five (1) tangibles, (2) reliability, (3) competence, (4) responsiveness and (5) empathy (for further details see Parasuraman, Zeithaml and Berry, 1985).

Even in the food industry, the quality dimension for each food product varies (for details Section 2.6.2). Therefore in the present study, the researcher is trying to understand the perspective of quality from the consumer point of view, focusing on OF&V.

2.6.2 Quality in Food Products

The role of quality management is gaining importance in the food industry and agribusiness over the last decade. The reasons for this major shift (Princen, 1997) in food quality concern are due to the existence of

complex food supply chain system (e.g., many levels exist between consumers and food manufacturers/producers) demographic factors (e.g., younger or elder people), change in lifestyle and consumption behaviour, for example high use of ready to eat food and outdoor consumption of food has increased (Luning & Marcelis, 2007), and the effect of industrialisation.

Based on the product, the quality dimension perceived by the consumers vary. Wirth, Stanton, and Wiley (2011) studied consumers' preferable attributes for buying apples using degree of blemish, size, flavour, texture, price, origin and production process and they found that degree of blemish on the apple, texture and price are the important factors for consumers to buy apple and the place of origin and production process (organic/conventional) were insignificant. While analysing the effect of quality attributes such as flavour, aroma, texture, natural product, careful production etc, of protected designations of origin (PDO) products (e.g., Bordeaux wine of France, Mozzarella of Italy, Roquefort cheese of France) on purchase intention, Fandos and Flavián (2006) found that the intrinsic attributes have a direct effect on the behavioural side of consumer attitude and buying intention (Fandos & Flavián, 2006).

Fotopoulos, Krystallis, and Ness (2003) found in Greece that organic buyers of wine gave more preference to extrinsic attributes of the product such as product label whereas non-buyers found appearance, attractiveness, taste, information, ethical production and distinctiveness as factors which will motivate them to buy in future.

2.6.3 Evaluating the Multi-Dimensional Attributes of Quality

According to Levitte (1981), the generalisation of perceived quality construct to all goods and services is futile or ineffective, as the product attributes are different for every products and services (Babakus & Boller,

1992). Quality is a multidimensional attributes and treating it as unidimensional measures fails to capture the concept of quality defined by consumers adequately (Garvin, 1987). Olson(1972) proposed that overall quality judgement of a product can be done by consumers by evaluating a set of product-related attributes through quality cues or indicators (e.g., taste, freshness, texture, smell, price, brand) which can be closely related to the product thereby combining these cues to formulate an overall quality evaluation. Garvin (1987) and Zeithaml (1988) opposed this approach by stating that while evaluating the product quality, consumers focus on various abstract dimensions rather than doing an overall quality assessment.

Brucks et al. (2000) proposed that as the overall quality assessment mask the consumers' actual perception of products, it is advisable to use dimensions of quality to form consumer judgement. Similar assessment was made by Glitsch (2000), Bryhni et al. (2002) and Marinelli, Simeone, and Scarpato (2015), and raised the concern that for a successful marketing practice marketers need to understand which quality dimensions of their product do consumer find more significant and accessible and finally influence their purchase decision.

While receiving a service also, consumers may experience some quality dimensions more significant than others and this difference in experience was noted in different consumer segments and contexts (Boulding, Kalra, Staelin, & Zeithaml, 1993; Parasuraman et al., 1988).

Thus, it is evident that dimensions of quality need to be treated as an individual construct in order to evaluate which quality dimensions have a better influence on consumer purchase decisions.

As each dimension is treated differently in the current study, Fishbein's (1963), Attitude towards Object (ATO) Model was used to link

the dimensions of perceived quality with the main theory of the study - Theory of planned behaviour. ATO model is effective in measuring an individual's attitude towards product, service or organisation, especially brands. The theory further states that, consumers formulate an attitude towards a product based on the presence or absence of specific attributes and the importance the consumers provide to each of these attributes will be taken into consideration (Fishbein, 1963). For instance, if consumers give more importance to pesticide-free, GMO-free food products, when compared to other dimensions of perceived quality, the consumer will make sure that the claims made by the producers with regard to the production process of organic food products are genuine and formulate a positive attitude towards buying organic food products.

The existence of a cross-cultural difference in food choice is an established fact (Yeh et al., 1998). Understanding the quality dimensions which motivate individuals to buy OF&V in Kerala, a state which has a tempting diverse cuisine will be significant. Each dimension of perceived quality is separately discussed in sections 2.6.3.1 to 2.6.3.4.

2.6.3.1 Hedonic Quality

According to Grunert et al. (2000), hedonic quality is related to **"sensory pleasure and is therefore mainly linked to taste, smell, texture and appearance"**. Hedonic means "to do with pleasure" and the philosophy of hedonism talks about the ultimate goal of human behaviour which is to gain pleasure (Brunso, Fjord, & Grunert, 2002). Food is the most fundamental form of pleasure any human wishes to indulge in (Luomala, Laaksonen, & Leipämaa, 2004). Hedonic or sensory aspect of a product is an initial indicator of choosing or accepting food products which may or may not be the predictor of consumer's buying behaviour (Raats, Béatrice,

Rosires, & Hal, 1995). Sensory or hedonic features are of great importance as it can create or tarnish a product's image (Obermowe, Sidali, Hemmerling, Busch, & Spiller, 2011). Hedonic attributes were found to be an important factor for choosing food products in various studies from the UK (Wandel & Bugge, 1997; Steptoe, Pollard, & Wardle, 1995), Russia (Honkanen & Frewer, 2009), Serbia (Kalenjuk, 2014), New Zealand (Prescott et al., 2002), and Poland (Zakowska-Biemans, 2011).

Taste is considered as an important hedonic attribute for consumers to buy or not to buy food products (Asp, 1999; Richardson, MacFie, & Shepherd, 1994; Magnusson et al., 2001). Lack of taste is provided as the main reason for less consumption of fish and seafood items by the consumers in the US (Kreider, Gempesaw, Bacon, Toensmeyer, & Groff, 1993). Though hedonic attributes are experienced characteristics of food products, consumers formulate an expectation about the attributes before purchasing, and even the expectation of taste is formulated using other quality cues such as appearance, texture, store ambience, packaging, price and other cues (Brunso et al., 2002). However, the formation of expectation can also be psychological. A study conducted on Swedish consumers suggest that falsely informed organically grown tomatoes were rated low initially on taste and when they were informed that it was organically grown, their preference and taste for the product increased, showing an existence of psychological bias for OF&V (Johansson, Haglund, Berglund, Lea, & Risvik, 1999). The sensory evaluation of whether OF&V taste better than conventional food products always yield an inconsistent result (McEachern & McClean, 2002; Roitner-Schobesberger, Darnhofer, Somsook, & Vogl, 2008). Many consumers believe that OF&V taste better than conventional food products.

Apart from the sensory attribute such as taste, consumers also gave preferences to appearance, texture and freshness while buying food products.

Among the Japanese and Thai consumers, the freshness of fruits and vegetables was an important factor for buying OF&V (Sakagami, Sato, & Ueta, 2006; Roitner-Schobesberger et al., 2008). A pan European survey conducted among 15 European nations to understand the consumers' attitude to food, nutrition and health found that even though cross-cultural differences were present among these nations, quality/freshness was rated high across all the countries (Lappalainen, Kearney, & Gibney, 1998). However, Lin, Payson and Wertz (1996) found that appearance is not a significant factor for consumers to buy organic food products in Mid-Atlantic regions (Washington DC, Baltimore and Richmond).

Tuarila, Meiselman, Cardello and Lesher (1998), and Marshall and Bell (2004) found that individuals who are more involved in the buying of food products are sensitive to hedonic or sensory quality of products whereas Fotopoulos and Krystallis (2002) found that consumers who are interested in buying organic food products would tend to use external cues and non-buyers will primarily focus on sensory cues. Thus, consumers use sensory cues to develop a positive attitude towards the products thereby leading them to buy it (Obermowe et al., 2011). However, there are studies which found that other than the sensory factors, there are factors which can influence the buying and at times sensory factors can become insignificant in buying, for instance, routine buying (Chen, 2009).

As there exist contradicting views with regard to the significance of hedonic or sensory attribute in influencing the buying of organic, the following hypotheses are formulated:

Hypothesis 9 : *Consumers' perception of hedonic quality has a positive impact on purchase intention of organic fruits & vegetables.*

Hypothesis 10 : *The relation between hedonic quality and purchase intention is mediated by the consumers' attitude toward organic fruits & vegetables.*

2.6.3.2 Nutritional Quality

Nutritional quality is defined as **"the value of the product for the consumer's physical health, growth, development, reproduction and psychological or emotional well-being"** (Köpke, 2005). Various researchers have tried to identify whether there exist any nutritional difference between organic and conventional food products. Young et al. (2005) and Amodio et al. (2007) reported that organic foods are more nutritional than conventional food products, however there are other studies which could not scientifically prove completely that organic food products are better (Bourn & Prescott, 2002). Even though a complete superiority of the organic products cannot be found, some nutritional values were found to be high among organic food products (Worthington,1998, 2001; Benbrook, Zhao, Yáñez, Davies, & Andrews, 2008). Baker, Benbrook, Groth, and Benbrook (2002) found lower levels of pesticide residue in organic food products in the US.

Quantifying the nutritional content of a product objectively is not possible, and therefore only a subjective perception of the nutritional quality of the product is presumed by the consumers at the time of buying or even after consumption (Caswell & Mojduszka, 1996; Becker, 2000). Nutritional content of the product cannot be communicated using quality cues; consumers gather information through family and friends, word of mouth, media and other sources; however, in case of packed products consumers may also take the nutritional information provided on packages into

consideration (Barrena, 2010). Nutritional content provided on the package provides vital information for consumers to choose food products.

Consumers find it difficult to understand some technical jargons (e.g., Trans fat) provided in labels (Gomes, Nogueira, & Ferreira, 2017) due to which researchers found nutritional label ineffective (Caswell & Mojduszka, 1996). Nutritional awareness and knowledge may or may not have a significant impact on the dietary practices of an individual (Eertmans, Baeyens, & Bergh, 2001). They are either not aware or don't yet want to apply a nutritional diet while choosing food products (Glanz & Mullis, 1998).

Consumers always try to link the nutritional content of a product to their personal health such as eating healthy diet, organic or functional food, less fat, calories, sugar, salt and other factors related to nutrition and health, however understanding the nutritional quality of a food product is very difficult (Naspetti & Zanoli, 2006). Neither an informed consumer nor any kind of quality models such as Akerlof's (1970) 'Lemons Model' or Grossman's (1981) 'unfolding model' which used quality signals to communicate between seller and buyers can help in formulating quality judgment based on nutritional attributes (Caswell & Mojduszka, 1996). This lack of judgment is due to the credence attribute of food products. If some food items are bad for human health, it will reflect within a short period (e.g., food-borne illness), however, if the food items are contaminated (e.g., pesticide residue) its effect on consumer health may be reflected only after a long period of time (Barrena, 2010).

Nutritional value was found to be an influential factor for buying OF&V in studies from Canada (Islam, 2013), USA (Xue, Mainville, You, & Nayga, 2010), Greece (Tsakiridou, Boutsouki, Zotos, & Mattas, 2008),

Turkey (Erdoğan, Mol, & Coşansu, 2011), Vietnam (Truong et al., 2012), and Europe (Naspetti & Zanoli, 2006). Nutritional value is important for all types of consumers for making a food choice (Hoefkens, Verbeke, & Camp, 2011), especially those who are concerned about their health, women and old respondents who have an urge to control their diet. For a habitual organic buyer, it gives peace of mind and a guarantee whereas for an irregular buyer nutritional content on the labels are just an indication to avoid risk (Barrena, 2010; Tsakiridou et al., 2008).

A study conducted in Portuguese found that consumers use nutritional labelling to form an attitude towards the products whether it is healthy or not, thereby leading to purchase of the product. The consumers prefer label to contain all the information even if they don't read it. The most commonly sought nutrient information was calories (Gomes et al., 2017). A study conducted in the USA found that nutritional value does not have a direct relationship with attitude and intention rather it has an indirect influence through belief, influence of significant others and social acceptability (Sapp, 1991) whereas another study conducted in the USA found that nutritional value leads to more positive attitude towards buying of food products (Kozup, Creyer, & Burton, 2003).

In the background of contradicting views with regard to the significance of nutritional value in influencing the buying of organic products, the following hypotheses are formulated:

Hypothesis 11: *Perception of nutritional quality has a positive impact on consumers' purchase intention of organic fruits & vegetables*

Hypothesis 12: *The relation between nutritional quality and purchase intention is mediated by consumers' attitude toward organic fruits & vegetables.*

2.6.3.3 Production Process

Process-related quality refers to **"the characteristics of the production process which consumers have taken an interest in"** (Grunert et al., 2000). Organic food products are generally perceived as products which are free from chemicals and pesticides, which is beneficial for human health by avoiding harmful chemicals, pesticides, additives and preservatives thereby following a natural production process (Naspetti & Zanoli, 2006; Chakrabarti, 2010; Colom-Gorgues, 2009). As the production process of organic food products are subjectively perceived by the consumers, the organic credence attributes are invisible to consumers at all stages of buying and consumption process, therefore consumers have to rely on other sources to gather information such as friends, family, media or certified label for identification (Henryks & Pearson, 2014).

Even though the production process does not have any direct effect on the final product, consumers may consider production process vital due to either of two reasons: 1) there are a few consumers who are concerned about the environment or animal welfare who wish to reduce the human effect on them; 2) there are others who are concerned about the production process due to the after effect which can influence human health (Grunert et al., 2000; Gracia & De Magistris, 2008; Rindell, Strandvik, & Wilén, 2014).

Thus consumers might be aware of the key organic farming attributes, but there is a lack of knowledge about organic farming practices and cost incurred while cultivating (Hill & Lynchehaun, 2002). A study conducted in Italy points to the fact that consumers have limited knowledge

about organic certification which denote the environmentally friendly production process, as only 34% of the sample was able to respond correctly (Marinelli et al., 2015). Grebitus, Yue, Bruhn, and Jensen, (2007) found that regular buyers of organic milk are influenced by the production process and knowledge about the origin of organic milk. Consumers who are aware of organic farming practices and the reason for its premium price are more willing to buy organic food products (Padel & Foster, 2005; Botonaki et al., 2006). Teng and Wang (2015) in their study argued that if consumers have enough knowledge about the production process, their confidence towards organic food products will automatically increase which in turn influence in forming a positive attitude towards organic food products.

Stobbelaar et al. (2007) found that increased information and knowledge about the production process increases positive attitude among adolescents. Aertsens, Verbeke, Mondelaers, and Huylenbroeck (2009) stated that knowledge about organic production process increases consumer involvement. Worner and Meier-Ploeger (1999) found that lack of favourable attitude towards organic food products is due to the doubts about product claims, lack of promotion and clarity on the way in which organic products are cultivated or produced. Vermeir and Verbeke (2006) also found that consumers who lack confidence in making decision to buy organic food products are those who have limited knowledge about OF&V and their production process.

Process-related attributes were found to be an important factor for buying food products in countries such as Taiwan, Malaysia and Japan whereas in New Zealand it is found to be unimportant (Prescott et al., 2002). The production process is an invisible quality attribute of OF&V and knowledge about organic production increases consumers' confidence in the

food products thereby creating a positive attitude which ultimately may lead to buying. This assumption is stated as hypotheses below:

Hypothesis 13: *Consumers' perception of production process has a positive impact on purchase intention of organic fruits & vegetables.*

Hypothesis 14: *The relation between production process and purchase intention is mediated by the consumers' attitude toward organic fruits & vegetables.*

2.6.3.4 Convenience

Concept of convenience has been used in marketing in various contexts; it is used to explain a product attribute (Brunner, Horst, & Siegrist, 2010; Luning & Marcelis, 2007), service (Brown, 1990), buyer (Darian, 1987), and also in the consumption process (Candel, 2001). Early in 1932, Copeland stated that convenience goods are those which consumers habitually purchase at an easily accessible store. The demands for convenient goods and services have increased so drastically that the consumers' buying patterns have shifted from retail stores to online stores (Forsythe & Shi, 2003). However, consumers looking for convenience are not limited to online shopping; even in our day to day life any product/service which reduces or save consumer effort and time has a major impact on consumers' buying decision (Berry, Seiders, & Grewal, 2002). Convenience orientation refers to **"the value placed on, and the active search for, products and services that provide personal comfort and/or save time in performing various activities"** (Brown 1989,1990).

Various researchers have treated convenience as a multifaceted phenomenon (Candel, 2001; Costa, Dekker, Beumer, Rombouts, & Jongen, 2001; Brown, 1989; Jack, O'Neill, Piacentini, & Schroder, 1997), while

there are others who treated it as a single construct (Steptoe et al., 1995; Honkanen & Frewer, 2009).

Brown (1989) found that convenience has five dimensions such as 1) time, 2) place, 3) acquisition, 4) use, and 5) execution. Yale and Venkatesh (1985) proposed that convenience has six dimensions such as 1) time use, 2) accessibility, 3) portability, 4) appropriateness, 5) handiness, and 6) avoidance of unpleasantness. However, Luqmani, Yavas and Quraeshi (1994) reported that the main dimensions which Brown (1989) & Yale and Venkatesh (1985) were trying to project were time-saving and comfort orientation which accounts for the buying of convenience driven goods and services.

In the food product industry also, convenience is also an important factor (Brunner et al., 2010). Darian and Cohen (1995) have categorised convenience into two dimensions such as consumption stages, and time and effort. He classified convenience based on the time and effort which an individual has to take on at various consumption stages such as planning, purchasing, preparation, eating and disposal. Convenience which reduces the time and effort throughout the consumption stages is stated as one of the dimensions of perceived quality by Grunert (2006). Thus, convenience related quality is related to the time and effort which has to be expended while buying, storing, preparing and consuming the product.

Researchers have given great importance to each stage of consumption and have studied convenience even at the processing stage (Paulus, 1977) and preparation level (Pepper, 1980). To understand the convenient behaviour of consumers, Scholderer and Grunert (2005) focused on two dimensions of convenience such as convenience shopping behaviour and convenience product usage. Some researches have focused on buying or

ease of access and preparing the meal (Chen, 2009; Prescott et al., 2002; Furst, Connors, Bisogni, Sobal, & Falk, 1996).

According to Candel (2001) and Brunso et al. (2002), a person who seeks convenience in food products does not find food as a central element, is less involved with food products, is not interested in quality, is not a variety seeker, and who find cooking a heavy burden and an obligatory activity. Generally, consumers find convenient food products as low quality (Grunert, 2005) and consumers who are concerned about naturalness such as organic food products found a negative relation with convenience (Brunner et al., 2010).

Chen (2007) found that consumers who are more concerned about convenience will have a negative attitude towards organic food products. Contradicting to the findings of Chen (2007) research found that consumers who buy organic food products regularly face the barrier of conveniently accessing the products on a regular basis, however their attitude towards organic food products still remain positive while comparing it with occasional buyers (Lockie, Lyons, Lawrence, & Mummery, 2002; Torjusen et al., 2001). Consumers in countries such as Denmark and Britan are looking for convenience along with healthy eating habits and the producers of these countries are able to supply organic food products with a variety of 800 to 1200 items (Wier, O'Doherty, Andersen, & Millock, 2008) due to which Denmark has the highest organic market share (9.7%) in the world and Britan is the seventh largest country for organic market (Willer et al., 2018).

A study among U.S consumers found that consumers of organic food products prefer organic products when they are available in a convenient manner thereby increasing their intention to buy (Lee, 2016). A study in

China also found that in order to make organic food products as a part of daily routine, availability of the product on a regular basis is a necessity (Xie et al., 2015). Convenience in availability of products which an individual intent to buy is very important and the possibility of buying organic or sustainable products can be hampered due to lack of access (Vermeir & Verbeke, 2006). In this regard the following hypotheses are formulated:

Hypothesis 15: *Consumers' perception of convenience has a positive impact on purchase intention of organic food products*

Hypothesis 16: *The relation between convenience and purchase intention is mediated by the consumers' attitude toward organic food products.*

2.7 ATTITUDE-BEHAVIOUR GAP

As mentioned in section 2.1, a positive attitude does not always lead to positive intention to purchase; situational factor or factors which are not in control of an individual can influence the purchase intention. The situational factors can be defined as **"all those factors particular to a time and place of observation which do not follow from knowledge of personal and stimulus attributes and which have a demonstrable and systematic effect on current behaviour"** (Belk, 1975).

A study carried out by Carrington et al. (2010) to understand the relationship between ethical purchase intention and actual purchase, found that due to the rising social and environmental issues a new type of consumers have emerged who are 'ethical consumers' and the companies try to change their products to appeal to this segment, however, when companies make products which are ethically right there are not many takers for it which lead to the conclusion that there exist gap between the ethical minded consumers 'saying' and 'doing'. Auger and Devinney (2007), and Carrigan

and Attalla (2001) stated that individuals are not so ethical as they try to project, and the researchers try to over exaggerate the ethical mind of consumers.

Vermeir and Verbeke (2008) conducted a study among young adults in Belgium to understand their attitude towards consumption of sustainable products and found that in order to stimulate a sustainable consumption among young adults, a positive attitude towards it is a good starting point, but it does not always lead to the desirable behavioural intention. They stated that this gap existed due to the social influences and perceived behavioural control. This discrepancy in positive attitude towards organic food products and their actual buying is also mentioned by various researches (e.g., Padel & Foster, 2005; Zanoli, 2004; Henryks & Pearson, 2014; Aschemann-Witzel & Niebuhr Aagaard, 2014).

Converting or switching individuals who are currently consuming conventional food products is a difficult task. These switching barriers are of two types: monetary and non-monetary cost. Consumers have to make sacrifices with regard to both monetary cost such as money and non-monetary costs such as time, energy and effort to procure a product or service (Zeithaml, 1988). Researchers have found that consumers give more importance to non-monetary cost than monetary cost (Carothers & Adams, 1991; Wang, Lo, Chi, & Yang, 2004); so understanding these two concepts is essential. In sections 2.8 to 2.10, the factors which can influence or modify the relationship between attitude and purchase intention are discussed in detail.

2.8 CONCEPT OF PERCEIVED PRICE

Price has been studied in various contexts, including price and quality relationship (Zeithaml, 1988), price and decision making (Lockie, Lyons, Lawrence, & Grice, 2004), contextual influence (Khan, Powell, & Wada, 2012), reference pricing (Mazumdar, Raj, & Sinha, 2005), willingness to pay (Wier et al., 2008), price image (Hamilton & Chernev, 2013), price knowledge and purchase decision (Rosa-Díaz, 2004), price fairness (Oh, 2000; Lii & Sy, 2009) and price consciousness (Lee, 2016).

Price is an important factor while availing a service or buying a product (Vanhuele & Dreze, 2002). It is a monetary sacrifice which the individual has to incur for obtaining the product or service of their like (Zeithaml, 1988). According to Kotler and Armstrong (1996), price is defined as **"the amount of money charged for a product or service or the sum of values consumers exchange for the benefits of having or using the product or service"**. Price is differentiated as objective price and subjective price. The actual price of product/service is considered as objective price and the price evaluated and encoded by the consumer is considered as subjective price (Jacoby & Olson, 1977). However, the price of the product does not confine to project the face value of the product to the customer, it also acts as a signalling cue for the quality of the product and also helps to create and differentiate one product from another (Zeithaml, 1988; Nagle & Holden, 1995).

Even though price has been treated as an indicator of quality by many consumers, researches have found that it is a misguided correlation (Lichtenstein & Burton, 1989) and in many instances, the relationship can also be negative (Gerstner, 1985). Boyle and Lathrop (2009) found that relationship between quality and price moderately exist among durable goods and there exhibited a negative relation between price and quality

among non-durable goods. Accordingly, consumers treat price as an indicator of quality when no other quality cues exist (Riesz, 1978), this correlation is not possible in a non-durable item such as organic food products.

Perceived price can be defined as "the consumer's perceptual representation or subjective perception of the objective price of the product" (Jacoby & Olson, 1977). Chiang and Jang (2007) defined perceived price as "consumers' relative evaluation of price". Thus, consumers' perceived price is the evaluation of the price of a specific product (Berkowitz & Walton, 1980). Stimulus-Organization-Response (S-O-R) model formulated by Jacoby and Olson (1997) can be extended in this regard. The actual price which the consumer encounter, correspond to the stimulus variable. The organisation variable represents the acquiring, encoding, storage, and retrieval of information regarding price. Finally, the response variable represents the overt consumer behaviour such as actual buying. Thus the price information which consumers gather becomes a reference price which they compare it with actual price to form a perception while making a purchase decision (Erickson & Johansson, 1985).

Various theories in economics, psychology and consumer behaviour such as adaptation level theory (Helson, 1964), the Weber-Fechner law (Monroe, 1971) and the loss aversion theory (Kahneman & Tversky, 1984) found that consumers have reasonable knowledge about the price of the product which they are going to buy and they compare the market price to an internal reference price while buying. However, this assumption may not be true all the time, as there are consumers who do not take conscious effort in remembering and comparing the prices while buying products (Vanhuele & Dreze, 2002; Mazumdar & Monroe, 1990). Dickson and Sawyer (1990) also found that consumers are not homogenous in retaining their attention to price

information and even their reaction to price information are heterogeneous in nature.

Studies have reported that even if the respondents state that they can recall the actual price of the products, most of the time, a large number of respondents reported inaccurate actual price (Vanhuele & Dreze, 2002; Rosa-Díaz, 2004). Thus, it is always the perceived price which consumers utilise while evaluating a product for buying as the objective price of the product become meaningful only when consumer interpret the subjective price (Oh, 2000).

Some researchers treated perceived prices as a uni-dimensional construct (Han & Ryu, 2009) while some others as multidimensional constructs (Lichtenstein & Burton, 1989). Perceived price treated as a uni-dimensional construct is found to have an influential effect on consumer behaviour. A study conducted in the hotel industry treated perceived price as a uni-dimensional construct and found that, price has an effect on the satisfaction of the consumers in a hotel check-in scenario (Voss, Parasuraman, & Grewal, 1998). Similarly, a study which tried to understand the satisfaction of consumers e-retailing shopping experience found a positive relation between price perception and satisfaction (Jiang & Rosenbloom, 2005).

For understanding the consumer price perception of private label brand, Burton, Lichtenstein and Netemeyer (1998) used three factors such as value consciousness, price consciousness, and price-quality association which constituted the price perception dimension. According to Lichtenstein and Burton (1989), the dimensions of perceived price are price-quality association, prestige sensitivity, value consciousness, price consciousness, coupon proneness, sale proneness and price mavenism. Out of these

dimensions first two are considered as positive roles of price and the rest are considered as negative roles of price.

2.8.1 Price in Food Sector

Alba and Williams (2013) reported that consumers do not care about the price while they are spending for pleasure whereas they would expect a utilitarian product to be worth the price they are spending. Price of the food products was found to be important among the low-income group and also among women (Steptoe et al., 1995).

Price is always an important factor for consumer's food choice. Lockie et al. (2004) reported that respondents normally consider the price tag to decide whether to buy organic food or not. Wier et al. (2008) found that heavy users of Britain and Denmark, on an average, are ready to pay a higher price for organic food products than the medium and light users.

The willingness to pay for organic food products among Irish consumers have increased from 5% to 30% over the period of study conducted by Davis et al. (1995) from 1987 to 1995. Hutchins and Greenhalgh (1997) found that nearly half of their respondents in the UK were willing to pay 10-20% premium for buying organic food products. A study conducted among German consumers found that 52% of the consumers were willing to pay more for OF&V, 39% for cereals and 34% for animal products (Meier-Ploeger & Woodward, 1999). Fotopoulos and Krystallis (2002) in a study among Greek consumers found that they are willing to pay a premium amount of 19 to 63% for food items such as wine, oranges, olive oil, raisins and bread.

2.8.2 Price as Moderator

A study conducted in USA among the young adolescents found that increasing the food price of fast food and reducing the food price of low fat food in the school cafeteria helped to reduce the intake of fast food (Khan et al., 2012) which clearly projects that higher price creates a greater cost for consumers, thereby reducing their willingness to buy products (Dodds, Monroe, & Grewal, 1991).

As the supply of organic products is limited, the price premium of organic food products is high; however studies have found that in order to keep the niche status of organic food products premium charged above conventional products should always be below 20-30% (Beharrell & MacFie, 1991; Coopers & Deloitte, 1992). Previous studies have found that price act as a barrier for consumers to buy OF&V due to its premium price (Jolly, 1991; Lockie et al., 2002). Thus, from the review of previous studies it is found that the higher price of OF&V can act as a barrier for consumers' intention to buy. However, as the perception of individuals can vary across geographic regions, it is imperative to understand the consumers' price perception in Kerala for which the following hypothesis is formulated:

Hypothesis 18: *The positive attitude of consumers in purchasing organic fruits & vegetables is moderated by perceived price, such that the relationship weakens (strengthens) with higher (lower) levels of perceived price.*

2.9 CONCEPT OF EFFORT

Concept of effort had been studied in various contexts such as individual effort and job performance (Christen, Iyer, & Soberman, 2006), effort and personality (Laban & Lawrence, 1974), effort and environmental behaviour (Schultz, Oskamp, & Mainieri, 1995) effort-reward imbalance

(Siegrist, 1996), effort and consumer decision making process (Hoyer & MacInnis, 2006) etc.

Rudolf Laban's theory of effort considered effort as a physical or mental exertion of power, where individuals have the capability of resisting or controlling negative habits which are innate or acquired and develop qualities even in adverse situations (Laban, 1988). Studies undertaken in physiology, where mental efforts of individuals are analysed during an arousal stage (anxiety, fear, anger etc.) and how they overcome it, have found that the mental effort which an individual takes varies from person to person and also varies as per the arousal stage (Kahneman, 1973)

In the organisational setting, numerous studies have been conducted to understand the concept of effort. In Vroom's 'Expectancy Theory', it was noted that an individual is motivated to an extent when he believes that the effort he put forth at work leads to acceptable performance (expectancy), which in turn leads to reward (instrumentality) (Vroom, 1964). As an extension to Vroom's theory, Siegrist (1996) postulated the effort-reward imbalance model, where he proposed that there exist an imbalance among over-committed individuals when their effort is not met with high reward. Christen et al. (2006) also found that effort of an individual has a positive effect on job performance and a positive indirect effect on job satisfaction. Effort is also treated as a predictor of sales performance (Brown & Peterson, 1994).

As per Engel-Blackwell-Miniard (EMB) Model (1995), decision rules can be simple or complex and at times consumers may trade-off between quality and time and effort to make necessary decisions. Most consumers will reach a satisfactory decision rather than an optimal decision which reduces time and effort. Even while choosing stores, consumers try to

reduce their effort either by reducing the travel time or time spent in the shops. It is noted that women take extra effort in comparing brands or searching for information than men. The extra effort expended by individual aims at maximising the value for the money which they have spent (Sinha, Banerjee, & Uniyal, 2002).

Efforts are of two types - physical and cognitive. Physical effort regulates the engaging of muscles (Shenhav et al., 2017) whereas in cognitive effort thinking is regulated (Fiske & Taylor, 1984). Consumers are ready to forgo some benefits to conserve their effort thereby leading them to take a satisfactory decision rather than optimal decision. Fiske and Taylor (1984) stated that consumers are "cognitive misers" where they see thinking as a costly activity and whenever a complex situation arises, they stick to easier strategies to implement or take decisions.

In case of environmental related behaviour such as recycling, Schultz et al. (1995) argued that a great amount of effort is required to carry out the recycling activity and individuals who are concerned about the environment only take that extra effort and time to sort the recycling materials separately. For adopting eco-labelled products, high effort and involvement is required for an individual to take the decision (Hoyer & MacInnis, 2006; Thøgersen, Haugaard, & Olesen, 2010). So in contrast to the general consumer behaviour, environmental related behaviour needs consumers' extra time and effort.

2.9.1 Effort in Buying Organic Food

Production of organic food is very limited, which in turn leads to limited access forcing consumers to take extra effort in buying organic food products. Generally, consumers' willingness to spare extra time and effort is very limited. Vindigni, Janssen, and Jager (2002) stated that adoption of an

innovative product such as organic food product need cognitive effort due to its complexity and uncertainty and only people who are motivated will do so. Vermeir and Verbeke (2006) stated that individuals who are highly involved in decision-making process would be motivated to invest in cognitive effort and people who are less motivated will be satisfied and will continue with habitual behaviour of buying food products.

The effort which an individual has to take while purchasing organic food products were of less importance in European countries such as Denmark, Sweden, Italy and Finland (Ruiz de Maya et al., 2011). Respondents from UK and Spain have reported that accessibility to products and effort which they have to take are important factors while buying organic products (Padel & Foster, 2005; Ruiz de Maya et al., 2011).

2.9.2 Effort as Moderator

The importance of effort in performing behaviour was put forward by Bagozzi, Yi, and Baumgartner (1990) as an extension to Azjen's (1987) notion of perceived control which he had incorporated in his 'Theory of Planned Behaviour'. Azjen suggested that, when behaviour is difficult to perform, people with strong attitude will perform it and when it is easier to perform, people with moderate or weak attitude along with strong attitude people will perform the behaviour. As an extension to this interpretation, Bagozzi et al. (1990) suggested that level of effort plays an important role in performing the behaviour. They defined effort as **"the degree of difficulty in executing the behaviour"** which can act as a hindrance for performing behaviour.

Due to the limited availability, access to OF&V needs extra effort. In order to perform an action with a behavioural barrier, the effort required will be high with a strong attitude. A strong attitude reflects a person's

willingness to take an extra effort to perform the behaviour, for instance, purchasing OF&V. However, when the amount of effort required is low to perform behaviour, weak attitude is sufficient enough for action. From this background the following hypothesis is formulated:

Hypothesis 19*: The positive attitude of consumers in purchasing organic fruits & vegetables is moderated by individual effort, such that the relationship strengthens (weakens) with higher (lower) levels of readiness to take effort.*

2.10 CONCEPT OF SOCIAL PRESSURE

The importance of social influence on an individual is immense and this influence has been studied by researchers in various fields such as technological adoption (Teo, 2009; Kim, Kim, & Shin, 2009), ecological behaviour (Kaiser, Wolfing, & Fuhere, 1999; Barr, 2007), cosmetics buying (Hillhouse, Turrisi, & Kastner, 2000), food adoption (Chen, 2007; Tarkiainen & Sundqvist, 2005) etc. Terms such as subjective norm (Ajzen, 1991), social pressure (Penman & McNeill, 2008), social influence (White, Smith, Terry, Greenslade, & McKimmie, 2009), social norm (Cialdini, Reno, & Kallgren, 1990; Bamberg & Möser, 2007) etc. were used by the researchers interchangeably.

Fishbein and Ajzen (1975) conceptualised subjective norm through their theories such as Theory of Reasoned Action (TRA) and also later in the adapted Theory of Planned Behaviour (TPB). Various researchers have found a significant effect of subjective norm in their studies (Tarkiainen & Sundqvist, 2005; Teng & Wang, 2015). However, the concept of subjective norm has been treated with mixed importance.

Fishbein and Ajzen (1975) argued that subjective norms have greater impact on attitude and intention of an individual's behaviour, while there are

other researchers who suggest that subjective norm exerts only limited influence (White et al., 2009); some researchers have even neglected it (Magnusson et al., 2001; Sparks, Shepherd, Wieringa, & Zimmermanns, 1995), or found it insignificant (Lobb, Mazzocchi, & Traill, 2007).

Confusion regarding the importance of subjective norm prevails either because it does not have any effect on behaviour or due to the fault in its conceptualisation (White et al., 2009). Cialdini et al. (1990) stated that norms are of two types: injunctive and descriptive, and they need to be treated differently as their source of motivation is also different.

Injunctive norm refers to the perception which the significant others expect an individual should do or not do with respect to performing a behaviour. This same concept had been conceptualised in the Azjen's (1991) subjective norm which is defined as **"the perceived social pressure to perform or not to perform the behaviour"**. With a lot of criticism from the academic community especially the study of Cialdini et al. (1990), Fishbein and Ajzen incorporated the descriptive norm into their model. Fishbein and Ajzen (2010) claimed that the term subjective norm is limited to the person's perception of what the significant others expect of them to perform or not perform a specific behaviour, therefore in order to incorporate the descriptive norm into the model they suggested the term 'perceived social support'. For instance, the expectation of our significant others to recycle the waste separately can influence our behaviour, but if the significant others are not practising what they are preaching, motivation which we gathered can be hampered. Similarly in the case of organic food products, if our friends, family or peer group suggest us to buy organic food products and if they themselves don't buy it, the influence of social pressure can be limited. Thus, if everyone else is buying organic food products, it will be an acceptable norm and an individual will be motivated to perform the acceptable norm.

Thus descriptive norm refers to "the perceptions that others are or are not performing the behaviour in question" (Cialdini et al., 1990).

Mackie et al. (2015) after scrutinising 16 definitions on social norms from 1965, defined social norm or social support as "one's beliefs about what others do, and one's beliefs about what others think one should do". Even though Cialdini et al. (1990) had recommended to measure the descriptive and injunctive norm separately, Fishbein and Ajzen (2010) strongly suggested that these two constructs can coexist and they can even be highly correlated, citing an example that parents who smoke, often tell their children not to smoke, which clearly exhibit the congruence and contradiction of these constructs. Therefore, this study intends to capture the descriptive and injunctive norms using the following two statements:

i. *Most people whose opinions I value think I should consume organic food (injunctive norm).*
ii. *Most people who are important to me consume organic food (descriptive norm).*

2.10.1 Effect of Social Pressure in Buying Organic Products

The importance of social pressure in influencing consumer intention has often been neglected (for example, a study on *Attitude towards organic foods among Swedish consumers* by Magnusson et al., 2001), and it has been criticised by researchers (Tarkiainen & Sundqvist, 2005; Zagata, 2012). Various researchers have approached social pressure differently, some focused on injunctive norms (Lobb, Mazzocchi, & Traill, 2007; Chen, 2007; Tarkiainen & Sundqvist, 2005), whereas others on descriptive norms (Vieira, 2013). However, there are others who treated social pressure as a single construct which is a combination of injunctive and descriptive norms (Rivis & Sheeran, 2003; Verhoef et al., 2009; Arvola et al., 2008).

A study conducted by Armitage and Conner (2001) found that the effect of attitude on intention is twice as large compared to the effect of subjective norm (social pressure) on intention; however, a study conducted by Ruiz de Maya et al. (2011) in various European countries in Denmark, Finland, Germany, Greece, Italy, Spain, Sweden and UK regarding organic food consumption pattern found that respondents rely on cultural approval (subjective norm) than their own assessment (attitude) for buying organic food products. Denmark and Sweden reported high on subjective norm influence, whereas in Spain, an individual's own assessment is prefered for buying organic food products.

Many studies have found a significant effect of social pressure on buying organic food products [Chen, 2007 (Taiwan); Arvola, et al., 2008 (Europe); Dean, Raats, & Shepherd, 2008 (UK); Vieira, 2013 (Brazil)], while there are others who found it insignificant [Zhou et al., 2013 (China); Lobb et al., 2007 (UK)].

2.10.2 Social Pressure as Moderator

As discussed in Section 2.10, there exists a confusion regarding the weak relationship of social pressure on intention. This disparity exists mainly due to its faulty conceptualisation as the way in which the influence of a pressure given by the significant others on an individual can vary from person to person, and social norm is an inherent characteristic of a person (Vermeir & Verbeke, 2006). The gap between attitude and behaviour has been widely studied in various areas of consumer behaviour. Rajecki (1982) assigns four reasons namely *direct versus indirect experience; normative influence or social norm; temporal discrepancy; and attitude-behaviour measurement discrepancy* for the gap between pro-environmental attitude and behaviour. Thus social norm which is acceptable in a society can have a

great influence on shaping the attitude of individuals' lifestyle and attitude, and a culture which does not restrict unsustainable lifestyle will inhibit pro-environmental behaviour.

Povey, Sparks, James, and Shepherd (2000) stated that attitude of an individual would be more predictive when the significant others presume that others should perform the behaviour or not, and out of the injunctive norm, social support and descriptive norm, the study found that the injunctive norm has a dominant effect on healthy diet of an individual than other two constructs. However, while analysing the moderation effect, neither the injunctive norm or descriptive norm had an impact on healthy eating intention, rather the perceived social support which an individual receives from their significant others had the impact on intention to eat healthy.

Wana, Shen, and Choi (2018) found that higher influence of significant others can motivate individuals to use urban green space such as public parks, playgrounds and gardens more efficiently in Hong Kong than low influence. A study conducted by Al-Swidi, Huque, Hafeez, and Shariff (2014) in Pakistan found that higher influence of significant others can enhance the consumers' intention to buy organic food products as compared to low social pressure. Thus, it can be assumed that social pressure can influence individuals to buy OF&V, which is stated as a hypothesis below:

Hypothesis 20: *The positive attitude of consumers in purchasing organic fruits and vegetables is moderated by social pressure such that the relationship strengthens (weakens) with higher (lower) levels of social pressure.*

2.11 EFFECT OF DEMOGRAPHIC PROFILE

The demographic profile of the respondents including age, gender, marital status, education qualification, children at home, annual income and region were captured using the questionnaire. Previous researchers have found that, **gender** (Davis et al., 1995; Lockie et al., 2002; Lea & Worsley, 2005; Briz & Ward, 2009; Gil et al., 2000; Tsakiridou et al., 2008; Laroche, Bergeron, & Barbaro-Forleo, 2001), **age** (Briz & Ward, 2009; Gil et al., 2000; Lockie et al., 2002; Tsakiridou et al., 2008), **marital status** (Angulo, Gil, & Tamburo, 2003; Liu et al., 2013; Laroche et al., 2001; Chen, 2011), **education qualification** (Briz & Ward, 2009; Gil et al., 2000; Lockie et al., 2002; Tsakiridou et al., 2008; Fotopoulos & Krystallis, 2002), **children at home** (Lee, 2016; McEachern & Willock, 2004; Chen, 2011), **annual income** (Briz & Ward, 2009; Gil et al., 2000; Lockie et al., 2002; Tsakiridou et al., 2008) and **region** (Gil et al., 2000; Torjusen, Sangstad, O'Doherty Jensen, & Kjaernes, 2004) can have influence on consumers' intention to purchase organic food products. Therefore they are treated as **control variables** as the influences of these factors cannot be overlooked in the current study.

The detailed review of demographic profile, consumption pattern and the consumer awareness level is assessed in Chapter 4.

2.12 Research Gaps

After reviewing various studies related to the topic under consideration, the following gaps were identified which deserve the attention of researchers:

- Researches on organic food in western countries have given great importance to factors such as health consciousness, environmental concern and perceived quality, and less prominence to trust and fear. As organic food products fall in the category of credence goods - the

quality of which cannot be evaluated even after purchase, studying the role of trust and fear in buying them is very essential along with other internal (health consciousness, environmental concern, perceived quality) and external (price, social pressure, effort) factors.

- There exist gaps in addressing the concerns of different groups of consumers who are interested in organic food products.
- Nandi et al. (2016) also have stated that a good number of organic consumer researches were conducted in developed countries and observed that a considerable gap exists in the context of developing countries. Therefore this calls for an inclusive study covering all factors which contribute to the consumers' purchase intention of organic food items especially in Kerala, where the HDI, i.e. Human Development Index (.712) is very close to the developed countries.
- An inclusive study covering all factors that can contribute to the consumers' purchase intention of organic food items is not yet undertaken especially in Kerala.

2.13 CONCEPTUAL MODEL OF ORGANIC FRUITS AND VEGETABLES BUYING

The conceptual model of the study is shown in Figure 2.1. As explained in the above sections, the current study has eight independent variables namely fear, trust, health consciousness, environmental concern, hedonic quality, nutritional quality, production process and convenience. Attitude toward OF&V is the mediating variable, and purchase intention is the dependent variable.

Theory of Reasoned Action (TRA) formulated by Ajzen in 1980 failed to incorporate the importance of external influence and has been

criticized by various researchers (Belk,1975; Hines et al., 1986/87; Stern et al., 1995; Vermeir & Verbeke, 2006). They stated that behaviour is the function of both internal and external factors and positive attitude does not always lead to positive buying intention (Section 2.1). Ajzen (1991) proposed the *Theory of Planned Behaviour (TPB*) incorporating the influence of external factors, and in tune with this the influence of external factors such as social pressure, perceived price and effort are taken into consideration in this study.

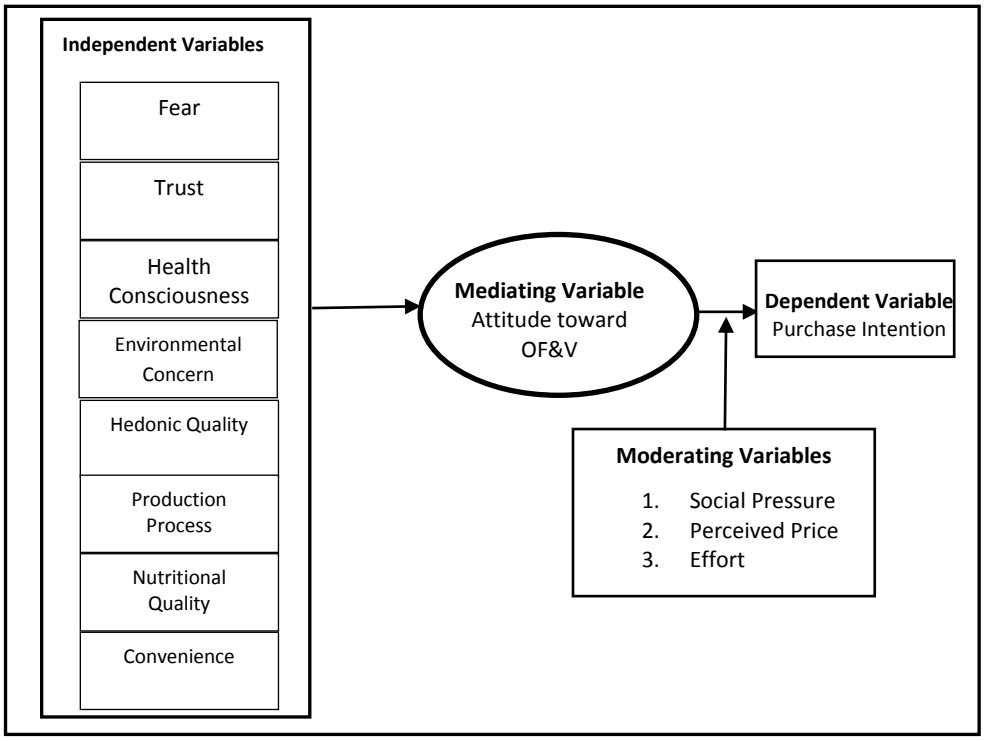


Figure 2.1 Conceptual Model of Organic Fruits and Vegetables Buying

2.13.1 Summary of Various Constructs and Theories Used for the Model

Various constructs (independent, mediating and dependent variables) and related theories linking these are summarized in this section.

Fear & Protection Motivation Theory: Fear is a "negatively valenced emotion that is usually accompanied by heightened physiological arousal" (Section 2.2). Here, fear towards conventional food product is under consideration and according to the **protection motivation theory**, fear arouses a cognitive process thereby inducing a change in the behaviour of an individual. Thus, if an individual is fearful towards conventional food products produced using chemical fertilisers and pesticides, his/her attitude towards OF&V can be assumed to be positive (see section 2.2.2).

Trust & Expectancy value model: Trust is the belief which an individual has towards the third party such as sellers, producers and certifying agencies. The **expectancy-value model** states that attitude is developed by the belief which an individual has towards the object under consideration. Therefore, if an individual has the belief in OF&V, his/her attitude towards OF&V will also be positive (refer section 2.3.3).

Health consciousness & Health belief model: Health consciousness talks about the individual's readiness to take healthy measures. **Health belief model** states that, when an individual finds a situation threatening to his/her well-being, he/she will try to perform a behaviour to overcome that threatful situation. Hence, if an individual is ready to take measures to make him/her healthier, attitude towards OF&V will be positive as illustrated in section 2.4.1.2.

Environmental concern & Value-Belief-Norm (VBN) model: Environmental concern talks about the worry which an individual has towards the environmental problems and the measures which he/she is ready to undertake. Various researchers have used value-belief-norm (VBN) model to explain the pro-environmental behaviour of an individual. This model is an extension of Schwartz, Norm Activation Model (NAM) proposed in 1960.

VBN model has two parts: 1) awareness about the consequence, and 2) responsibility. It is believed that if an individual is aware of the consequence of his/her action, attitude towards OF&V will be positive (refer section 2.5.1).

Perceived quality & Attitude Towards Object (ATO) model: The dimensions of perceived quality is linked using Attitude towards Object (ATO) model which states that consumers formulate an attitude towards a product based on the presence or absence of attributes and the importance which they provide to each of these attributes. So, hedonic quality, nutritional quality, production process and convenience while buying OF&V will be important for the consumers (for details see section 2.6.3).

Even though there is a link between various motivational and situational factors in influencing the purchase intention of organic food products, constructs such as fear and trust are not given much emphasis, though some studies are there, mostly in the west. Understanding the influence of cultural factors in the Indian context also will serve good for this study. The moderating role of social pressure, perceived price and effort emphasized in various studies are incorporated into a holistic model including all the constructs mentioned in the above sections which are not studied previously, will provide a deeper understanding of purchase intention of OF&V in Kerala.

Chapter 3

RESEARCH METHODOLOGY

This chapter outlines the research design, proposed hypotheses, theoretical and operational definitions of the constructs, pilot study, sampling design, reliability and validity of the scales used, validation of the questionnaire, data sources, and data collection etc.

3.1 RESEARCH DESIGN

The study is descriptive and explanatory as it describes and portrays the relationships among the concepts. The study is descriptive in nature as it tries to explore and explain information regarding the concepts such as fear, trust, health consciousness, environmental concern, perceived quality, various situational factors and consumers' purchase intention. The study is also explanatory in nature as it tries to explain both the direct and indirect effects of independent and mediating variables on consumers' purchase intention. Further, it examines the role of situational factors in influencing the attitude of consumers while intending to purchase OF&V.

3.2 HYPOTHESES

The following hypotheses were formulatedon the basis of the conceptual framework and the expected relationships among variables identified significant for the objectives of the study:

Hypothesis 1: *Consumers' fear towards conventional food items which are not in conformity with the basic standards of organic production has a positive impact on purchase intention of organic fruits & vegetables.*

Hypothesis 2: *The relation between consumers' fear and purchase intention is mediated by attitude toward organic fruits & vegetables.*

Hypothesis 3: *Consumers' trust toward organic institutional bodies and market agents has a positive impact on purchase intention*

Hypothesis 4: *The relation between trust and purchase intention is mediated by the consumers' attitude toward organic fruits & vegetables.*

Hypothesis 5: *Health consciousness has a positive impact on consumers' purchase intention of organic fruits & vegetables.*

Hypothesis 6: *The relation between health consciousness and purchase intention of consumers is mediated by their attitude toward organic fruits & vegetables.*

Hypothesis 7: *Environmental concern has a positive impact on consumers' purchase intention of organic fruits & vegetables.*

Hypothesis 8: *The relation between environmental concern and purchase intention of consumers is mediated by their attitude toward organic fruits & vegetables.*

Hypothesis 9: *Consumers' perception of hedonic quality has a positive impact on purchase intention of organic fruits & vegetables.*

Hypothesis10: *The relation between hedonic quality and purchase intention is mediated by the consumers' attitude toward organic fruits & vegetables.*

Hypothesis 11: *Perception of nutritional quality has a positive impact on consumers' purchase intention of organic fruits & vegetables.*

Hypothesis 12: *The relation between nutritional quality and purchase intention is mediated by the consumers' attitude toward organic fruits & vegetables.*

Hypothesis 13: *Consumers' perception of production process has a positive impact on purchase intention of organic fruits & vegetables.*

Hypothesis 14: *The relation between production process and purchase intention is mediated by the consumers' attitude toward organic fruits & vegetables.*

Hypothesis 15: *Consumers' perception of convenience has a positive impact on purchase intention of organic fruits & vegetables.*

Hypothesis 16: *The relation between convenience and purchase intention is mediated by the consumers' attitude toward organic fruits & vegetables.*

Hypothesis 17: *The positive attitude of consumers toward organic fruits & vegetables has a positive impact on purchase intention.*

Hypothesis 18: *The positive attitude of consumers in purchasing organic fruits & vegetables is moderated by perceived price such that the relationship weakens (strengthens) with higher (lower) levels of perceived price.*

Hypothesis 19: *The positive attitude of consumers in purchasing organic fruits & vegetables is moderated by individual effort such*

that the relationship strengthens (weakens) with higher (lower) levels of readiness to take effort.

Hypothesis 20: *The positive attitude of consumers in purchasing organic fruits & vegetables is moderated by social pressure such that the relationship strengthens (weakens) with higher (lower) levels of social pressure.*

3.3 DEFINITIONS OF VARIABLES

3.3.1 Fear

Theoretical definition: Fear is defined as "negatively valenced emotion that is usually accompanied by heightened physiological arousal" (Gore et al., 1998). It can also be defined as "an emotional response to a threat that expresses, or at least implies, some sort of danger" (Tanner et al., 1991).

Operational definition: Fear has been operationalised as *"the negative emotion which an individual has towards buying conventional food products"*. The negative emotion can be both avoiding conventional food products and searching for alternative food products which are safe for consumption.

3.3.2 Trust

Theoretical definition: Trust can be defined as "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" (Mayer et al., 1995). It can also be defined as "a belief that no partner to the exchange will exploit the other's vulnerability" (Dwyer & Oh, 1987).

Operational definition: Trust has been operationalised as *"belief which an individual has on the claims made by the certifying agencies, sellers, labels and logos, that the organic fruits and vegetables are genuine".*

3.3.3 Health Consciousness

Theoretical definition: Health consciousness can be defined as "an individual's readiness to undertake healthy actions" (Becker et al., 1977).

Operational definition: Health consciousness is operationalised as *"an individual's alertness and concern about health and readiness to undertake healthy actions".*

3.3.4 Environmental Concern

Theoretical definition: Environmental Concern is defined as "the affect (i.e., worry) associated with beliefs about environmental problems" (Schultz et al., 2004). It can also be defined as "the degree to which people are aware of problems regarding the environment and support efforts to solve them and/or indicate a willingness to contribute personally to their solution" (Dunlap & Michelson, 2002)

Operational definition: Environmental concern can be operationalised as *"the worry which an individual has about the environmental problems and the supportive effort and/or indication of willingness to take effort personally for its solution".*

3.3.5 Perceived Quality

Theoretical definition: Perceived quality is defined as "the customer's perception of the overall quality or superiority of a product or service with respect to its intended purpose, relative to alternatives" (Aaker, 1991). The International Organisation of Standardization (ISO 8402) has also defined

quality as "the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs".

Operational definition: Perceived quality construct is arrived at in terms of four dimensions namely hedonic, nutritional, production process and convenience as per various authors (Grunert, Hartvig Larsen, Madsen, & Baadsgaard, 1996; Caswell, 2000). Perceived quality has been operationalized as "*the subjective perceived evaluation of quality of food items by the consumers in terms of hedonic quality, nutritional quality, production process and convenience*".

3.3.5.1 Hedonic Quality

Theoretical definition: Hedonic quality is the sensory pleasure offered, mainly linked to taste, smell, and appearance (Grunert et al., 2000).

Operational definition: Hedonic quality has been operationalised as *"the subjectively perceived evaluation of product attributes which the consumers found important while purchasing or after purchasing"*. Attributes such as appearance, smell and taste of products are perceived to attribute to the hedonic quality.

3.3.5.2 Nutritional Quality

Theoretical definition: Nutritional quality is defined as "the value of the product for the consumer's physical health, growth, development, reproduction and psychological or emotional well-being" (Köpke, 2005)

Operational definition: Nutritional quality has been operationalised as *"the subjective perceived evaluation of all the ingredients, which consumers find important while purchasing organic fruits and vegetables"*. The nutritional quality is captured through the consumers' evaluation of the importance of

ingredients such as vitamins, minerals, fibre and roughage, and its benefit on their skin/teeth/hair/nails etc.

3.3.5.3 Production Process

Theoretical definition: Process-related quality refers to "the characteristics of the production process which consumers have taken an interest in" (Grunert et al., 2000).

Operational definition: Process-related quality has been operationalised as *"the subjective perceived evaluation of production process which consumers presume would have been undertaken by the producers to ensure quality"*. As its evaluation is seldom possible before or after purchase, consumers' perception of production process, free from genetic modification, addictives, artificial flavouring and pesticides are to be evaluated to capture process related quality.

3.3.5.4 Convenience

Theoretical definition: Convenience refers to "the value placed on, and the active search for, products and services that provide personal comfort and/or save time in performing various activities" (Brown,1989).

Operational definition: Convenience is taken as *"the subjective perceived evaluation of importance which consumers presume for accessibility and availability of OF&V while intending to buy".* Convenient related quality is captured by assessing whether the product is available close to where consumers live or work, whether it is easily available in shops and supermarkets and whether a wide variety of OF&V is available in shops where they visit.

3.3.6 Perceived Price

Theoretical definition: Perceived price can be defined as "the consumer's perceptual representation or subjective perception of the objective price of the product" (Jacoby & Olson, 1977).

Operational definition: Perceived price has been operationalised as *"consumers' subjective evaluation of price of OF&V which can influence the purchase intention".*

3.3.7 Effort

Theoretical definition: According to Bagozzi et al. (1990), the effort is defined as "the degree of difficulty in executing the behaviour."

Operational definition: Effort has been operationalised as *"the extent of non-monetary costs which the consumers are willing to sacrifice in order to acquire the OF&V".*

3.3.8 Social Pressure

Theoretical definition: Social pressure has been defined as "one's beliefs about what others do and one's beliefs about what others think one should do" (Mackie et al., 2015).

Operational definition: Social pressure has been operationalised as *"the perception which the significant others expect an individual to perform or not to perform a behaviour along with an individual's perception that others are performing or not performing the behaviour in question".*

3.3.9 Attitude

Theoretical definition: Attitude is "a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour" (Eagly & Chaiken, 1998).

Operational definition: Attitude in buying intention of OF&V is considered as *"degree of favourable or unfavourable evaluation which an individual undertake regarding the purchase of OF&V".*

3.3.10 Purchase Intention

Theoretical definition: Purchase Intention has been defined as the "agent's subjective probability that he or she will perform the behaviour" (Ajzen, 1991).

Operational definition: Purchase intention has been operationalised as *"the probability of buying OF&V currently or in future".*

3.4 CLASSIFICATION OF BUYERS

Previous researchers have classified respondents based on various criteria. Some have classified based on the frequency of buying (Padel & Foster, 2005) while others have classified it based on the budget which individuals spend on buying organic food products. Various terms are also used to identify the classified group. Fotopoulos and Krystallis (2002) have classified the respondents into 'unaware', 'aware non-buyers', 'aware buyers'. Midmore et al. (2005) classified respondents into 'heavy users', 'medium users', 'light users' and 'non- users' based on the organic budget share. Those respondents who have an organic budget share higher than 10% is considered as 'heavy users', share between 2.5% to 10% is considered as 'medium users', those below 2.5% is considered as 'light users' and finally those who do not purchase organic food products were considered as 'non-users'.

Pino et al. (2012) classified 'regular' and 'occasional' buyers based on the following criteria: respondents who claim that they purchase organic food products more than 10 times per year are considered as regular buyers and those who indicated that they purchase less than 10 times a year is

considered as occasional buyers. Vieira (2013) considered respondents who buy every week as regular buyers. The same classification is reported by Paasovaara and Luomala (2009) for distinguishing the occasional buyers and those respondents who buy 'at least once in a week'.

A report provided by Bord Bia gave the following classification for regular, occasional and non-buyers of organic food: regular buyers are those who purchased organic food in the last one month, occasional buyers are those who had purchased organic food in the last 3 to 6 months, and non-buyers are those who have not purchased organic food in the last six months (Bourke, 2008).

Furthermore, there are others who classified 'regular buyers' as those who purchase organic food products atleast once in a week, 'occasional buyers' as those who make atleast two purchases a month and 'non-buyers' as those who have not bought organic food products (Midmore et al., 2005).

3.4.1 Operational Definition of Buyers

Classification of consumers as regular, occasional (Midmore et al., 2005) and potential buyers are found to be appropriate for this study. With regard to purchase of OF&V, regular buyers are taken as those who buy once in a week, occasional buyers as those who buy once or twice in a month, and potential buyers as those who have not bought in the last one month (Table 3.1).

Table 3.1 Operational Definition of Buyers

Buyers	Operational Definition
Regular Buyers	Those who buy OF&V once in a week
Occasional Buyers	Those who buy OF&V once or twice in a month
Potential Buyers	Those who have not bought OF&V in the last one month

3.5 PILOT STUDY

A survey among experts of marketing professionals, NGO executives of Thanal, IFOMA etc., who are involved in promoting organic food products, was conducted to verify the significance of factors which were identified from previous studies. A questionnaire was discussed with them to see whether the identified constructs were able to elicit all the responses relevant to purchase intention of OF&V, thus ensuring the validity of the study.

The pilot questionnaire was administrated on 150 respondents in Ernakulam district to assess the validity and reliability of the questionnaire. All the constructs were presented to the respondents in a manner that could be understood easily. Thus after the evaluation, questions were simplified and adopted the questions/statements in the current social context, for e.g., 'I take shopkeepers' suggestions into consideration when I purchase OF&V' were also included under social pressure constructs, as suggestions provided by the shopkeeper also influence consumer buying.

The reliability of the scale was also checked and found to be acceptable as Cronbach alpha (α) values exceeded 0.7 (Cronbach, 1951).

3.5.1 Validity Analysis of Measures

Validity depicts the instrument's capability in measuring what it is intended to measure. There are different types of validity. Initially, content validity and face validity of the instrument was checked. Content and face validity examine whether the scale is able to measure what it intended to measure or whether the concepts under consideration are in tune with the existing theory (Zeller & Carmines, 1980). A thorough review of literature along with pilot study was undertaken to ensure the content and face validity of the study.

Exploratory Factor Analysis (EFA), details of which are given in Section 4.2, was carried out during the pilot study with data collected from 150 respondents to check the uni-dimensionality of the scale and the items with loadings above 0.04 are retained.

3.6 SCOPE OF THE STUDY

This section provides details about the time, place, and sources from which necessary information have been collected for the study.

3.6.1 Time Dimension

The study is cross-sectional in nature in collecting information about trust, fear, health consciousness, environmental concern, perceived quality, situational factors, attitude towards organic food, and purchase intention. Samples were asked to report their level of agreeableness to each of the concepts and the data was collected during March 2017- October 2017.

3.6.2 Place

The study is limited to the State of Kerala. Organic shops available in Kerala are very limited. North and south parts of Kerala (Kozhikode and Thiruvananthapuram districts) have a few shops and in central Kerala (Kochi, Thrissur and Kottayam), Kochi has got more outlets than other places. So Kozhikode, Kochi and Thiruvananthapuram were chosen to represent North, Central and Southern parts of Kerala.

3.6.3 Data Source and Data Collection

Secondary data, where ever significant, was collected from published sources. Survey research using a structured questionnaire was used to collect primary data from the respondents.

3.7 POPULATION

The population here refers to individuals who are interested in buying organic food products; there are a variety of organic food products available in the market and it was essential to focus on a particular category of organic food products.

Therefore, in the pilot study respondents were asked to rank the 'type of organic food products they often buy/will buy'. Options provided were 'fruits and vegetables', 'cereals', 'snacks', 'poultry' and 'spices'. Based on these options, respondents ranked their preference for buying. Using Garrett's ranking technique; the most preferred item is selected. In this process, scores provided by the respondents will be converted into percent position (Table 3.2) using a formula:

$$\text{Percent position} = \frac{100\ (\text{Rij}-0.5)}{\text{Nj}}$$

Where Rij = Rank given for the ith variable by jth respondents

Nj = Number of variables ranked by jth respondents

Table 3.2 Percentage Position and Garretts's Score*

Rank	100(Rij-0.5) Nj	Percentage Position	Garrett's Score
1	100(1-0.05)/5	19	67
2	100(2-0.05)/5	39	55
3	100(3-0.05)/5	59	45
4	100(4-0.05)/5	79	34
5	100(5-0.05)/5	99	1

Note: Rij = 1st, 2nd, 3rd, 4th, 5th; Nj= number of ranks = 5;
* Refer the table given as Annexure II

Garrett's score will be found using Garrette's table (Refer Annexure II) for the corresponding percentage position. The Garrette's score will be multiplied with the number of respondents for each ranking (Table 3.3).

Hence, 479 (first choices of fruits and vegetables) will be multiplied by Garrette's score 67. Further, fruits and vegetables were considered as the second choice by 74 respondents, so it will be multiplied by Garrett's score 55, and it will continue for the rest of the 3rd, 4th and least preferred position. Thus the total score of fruits and vegetables is found to be 39443. This process will continue for other categories (cereals, snacks, poultry and spices) and finally, the average scores will be calculated by dividing the total scores with the total number of respondents (n=632).

Table 3.3 Ranking and Frequency of Respondents

	1st	2nd	3rd	4th	LP*
F&V[a]	479	74	69	5	5
Cereals	104	281	71	97	79
Snacks	20	39	55	48	470
Poultry	13	67	72	451	29
Spices	29	41	59	41	462

*LP= Least preferred

Table 3.4 Garrett's Scores Ranking for Food Items

Food Items	1st rank Freq* x 67	2nd rank Freq x 55	3rd rank Freqx45	4th rank Freq x 34	LP Freq x 1	Total	Avg. Score	Rank
F&V[a]	32093	4070	3105	170	5	39443	62.40	1
Cereal	6968	15455	3195	3298	79	28995	45.87	2
Snacks	1340	2145	2475	1632	470	8062	12.75	5
Poultr	871	3685	3240	15334	29	23159	36.64	3
Spices	1943	2255	2655	1394	462	8709	13.78	4

*479 x 67= 32093; 104 x 67= 6968 and so on; a = fruits and vegetables; LP=Least Preferred

Fruits and vegetables being the most sought after category of food items, got the highest average score (Rank 1) through the process of Garrette's ranking method, and hence fruits and vegetables, specifically organic ones, was taken for the study (Table 3.4).

3.8 SAMPLING DESIGN

As a sampling frame of those who buy or intent to buy does not exist, it was decided to proceed with a non-probability sampling method.

3.8.1 Sampling Method and Sample Size

Judgment Sampling was used for the study. Consumers tend to overestimate their buying frequency, whereas their self-reported behavior are in consistent with their actual behavior (Niessen & Hamm, 2008). To identify the samples, individuals were asked about their purchase or purchase intention of OF&V. Individuals who consider themselves as regular, occasional and potential buyers (refer Table 3.1) were taken as samples.

As the causal relationships between the constructs are explained using Structural Equation Modeling (SEM), sample size required for SEM analysis is considered. As a rule of thumb, minimum sample size should comprise of 10 observations for each measurement variable (number of items) is used (Byrne, 2009; Hair et al., 2010). As the total items in the current study are 50, a minimum of 500 samples are required. Data were collected from 700 samples from three districts, and 632 valid ones were used for data analysis.

As there are three groups of buyers (**regular, occasional and potential),** a multi-group analysis is performed to understand the factors playing prominent roles in influencing the purchase intention of these groups, a minimum of 100 cases/ observations per group was ensured as per the recommendation of Kline (2005).

3.8.2 Sample Unit

A food buyer who is interested in OF&V and who has consumed it at least once is considered as the sample unit. Pino et al. (2012) stated that the

intentions of consumers already buying organic food products might vary. Therefore, in the current study customers with varying degrees of purchase frequency and intention: **regular, occasional or potential buyers** are taken into consideration.

3.9 TOOL FOR DATA COLLECTION

Data was collected using a structured questionnaire. A statement explaining purpose of the study and assurance of confidentiality of the data collected was given in the beginning.

3.9.1 Structure of the Questionnaire (Refer Appendix 1)

The questionnaire has two parts. The first part of the questionnaire was used to collect the individual's level of agreeableness towards the constructs. The next part dealt with the level of individuals' awareness about OF&V, their food purchasing habit, demographic information of the respondents like age, gender, marital status, educational qualification and annual income.

The number of items used to measure the constructs and the source/s for developing the scales of measurement are given in Table 3.5.

Table 3.5 Measurement Constructs

Constructs	No of Items* (50)	Source
Fear	6	Scarpa & Thiene, (2011)
Trust	3	Krystallis & Chryssohoidis (2005)
Health	6	Michaelidou & Hassan (2008)
Environmental	5	Gil , Gracia & Sánchez, (2000)
Hedonic Quality	4	Steptoe et al. (1995)
Nutritional Quality	4	Steptoe et al. (1995)
Production Process	3	Steptoe et al. (1995)
Convenience	3	Steptoe et al. (1995)
Perceived Price	3	Steptoe et al. (1995)
Effort	4	Dickieson & Arkus (2009); Lichtenstein et al.(1993).

Social Pressure	3	Fishbein & Ajzen (2010)
Attitude	3	Magnusson et al. (2001)
Purchase Intention	3	Ajzen (1991)

** Note: Refer Annexure I (Questionnaire) for the number of items*

i. Fear

Fear towards conventional food products is measured using a scale adapted from Scarpa and Thiene (2011) which consists of six items. The respondents marked their fear towards conventional food products in a seven point scale ranging from *"Strongly Disagree to Strongly Agree"*.

ii. Trust

Trust was measured using a scale with three items, adopted from Krystallis and Chryssohoidis (2005). The consumers were asked to report the amount of trust they felt towards the certifying agencies, sellers, and labels and logos on a seven-point scale ranging from *"Strongly Disagree to Strongly Agree"*.

iii. Health Consciousness

Health consciousness was measured using a scale consisting of six items adopted from Michaelidou and Hassan (2008). The readiness of consumers to take healthy action is captured through a seven-point scale ranging from *"Strongly Disagree to Strongly Agree"*.

iv. Environmental Concern

Environmental concern was measured using a scale consisting of five items adapted from Gil et al. (2000). The respondents were asked to report their degree of concern for the environment on a seven-point scale ranging from *"Strongly Disagree to Strongly Agree"*.

v. Hedonic Quality

The scale consisting of four items to evaluate hedonic quality was adapted from Steptoe et al. (1995). The importance of extrinsic product attributes such as appearance, smell, texture and taste were caught in a seven-point scale ranging from *"Not at all important to Extremely Important.*

vi. Nutritional Quality

The importance of nutritional quality assigned by the consumers was measured using a scale adapted from Steptoe et al. (1995), consisting of four items. The respondents were asked to state the level of importance on a seven-point scale ranging from *"Not at all important to Extremely Important",* they gave to the ingredients such as vitamins, minerals, fibre and roughage, and its benefit on their skin/teeth/hair/nails etc., in purchase of OF&V.

vii. Production Process

Production process is evaluated using the scale consisting of three items adapted from Steptoe et al. (1995). The respondents were asked to report the level of importance they gave to the production process such as, free from genetic modification, additives, artificial flavouring and pesticides in the purchase of organic products in a seven-point scale ranging from *"Not at all important to Extremely Important".*

viii. Convenience

Convenience in terms of availability and accessibility of OF&V was measured using three items adapted from Steptoe et al. (1995). The importance of convenience to the consumers was measured using a seven-point scale ranging from *"Not at all important to Extremely Important".*

ix. Perceived Price

The effect of perceived price on purchase was evaluated using the scale consisting of three items adapted from Steptoe et al. (1995). The respondents expressed the degree of influence price can exert on purchase intention, on a seven-point scale ranging from *"Strongly Disagree to Strongly Agree"*.

x. Effort

Consumers' willingness to take extra effort was evaluated using the scales consisting of four items adapted from Dickieson and Arkus (2009) and Lichtenstein et al. (1993). The respondents were asked to report their degree of willingness to take extra effort, expressed as various statements in the questionnaire in buying organic fruits and vegetables, in a seven-point scale ranging from *"Strongly Disagree to Strongly Agree"*.

xi. Social Pressure

Social pressure was measured using a three-item scale adopted from Fishbein and Ajzen (2010). The descriptive and injunctive norm of social pressure was expressed by the respondentsin terms of degree of willingness to take extra effort, in a seven-point scale ranging from *"Strongly Disagree to Strongly Agree"*.

xii. Attitude

The attitude of consumers was evaluated using an adapted scale (Ajzen, 1991) consisting of three items. The degree of positive or negative attitude was measured using a five-point semantic scale ranging from "very much good" to "very much bad", "very much important" to "very much unimportant", "very much wise" to "very much foolish" for the three items.

xiii. Purchase Intention

Intention to buy OF&V was captured by using an adapted scale by Ajzen (1991), consisting of three items: level of expectation, willingness, and intention to buy OF&V in future. A seven-point scale ranging from *"Strongly Disagree to Strongly Agree"* captured their agreeing or disagreeing to the item.

3.10 SUMMARY

This chapter outlined different aspects of methodology used in the study. It provided research hypotheses, theoretical and operational definitions of the constructs used in the study. Details of the data source, sampling method, scope and structure of the questionnaire are also dealt with in detail. The chapter ends with the methods of measurement of various factors, emerged important through the study of previous works, which contribute to the primary data of the study.

Chapter 4

ANALYSIS OF DATA AND FINDINGS

This chapter deals with validation and testing of the conceptual model using the final data. The chapter begins with sample profile, followed by Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) to validate the overall fit of the conceptual model. The structural model was evaluated along with hypotheses testing, to achieve the first two objectives of assessing the motivational and situational factors in the purchase of OF&V. Finally, multi-group analysis was conducted to identify the factors which differentiate the regular buyers from occasional and potential buyers on their intention to purchase OF&V.

4.1 PROFILE OF RESPONDENTS

Data were collected from 632 respondents who were interested in OF&V. Majority of the respondents (64.2%) falls within the age bracket of 26-40 years, out of which 56.5% are females. 461 (72.9%) of the respondents were married and 335 (53%) of them had children at home, and 211 (62.9% of the respondents with children at home) respondents have children in the age group of 1-10 years. 46.5% of the respondents have Bachelor's degree, and 32.6% respondents have Master's degree. Table 4.1 provides a detailed profile of the respondents.

Table 4.1 Demographic Profile of the Respondents

Variables	Regular (199)		Occasional (216)		Potential (217)		Total (632)	
	Frequency	Valid %	Frequency	Valid %	Frequency	Valid %	Frequency	Valid %
Age								
21-25	-	-	18	8.3	11	5.1	29	4.6
26-30	43	21.6	65	30.1	46	21.2	154	24.4
31-35	50	25.1	45	20.8	52	24.0	147	23.3
36-40	15	7.5	33	15.3	56	25.8	104	16.5
41-45	23	11.6	17	7.9	25	11.5	65	10.3
46-50	11	5.5	20	9.3	9	4.1	40	6.3
51-55	27	13.6	12	5.6	8	3.7	47	7.4
56-60	14	7.0	2	9	4	1.8	20	3.2
61-65	13	6.5	2	9	2	.9	17	2.7
66-70	3	1.5	2	9	4	1.8	9	1.4
Gender								
Male	93	46.7	105	48.6	77	35.5	275	43.5
Female	106	53.3	111	51.4	140	64.5	357	56.5
Marital Status								
Single	60	30.2	77	35.6	30	13.8	166	26.3
Married	139	69.8	135	62.5	187	86.2	461	72.9
Others	-	-	4	1.9	-	-	4	7
Educational Qualification								
SSLC	24	12.1	20	9.3	22	10.1	66	10.4
Higher Secondary	12	6.0	13	6.0	15	6.9	40	6.3
Bachelor's Degree	97	48.7	89	41.2	108	49.8	249	46.5
Diploma	7	3.5	4	1.9	7	3.2	18	2.8
Master's Degree	57	28.6	86	39.8	63	29.0	206	32.6
PhD	2	1.0	4	1.9	2	9	8	1.3
Children at Home								
Yes	116	58.3	114	52.5	105	48.6	335	53.0
No	83	41.7	103	47.5	111	51.4	297	47.0

Age of the Youngest Child at Home								
1-5	38	19.1	20	9.2	32	14.8	104	31.0
6-10	38	19.1	46	21.2	29	13.4	107	31.9
11-15	23	11.6	33	15.2	30	13.9	79	23.6
16-20	14	7.0	14	6.5	13	6.0	40	11.9
21-25	3	1.5	-	-	1	.5	4	1.2
26-30	-	-	-	-	1	.5	1	.3
Annual Income								
Less than 1 Lakh	69	34.7	60	27.8	74	34.1	203	32.1
1,00,000 - 2,00,000	31	15.6	42	19.4	50	23.0	123	19.5
2,00,000 - 3,00,000	33	16.6	30	13.9	31	14.3	94	14.9
3,00,000 - 4,00,000	29	14.6	24	11.1	22	10.1	75	11.9
4,00,000 - 5,00,000	10	5.0	22	10.2	17	7.8	49	7.8
Above 5,00,000	27	13.6	38	17.6	23	10.6	88	13.9
Region								
Ernakulam	95	47.7	80	37.0	45	20.7	220	34.8
Kozhikiode	42	21.1	71	32.8	98	45.2	211	33.4
Trivandrum	62	31.1	65	30.1	74	34.1	201	31.8

n=632

4.1.1 Frequency of Purchase

A detailed purchase pattern was profiled (Table 4.2) and it was found that, 422 (66.7%) respondents carried out 45-75% of household food shopping by themselves in general and 63% of the respondents did their main shopping once in a month followed by additional shopping once in a week (36.7%) or every 2-3 days (23.6%). Respondents generally preferred to buy food products from supermarket chains like Reliance and More, followed by small local grocery stores, local supermarkets (e.g., Varkey, Veekey mart, Pearl Mart etc.) and street market. Least preferred places were specialised organic shops and farm shops which might be due to the non-

accessibility and lack of visibility of these shops (For the preference, refer Annexure III).

While checking the organic consumption pattern, it was found that out of the 632 respondents, 408 (64.6%) respondents grow organic fruits/vegetables at home out of which 292 (46.3 %) respondents consumed 40% of OF&V from their home garden. However, out of the total sample, 464 (73.4%) respondents consumed 40% of organic food products after buying from shops, and 65.71% of the respondents purchased OF&V at least once in a month.

Table 4.2 Frequency of Purchase

	Regular Buyers 199 (%)	**Occasional Buyers 216 (%)**	**Potential Buyers 217 (%)**	**Total 632 (%)**
1)Percentage of respondent's shopping for all food items for the household				
15%	5(2.5)	13(6.0)	22(10.1)	40(6.3)
30%	29(14.6)	37(17.1)	24(11.1)	90(14.2)
45%	27(13.6)	51(23.6)	41(18.9)	119(18.8)
60%	27(13.6)	30(13.9)	33(15.2)	90(14.2)
75%	85(42.7)	62(28.7)	66(30.4)	213(33.7)
100%	26(13.1)	23(10.6)	31(14.3)	80(12.7)
2) Frequency of 'main shopping' for household food items				
Everyday	-		2(.9)	2(.3)
Every 2-3 days	12(6.0)	16(7.4)	2(.9)	30(4.7)
About Once a Week	16(8.0)	24(11.1)	7(3.2)	47(7.4)
A Couple of Times in a Month	46(23.1)	39(18.1)	28(12.9)	113(17.9)
Once a Month	108(54.3)	129(59.7)	161(74.2)	398(63.0)
Less Often	17(8.5)	8(3.7)	17(7.8)	42(6.6)
Never	-	-	-	-
3)Frequency of additional shopping to main shopping				
Everyday	19(9.5)	17(7.9)	16(7.4)	52(8.2)

Every 2-3 days	40(20.1)	55(25.5)	54(24.9)	149(23.6)
About Once a Week	86(43.2)	70(32.4)	76(35.0)	232(36.7)
A Couple of Times in a Month	23(11.6)	34(15.7)	29(13.4)	86(13.6)
Once a Month	14(7.0)	25(11.6)	17(7.8)	56(8.9)
Less Often	17(8.5)	14(6.5)	25(11.5)	56(8.9)
Never	-	1(.5)	-	1(.2)
4) Persons growing OF&V at home				
Yes	123(61.8)	145(67.1)	140(64.5)	408(64.6)
No	76(38.2)	71(32.9)	77(35.5)	224(35.4)
5) Proportion of homegrown OF&V in consumption (N=408)				
0-10%	9(4.5)	33(15.3)	31(14.3)	73(11.6)
11-20%	15(7.5)	29(13.4)	23(10.6)	67(10.6)
21-30%	31(15.6)	38(17.6)	25(11.5)	94(14.9)
31-40%	20(10.1)	18(8.3)	20(9.2)	58(9.2)
41-50%	18(9.0)	10(4.6)	10(4.6)	38(6.0)
51-60%	5(2.5)	8(3.7)	13(6.0)	26(4.1)
61-70%	4(2.0)	3(1.4)	8(3.7)	15(2.4)
71-80%	5(2.5)	1(.5)	3(1.4)	9(1.4)
81-90%	9(4.5)	3(1.4)	1(.5)	13(2.1)
91-100%	7(3.5)	2(.9)	6(2.8)	15(2.4)
6)Frequency of purchase of OF&V				
Regular				
Once a Week	199(100%)	-	-	199(31.5)
Occasional				
A Couple of Times in a Month		42(19.44) (100%)	-	42(6.64)
Once a Month	-	74(80.55)	-	174(27.5)
Potential				
Have not brought in the last one month	-	-	217(100%)	217(34.3)
7) Proportion of OF&V in your consumption from your buying (N=632)				
0-10%	11(5.5)	39(18.1)	110(50.7)	160(25.3)

11-20%	16(8.0)	46(21.3)	43(19.8)	105(16.6)
21-30%	29(14.6)	43(19.9)	31(14.3)	103(16.3)
31-40%	27(13.6)	36(16.7)	33(15.2)	96(15.2)
41-50%	39(19.6)	21(9.7)	-	60(9.5)
51-60%	32(16.1)	8(3.7)	-	40(6.3)
61-70%	8(4.0)	9(4.2)	-	17(2.7)
71-80%	18(9.0)	7(3.2)	-	25(4.0)
81-90%	4(2.0)	6(2.8)	-	10(1.6)
91-100%	15(7.5)	1(.5)	-	16(2.5)

n=632

4.1.2 Awareness about Organic Fruits & Vegetables

To determine the awareness level of consumers about OF&V, their basic understanding of *organic* along with recognition of the official organic label of India were explored in the study (Table 4.3). Majority of the respondents knew about organic food products through newspaper, TV programs, family, friends and so on (Refer Annexure IV). Only 35.4% of consumers were able to relate to the true concept of OF&V (without chemicals for growing and preserving). 29.7 % of respondents considered it as 'natural/pure', and 26.3% as 'healthy food'.

Knowledge about official India organic label is scanty. When a question regarding the recognition of official *India organic* label was presented, more than 80% of people were in the dark. 42.7% of the respondents do not know it. About 30% pointed at a firm's brand 'Organic India' (deliberately introduced to check the awareness), which is not an official label. 5.7% and 3.8% of respondents pointed to the official logo of the USA and European Union respectively. **Only 17.9% of the respondents could recognise India organic label.** *Majority of consumers are not able to identify the label of organic products and not able to relate to the correct concept of OF&V.*

Table 4.3 Awareness about Organic Fruits & Vegetables

	Regular Buyers 199 (%)	Occasional Buyers 216 (%)	Potential Buyers 217 (%)	Total 632 (%)
1) Understanding the concept of organic fruits & vegetables				
Without Chemicals	88(44.2)	77(35.6)	59(27.2)	224(35.4)
Natural/Pure	45(22.6)	58(26.9)	85(39.2)	188(29.7)
Healthy Food	48(24.1)	69(31.9)	49(22.6)	166(26.3)
No-Pollution Related Food	11(5.5)	4(1.9)	10(4.6)	25(4.0)
Food Free from GMO	6(3.0)	8(3.7)	6(2.8)	20(3.2)
With Chemicals	-	-	-	-
Don't Know	1(.5)	-	8(3.7)	9(1.4)
2) Identification of India's official organic label				
(A) (European union)	8(4.0)	10(4.6)	6(2.8)	24(3.8)
(B) (India's Official Logo)	41(20.6)	35(16.2)	37(17.1)	113(17.9)
(C) (USA)	17(8.5)	12(5.6)	7(3.2)	36(5.7)
(D) (A company's brand, not an official organic label)	61(30.7)	65(30.1)	63(29.0)	189(29.9)
(E)Don't Know	72(36.2)	94(43.5)	104(47.9)	270(42.7)

4.2 EXPLORATORY FACTOR ANALYSIS

The basic purpose of using Exploratory Factor Analysis (EFA) is to check the uni-dimensionality of the scales. EFA insist on investigating the interdependence among all the relevant variables with metric data, with none being treated as dependent. Thus, after analysing the large set of variables, EFA reduces and summarises data based on their common underlying factors or dimensions (Hair et al., 2010).

The aim of carrying out EFA in this present study was to ensure that items were loaded into relative categories, as scales used in this study were adapted to fulfil the cultural needs. Kaiser-Meyer-Olkin's (KMO) measure of sampling adequacy and Bartlett's test of sphericity were done to ensure the suitability of EFA to extract the factors relevant to the topic of study. Table 4.4 presents the outcomes of these two tests.

Table 4.4 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.861
Bartlett's Test of Sphericity	Approx. Chi-Square	39091.740
	Df	1225
	Sig.	.000

The KMO measure of sample adequacy proposed by Kaiser in 1970 is an index which compares the correlation between observed variables and that of the partial correlation coefficient. It is an index which assesses the degree of variance caused by the observed variables. Like correlation, KMO index obtains the value between 0 and 1, where higher value reaching 1 is attained if the sum of correlation coefficient between observed variable is comparatively higher than the sum of partial correlation coefficient. Here,

KMO value is .861, supporting sample adequacy to factorise observed variables in a valid manner (Malhotra, 2008).

Bartlett's test of sphericity is used to test the null hypothesis in which, it compares the observed correlation matrix with the identity matrix. In other words, if the variables are uncorrelated in the population, further analysis of EFA will not be performed. A significant *(χ^2= 39091.74, p<.000)* Bartlett's test of sphericity for this study rejects the null hypothesis, indicating that observed correlation matrix is significantly different from identity matrix (Malhotra, 2008).

After the appropriateness of the inclusion of the variables was confirmed, factor analysis was done. Even though many other factor extraction techniques were available, Principal Component Analysis (PCA) with varimax rotation was used to extract the factors, as PCA takes the total variance of the data, without considering the measurement error into account, while analysing the observed items. It follows the rule of parsimony, that is, *'a factor of a few components providing a better explanation is informative than one involving many'*, thereby clubbing the given items into fewer components or factors. PCA was performed on 50 items and all items which had a factor loading of above ±.5 were retained for subsequent analysis as loading above ±.5 was considered practically significant (Hair et al., 2010). Table 4.5 summaries the factor loading results, the loadings of the observed variables were between the ranges of 0.76 to 0.97.

To determine the number of factors to be extracted, Kaiser's (1970) latent root criterion (eigen value) and Cattel's (1966) scree test criterion were used in this study. An eigen value indicates the degree of variance associated with the factor and 'scree plot' provides a pictorial representation of eigen value in the order of its extraction. Based on these tests, 13 factor solutions

with eigen values greater than one were retained. 88.1% of the total variances were explained by these 13 factors (Refer Annexure I)and the individual factors (F1 Health consciousness to F13 Purchase Intention) attribute to 16.50%, 9.92%, 9.46%, 8.23%, 7.44%, 6.63%, 5.57%, 4.86%, 4.71%, 4.55%, 3.74%, 3.67% and 2.77% of variances respectively, where health consciousness has the highest variance in EFA (Table 4.5).

Table 4.5 Summary of Exploratory Factor Analysis

Factors	Eigen Value	Variance (%) Explained	Factor Lod.	Communalities
F1: Health Consciousness	**8.08**	**16.50**		
HC_1			.830	.735
HC_2			.888	.823
HC_3			.900	.825
HC_4			.903	.839
HC_5			.887	.806
HC_6			.869	.767
F2: Fear	**4.86**	**9.92**		
F_1			.867	.802
F_2			.842	.725
F_3			.898	.846
F_4			.904	.852
F_5			.872	.800
F_6			.767	.631
F3:Environmental Concern	**4.64**	**9.46**		
EC_1			.945	.906
EC_2			.939	.892
EC_3			.917	.864
EC_4			.927	.874
EC_5			.923	.864
F4: Effort	**4.03**	**8.23**		
Eff_1			.948	.973
Eff_2			.936	.954
Eff_3			.948	.972
Eff_4			.944	.971
F5: Nutritional Quality	**3.64**	**7.44**		
NQ_1			.964	.937

NQ_2			.968	.944
NQ_3			.974	.957
NQ_4			.950	.915
F6: Convenience	**3.25**	**6.63**		
Con_1			.971	.964
Con_2			.965	.956
Con_3			.966	.959
F7: Perceived Price	**2.73**	**5.57**		
$P.Pri_1$			.924	.932
$P.Pri_2$			.939	.951
$P.Pr_{i3}$			.939	.943
F8: Production Process	**2.38**	**4.86**		
$P.Proc_1$			.933	.939
$P.Proc_2$			.943	.944
$P.Proc_3$			.938	.942
F9: Hedonic Quality	**2.31**	**4.71**		
Hed_1			.955	.932
Hed_2			.945	.918
Hed_3			.945	.907
Hed_4			.938	.893
F10: Attitude	**2.23**	**4.55**		
A_1- Good			.890	.960
A_2-Wise			.908	.975
A_3- Impt			.891	.950
F11: Trust	**1.83**	**3.74**		
T_1			.935	.891
T_2			.951	.915
T_3			.934	.897
F12:Social Pressure	**1.80**	**3.67**		
Sp_1			.889	.869
Sp_2			.923	.911
Sp_3			.905	.890
F13: Purchase Intention	**1.36**	**2.77**		
PI_1			.818	.690
PI_2			.839	.715
PI_3			.846	.736

Note: Lod = Loading

To reconfirm the rule of parsimony, the eigen values (Y-axis) were plotted against the extracted factors (X-axis) in the order of variance. From the factor which had the largest eigen value, the scree plot forms a steep slope initially and then trail off to form a straight line. After factor 13 the curve straightens out (Figure 4.1) reconfirming the choice of eigen value. The 13 factors were extracted without any cross loading as per the conceptualisation. The additional item added in this study to Factor 2 (Fear), "*I avoid/ reduced the consumption of fruits/vegetables due to the fear of pesticide residue in food products" (F_6),* was highly loaded on the fear component. Along with this, all the modified items were loaded on respective factors. Factors such as health consciousness, fear, environmental concern, effort, nutritional quality, convenience, perceived price, production process, hedonic quality, attitude, trust, social pressure and purchase intention were extracted for subsequent analysis.

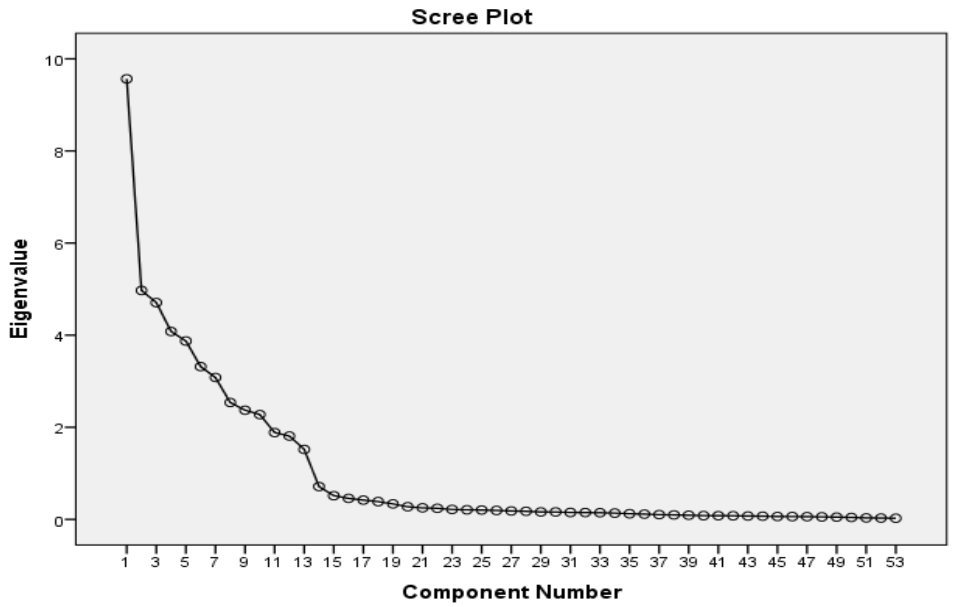


Figure 4.1 Scree Plot of Factors and Eigen Values

4.3 ASSESSMENT USING STRUCTURAL EQUATION MODELING

Structural Equation Modeling (SEM) is a multivariate analytical technique which simultaneously performs various multiple regression equations along with factor analysis for confirming the hypothetical relation existing between the constructs (Williams, Vandenberg, & Edwards, 2009; Astrachan, Patel, & Wanzenried, 2014). SEM allows the researcher to incorporate three distinct acts which make it different from other multivariate analytical techniques such as multiple regressions, canonical correlation, Multivariate Analysis of Variance (MANOVA) etc. Firstly, SEM is able to perform a series of separate multiple regressions simultaneously, and it is capable of examining multilevel interdependent relationships where an outcome variable becomes a predictor variable in succeeding relationships within the same analysis. Secondly, SEM allows to integrate the latent variable which is measured indirectly through manifest variables or indicators thereby reducing the measurement error of that construct and finally, SEM provides a platform to run the whole model to explain the multiple and complex relationship existing within the model (Hair et al., 2010).

SEM follows a two-stage data analysis approach in which the first stage evaluates the measurement model, and in the following stage, the structural model will be tested (Anderson & Gerbing, 1988). However, before confirming the model fit and testing the theory of the present study, it is essential to do a preliminary screening so that data meet the assumptions to perform the analysis in SEM.

4.3.1 PRELIMINARY ANALYSIS OF DATA

To gain significant insights into the uniqueness of data through sophisticated scrutiny for the multivariate technique, the following measures are undertaken:

(1) Consistency and Missing value evaluation

(2) Identification of outliers

(3) Testing the normality assumptions and

(4) Checking for Measurement Error.

4.3.1.1 Consistency and Missing Value Evaluation

Consistency evaluation identified data that had extreme values, out of range or which were logically inconsistent. A very close examination of data was carried out to exclude those data which were logically inconsistent, and the study also used SPSS 20.0 to identify the range of the data to confirm that data set was within the range limit.

Missing data represent values of one or more variables under study not known or reported, these missing values can either follow a pattern, or it can be random. As the percentage of missing data was below 5%, a thorough inspection was carried out, and no particular pattern could be found because of that a complete case approach was used to deal with the missing values. In this approach, all the missing value data will be excluded and only those observations with full data are included for further analysis. As the sample under study was sufficiently large enough to carry out the subsequent analysis, this imputation method was suitable for the present study (Malhotra, 2008).

4.3.1.2 Identification of Outliers

Outliers are a distinct combination of values which separate it from other observations. As the study involves more than two variables, multivariate outlier detection was used. Multivariate assessment measures such as Mahalanobis D^2 measure, Leverage value or hat-value and Cook's distance were performed to eliminate the outliers from data. The extreme values found in two out of these three assessment measures were treated as outliers and were eliminated.

Mahalanobis distance provides the distance from the case to the mean centre of all cases for the independent or predictor variables (Steven, 1984). So the cut off score of Mahalanobis distance for the present study is checked using a Chi-Square table with a degree of freedom of 12, and a p-value = 0.001 is 32.91 *(df(12), p=0.001, χ^2=32.91)*. So the values above 32.91 were considered for elimination (Refer Annexure V).

Leverage value measures the influence of mean value of the outcome variable over the levels of an independent variable, the cut off formula for it is 2*k+1/n, where k is the number of predictors and n is the number of participants [2*12+1/632=0.039]. So the values above the cut off score of 0.039 were considered for elimination.

Cook's distance measures the influence of each observation on overall model's fitted values. The cut off value of Cook's distance is 4/n-k-1, (4/632-12-1=0.0064) where k is the number of predictors and n is the number of participants. Based on these three analyses 11 outliers were deleted.

4.3.1.3 Testing the Normality Assumptions

The basic assumption for performing SEM using the default method of Maximum Likelihood Estimator (MLE) is normality. The distributional assumptions of endogenous (dependent) variables are taken into account in standard MLE and not of exogenous (independent) variables (Kline, 2012). Distributions in data can either be skewed or symmetric. If the values of mean and median were approximately equal, then we could consider data to be symmetrically distributed. In a skewed distribution, deviation from the mean would be larger in one direction, and the kurtosis measures the relative peakedness or flatness of the curve. The measure of skewness and kurtosis should be as close to zero as possible, however a small departure from zero will not be a violation of normality assumption as long as the measures were not too large compared to their standard error and they fall within the range of -1.96 to +1.96 (Cramer, 1998; Doane & Seward, 2011).

As responses were collected from three sets of individuals, it was essential to check the normality of these groups separately though the same model was used across different sets of respondents. The data under study were slightly skewed and Kurtotic, but did not differ significantly and are approximately normally distributed (Table 4.6). Thus, normality assumption was confirmed through the symmetric distribution obtained, analysis of skewness and kurtosis and normal Q-Q plots (See Figure 4.2- 4.5).

Table 4.6 Test for Normality

Variables	Mean	Median	SD	Skewness	Kurtosis
Regular Buyers					
Fear	6.0	6.0	.430	.288	.626
Trust	6.2	6.3	.649	-.279	-.687
HC	6.1	6.0	.754	-.234	-.695
EC	5.9	6.2	1.42	-.045	.458
Hedonic Quality	6.1	6.0	.613	.013	-.696
Nutritional Quality	5.8	6.0	1.19	-.189	-.317
Production Process	5.7	6.0	.802	-.186	-.648
Convenience	5.3	6.6	1.87	-.257	.295
Price	4.2	5.3	2.06	-.252	-.598
Effort	6.1	6.0	1.03	-.306	.657
Social Pressure	5.6	5.6	.773	-.308	.639
Attitude	4.7	5.0	.424	-.209	-.516
Purchase Intention	5.8	6.0	.603	.177	-.492
Occasional Buyers					
Fear	5.9	6.0	.640	-.325	.417
Trust	5.9	6.0	.868	-.374	-.593
HC	5.7	5.6	.761	-.302	.589
EC	5.8	6.0	1.27	-.390	.259
Hedonic Quality	5.5	5.8	1.20	-.232	.117
Nutritional Quality	5.3	5.2	1.79	-.252	.361
Production Process	5.5	5.3	.577	.304	.287
Convenience	4.6	5.0	1.80	-.360	-.509
Price	4.2	5.3	1.98	-.310	-.515
Effort	5.3	5.7	1.46	-.290	.526
Social Pressure	4.9	5.3	1.46	-.280	.441
Attitude	4.6	5.0	.473	-314	-.511
Purchase Intention	5.6	5.6	.629	.285	-.503
Potential Buyers					
Fear	5.8	6.0	.973	-.215	.405
Trust	6.3	6.6	1.09	-.303	.590
HC	5.8	6.0	.968	-.308	.532

EC	5.6	6.0	1.37	-.277	.589
Hedonic Quality	5.5	6.0	1.49	-.397	.567
Nutritional Quality	5.8	5.6	1.36	-.286	.307
Production Process	2.2	2.0	1.17	-.347	.599
Convenience	5.5	5.0	1.14	-.146	.415
Price	3.7	3.0	1.94	.210	-.596
Effort	4.4	5.0	1.80	-.161	-.344
Social Pressure	5.1	5.3	1.40	-.253	.152
Attitude	4.5	5.0	.483	-.309	-.576
Purchase Intention	5.6	5.6	.685	.225	-.514
Combined for all					
Fear	5.9	6.0	.726	-.102	.267
Trust	6.1	6.3	.908	-.108	.126
HC	5.8	5.8	.844	-.145	.135
EC	5.8	6.0	1.35	-.188	.186
Hedonic Quality	5.7	6.0	1.19	-.181	.194
Nutritional Quality	5.6	5.7	1.50	-.152	.355
Production Process	4.4	5.0	1.85	-.159	-.114
Convenience	5.1	5.0	1.67	-.177	.299
Price	3.5	3.0	1.96	-.111	-.173
Effort	4.2	5.3	1.98	-.104	-.003
Social Pressure	4.5	5.0	.485	-.148	.336
Attitude	4.1	5.0	.489	-.161	-.138
Purchase Intention	5.7	6.0	.645	.155	-.320

Note: HC= Health Consciousness, EC= Environmental Concern

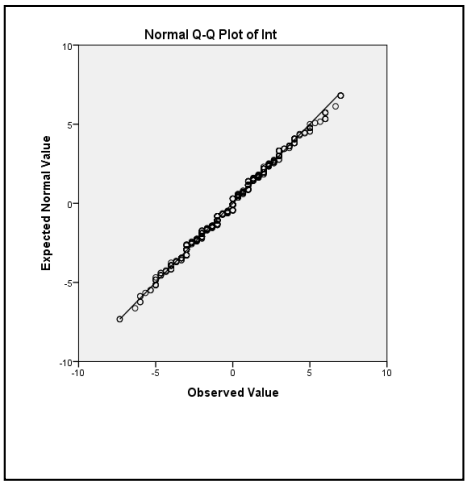


Figure 4.2 Normal Q-Q Plot for all

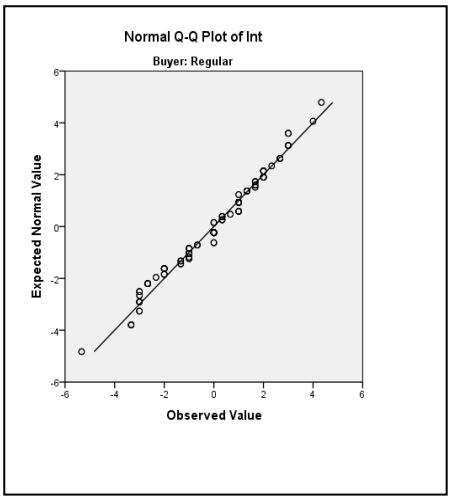


Figure 4.3 Normal Q-Q Plot for Regular Buyers

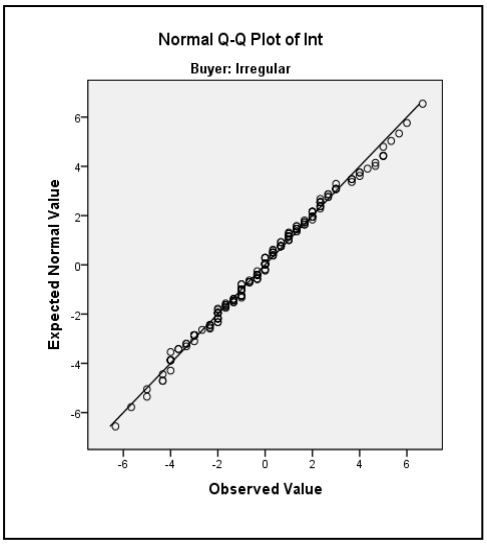


Figure 4.4 Normal Q-Q Plot Occasional Buyers

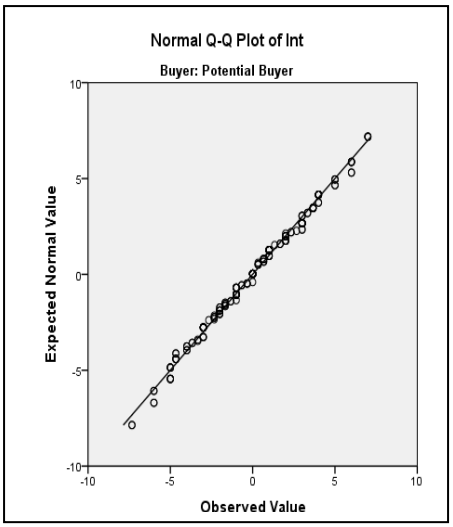


Figure 4.5 Normal Q-Q Plot Potential Buyers

4.3.1.4 Measurement Error

Constructs which are abstract and which cannot be measured directly are more likely to have measurement error than concrete constructs (Cote & Buckley, 1987). In the present study observed items were used to measure the constructs, therefore it was essential to understand the implication of measurement error if any, as its presence can influence the empirical results which can in turn bring about ambiguous conclusions. Measurement errors are of two types, random error and systematic error (common method variance or bias) as noted by Bagozzi and Yi (1991).

Random error is the variability derived from repeated measures and it is unavoidable in any study, it can only be minimised by increasing the sample size (Reichenbacher & Einax, 2011). Systematic error refers to the variance related to measuring instrument or the scale rather than the construct under study (Bagozzi & Yi, 1991). In random error, the variability of the result reflects around the mean value or average of the sample whereas in systematic error, variance displaces the values to one side, either to higher values or lower values which can lead to bias. Hence, systematic error is also referred as method bias or variance.

Common Method Bias (CMB) occurs when the variations in the responses are caused due to the measurement techniques used to collect the data. The chances of CMB may exist in the study as the same measurement technique was used to collect the responses of predictor and outcome variable. Along with this, the presence of a scale to measure environmental concern which can elicit varied responses necessitate a check for CMB (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). There are two methods to identify CMB:

(1) Harman's Single Factor Test, and

(2) Common Latent Factor Test

a) Harman's Single Factor Test

All the items under study were loaded as one single factor and EFA was performed with unrotated factor solution to identify the variance explained by that single factor. If a single factor is able to explain more than 50% of the variance, then we would conclude that a considerable amount of variance exists in the study. However, in the present study, the single factor was explaining only 19% of the variance, suggesting that method bias was not present to an extent to which it can interfere with the results.

b) Common Latent Factor Test

In this method, a new latent factor is introduced in such a way that all the variance in the observed variables is captured by it. All the paths leading to the observed variables are constrained to be equal, and the variance of the new latent variable is also constrained to be 1. If the square of the Common Latent Factor (CLF) value is greater than the threshold value of 50%, the existence of CMB can be confirmed. To reconfirm the non-existence of CMB, the difference between the standardised regression weight with CLF and standardised regression weight without CLF will be assessed, and it should be below 0.2 (Williams, Hartman, & Cavazotte, 2010).

There exist no CMB as the square of the CFL value is 7.34% (CFL=.271), and the absolute difference between the standardised regression weight with and without CFL is below 0.2.

4.3.1.5 Descriptive Statistics and Correlation

After the preliminary screening of data, 13 variables are considered and the descriptive statistics and inter-constructs correlations are given in Table 4.7 and Table 4.8 respectively. As per the correlation matrix analysis, there exist no multicollinearity among the constructs as no correlation values between the independent variables are above .7 (Hair et al., 2010).

Table 4.7 Descriptive Statistics

Factors	Mean	Median	SD
Health Consciousness	5.8	5.8	.844
Environmental Concern	5.7	6.0	1.35
Trust	6.1	6.3	.908
Fear	5.9	6.0	.726
Hedonic Quality	5.7	6.0	1.19
Nutritive Quality	5.6	5.7	1.50
Production Process	4.4	5.0	1.18
Convenience	5.1	5.0	1.67
Perceived Price	4.1	4.3	1.96
Effort	5.3	5.7	1.98
Social Pressure	5.2	5.6	.485
Attitude	4.6	5.0	.489
Purchase Intention	5.7	6.0	.645

Note: Sample size (N)=632, SD= Standard Deviation

Table 4.8 Correlation between the Constructs

Constructs	1	2	3	4	5	6	7	8	9	10	11	12	13
(1)HC	1												
(2)FEAR	.050^{ns}	1											
(3)PRI	.071^{c}	.156^{a}	1										
(4)HED	.096^{c}	.017^{ns}	.094^{c}	1									
(5)NV	.078 ^{ns}	.026^{ns}	.013^{ns}	.093^{c}	1								
(6)CON	.126^{b}	.108^{b}	.112^{b}	.012^{ns}	.009^{ns}	1							
(7)SP	.135^{b}	.225^{b}	.166^{b}	.057^{ns}	.002^{ns}	.087^{c}	1						
(8)PRO	.095^{c}	.119^{b}	.071 ^{ns}	.133^{b}	.025^{ns}	.123^{c}	.088^{c}	1					
(9)EFF	.230^{b}	.157^{b}	.238^{b}	.156^{b}	.009^{ns}	.058^{ns}	.192^{b}	.368^{c}	1				
(10)Trust	.068^{ns}	.075^{ns}	.017 ^{ns}	.101^{c}	.133^{c}	.054^{ns}	.034^{ns}	.074^{ns}	.013 ^{ns}	1			
(11)EC	.044^{ns}	.034 ^{ns}	.117^{b}	.012 ^{ns}	.012^{ns}	.003^{ns}	.238^{b}	.103^{b}	.083^{c}	.040 ^{ns}	1		
(12)ATTI	.198^{b}	.341^{b}	.404^{b}	.136^{b}	.103^{b}	.189^{b}	.282^{b}	.147^{b}	.310^{b}	.125^{b}	.019^{ns}	1	
(13)INT	.363^{a}	.468^{b}	.033^{b}	.160^{b}	.127^{b}	.153^{b}	.372^{b}	.190^{b}	.416^{b}	.198^{b}	.011^{b}	.573^{b}	1

Note: N=632, HC=Health Consciousness, PRI=Price, HEDO=Hedonic, NQ= Nutritive Quality, CON=Convenience, SP= Social Pressure, PRO= Process, EFF= Effort, EC=Environmental Concern, ATTI=Attitude, INT=Intention, a=p<.001; b=p <.01; c=p<.05; ns= non significant

4.4 EVALUATION OF MEASUREMENT MODEL

After the refinement of items using EFA, items which exhibited stipulated loading values along with no cross loading was retained to be validated, by Confirmatory Factor Analysis (CFA). SEM is a theory-driven confirmatory approach in which items are assigned to a construct prior to running CFA. While conducting CFA, a hypothesised measurement model is used to estimate the difference between observed covariance matrix and unobserved covariance matrix expecting to minimise these differences. CFA mainly concentrates on the relationship between the latent constructs and observed variables, thereby validating the model and it does not focus on the relationship between the latent constructs. The test of validity is to identify the capability of instrument or scale to precisely measure what it actually have to measure. This confirmation is essential as its violation can provide an unreliable structural model and analysis (Hair, Black, Babin, Anderson, & Tatham, 2006).

CFA was performed using AMOS 20, and all the 13 latent constructs along with its manifested/observed items are illustrated in a measurement model (Figure 4.6). Even though these latent constructs are correlated, the error term associated with these constructs are uncorrelated (Byrne, 2009). Validation procedure which ensures the validity and reliability of the constructs should satisfy the following criteria:

1) Uni-dimensionality
2) Face Validity
3) Convergent Validity
4) Reliability
5) Discriminant Validity

The face validity of the instruments for measurement is already presented in chapter 3 under research methodology. Rest of the psychometric checks for the instruments follows.

4.4.1 Uni-dimensionality

Unidimensionality is the most decisive assumption of measurement theory, and it is defined as *the presence of a set of indicators which have a common construct* (Hattie, 1985). Even though EFA is used to check the unidimensionality of data, many studies acknowledge that EFA alone is not sufficient in proving unidimensionality, as it is not used for theory testing (Anderson & Gerbing, 1988; Hunter & Gerbing, 1982; Hattie, 1985). Therefore, to ensure the existence of unidimensionality found in EFA, researchers generally use CFA provided by software packages such as LISERL or AMOS (Steenkamp & Hans, 1991).

The examination of the residual matrix helps the researcher to confirm the existence of unidimensionality. Standardised residual matrix is the residuals from the observed and implied covariance divided by its standard error and the absolute value of the standardised residual matrix not exceeding 2.58 confirms the existence of unidimensionality. However, Hair et al. (2006) have recommended that the absolute value of standardized residual matrix of 4 is also acceptable. Here unidimensionality is ensured as the standardized residual matrix is between -2.48 and +2.50 which is less than $\left|2.58\right|$.

4.4.2 Convergent Validity

Convergent validity measures the extent to which items correlate with other items of the same construct. The validity can be confirmed if the indicators or observed variables are statistically significant (Diamantopoulos

& Siguaw, 2000). Unstandardized factor loadings in the study are statistically significant. Further, to establish convergent validity, it is also recommended to use the outer loadings of the items and Average Variance Extracted (AVE). An outer loading value exceeding the minimum cut off value of 0.50 is taken into consideration (Hair et al., 2010) and the loadings of the present study ranged between 0.67 and 0.98.

An AVE is defined as *the total mean value of the squared loadings of the items associated with the construct*. An AVE value of 0.50 or above is required to confirm the convergent validity of the scale which indicates that 50% of the indicator's variance has been explained by the respective latent variable. A value of less than 0.50 indicate that more error remains in the indicators than the variance explained by the construct (Fornell & Larker, 1981). The CFA loadings and AVE seen in Table 4.9 clearly indicate the presence of convergent validity. In addition, an overall fit model (Figure 4.7) of the study also provides evidence of convergent validity (Steenkamp & Hans, 1991).

4.4.3 Reliability

Reliability measures the extent to which items within the construct are homogenous and produce a consistent result on repeated analysis (Hair et al., 2006). Traditionally, the internal consistency of the measurement scale is analysed using an acceptable Cronbach alpha (α) value exceeding 0.7. However, there is a limitation for Cronbach α value as it is sensitive to the number of indicators/items in the scale and there is a chance for it to under estimate the internal consistency of the measurement scale (Hair, Hult, Ringle, & Sarstedt, 2014). Therefore a more suitable method of checking internal consistency reliability is Composite Reliability (CR). It measures the internal consistency of a set of items loaded on a given factor. Its

acceptable cut off values and interpretation is same as that of Cronbach α value (Hair et al.,2010). To confirm the reliability of the scales used, both Cronbach α values and composite reliability values are used. All the values were above the stipulated range (Table 4.9), thereby confirming the validity and reliability.

Table 4.9 Descriptive Statistics, Reliability and Convergent Validity

Constructs	Items (Summary)	Mean (SD)	CFA Lod.	CR* (α)	AVE
Health Consciousness	Reflect about my health a lot	6.05(.93)	.81	.947 (.947)	.749
	Very self-conscious about my health	5.88(.95)	.88		
	Alert to changes in my health condition	5.97(.96)	.88		
	Usually aware of my health condition	5.85(.94)	.90		
	Take responsibility for the state of my health.	5.87(.94)	.88		
	Aware of the state of my health as I go through the day	5.79(.96)	.84		
Fear	Conventional food products available in market contain pesticide residue	5.86(.80)	.88	.937 (.933)	.715
	Agricultural products from conventional farming will cause diseases.	5.85(.89)	.79		
	Exclusive consumption of ordinary food could cause lifestyle diseases such as cancer, asthma, obesity etc., in the long run	5.88(.82)	.91		

	Consumption of ordinary food reduces longevity	5.89(.78)	.92		
	Environment suffers under conventional agricultural practices	5.92(.80)	.88		
	I avoid/reduce the consumption of fruits/vegetables due to the fear of pesticide residue in food products	6.16(.91)	.67		
Environmental Concern	Current development path is destroying the environment	5.96(1.49)	.95	.864 (.865)	.843
	Environmental damage will be irreversible	4.01(1.48)	.95		
	Practice environmental saving activities	4.68(1.41)	.90		
	Prefer consuming recycled products	4.64(1.40)	.90		
	Dispose my garbage in different containers	4.70(1.47)	.89		
Effort	Have the time and willing to travel extra distance to purchase OF&V	5.28(1.66)	.98	.889 (.889)	.856
	Willing to visit several different stores, specifically to purchase OF&V	5.30(1.66)	.96		
	Organic food is worth the extra effort that may be required to purchase it	5.26 (1.65)	.98		
	Changing grocery stores if my local supermarket didn't carry organic food	5.29 (1.66)	.98		
Nutritional Quality	Contains a lot of vitamins and minerals	5.69 (1.48)	.95	.947 (.947)	.915
	More nutritious	5.67 (1.49)	.97		
	Is good for my skin/teeth/hair/nails etc.	5.63 (1.50)	.98		

	Is high in fibre and roughage	5.79 (1.53)	.93		
Convenience	Can be brought in a shop close to where I live or work	5.18 (1.71)	.97	.879 (.879)	.838
	Is easily available in shops and supermarkets	5.11 (1.70)	.96		
	Wide varieties of organicproducts are available in the shop I visit	5.15 (1.71)	.97		
Perceived Price	Organic food is too expensive for me	4.09 (1.97)	.94	.870 (.868)	.812
	Buying organic products is worth the money	4.19 (1.19)	.97		
	Substitute products at lesser cost	4.07 (2.03)	.96		
Production Process	Free from genetic modifications	4.49 (1.90)	.95	.869 (.869)	.813
	Does not contain additives and artificial flavouring	4.49 (1.90)	.94		
	Free from pesticides	4.47 (1.92)	.95		
Hedonic Quality	Smells nice	5.68(1.20)	.95	.868 (.868)	.785
	Looks Fresh	5.75(1.23)	.95		
	Pleasant Texture	5.78 (1.27)	.94		
	Taste	5.65 (1.28)	.92		
Attitude	Very good very bad	4.66(.474)	.97	.881 (.881)	.846
	Very important very unimportant	4.66(.473)	.90		
	Very foolish very wise	4.64(.481)	.95		
Trust	Organic food label/logo would gives me a feeling of trust	5.21(.94)	.90	.944 (.943)	.849

	I have confidence on the merchants who sell organic certified products	5.17(.93)	.94		
	I have trust in the food certification bodies when they claim the products as organic	5.21(.85)	.92		
Social Pressure	Most people whose opinions I value think I should consume OF&V	5.33(1.37)	.89	.937 (.936)	.832
	Most people who are important to me consume OF&V	5.16(1.37)	.94		
	I take shopkeepers' suggestions into consideration when I purchase OF&V	5.22(1.40)	.91		
Purchase Intention	I intent to purchase OF&V in future	5.72(.68)	.91	.927 (.926)	.809
	I expect to purchase different types of OF&V in future	5.70(.69)	.91		
	I want to purchase OF&V in future	5.72(.69)	.88		

Note: CFA Lod= Standardized CFA Factor Loading, CR*= Composite Reliability (Cronbach α Values), AVE= Average Variance Extracted

4.4.4 Discriminant Validity

Discriminant validity measures the extent to which one construct is different from other constructs. Fornell-Larcker's (1981) approach is used to assess the discriminant validity where it compares the square root of the AVE values with the square of latent variables correlations. In this approach, the variance shared by the constructs should be less than the AVE values in order to establish the distinctiveness of each construct. From Table 4.10, we can conclude that there is sufficient discriminant validity for the present study as the square roots of the AVE values in comparison to correlation of latent constructs are greater.

Table 4.10 Correlation Matrix for Checking Discriminant Validity (N=632)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
SP(1)	**(0.912)**												
HC(2)	0.140	**(0.865)**											
TRUST(3)	-0.037	0.234	**(0.921)**										
INT(4)	0.394	0.383	0.203	**(0.899)**									
HEDO(5)	0.060	0.105	0.102	0.171	**(0.886)**								
FEAR(6)	0.252	0.073	0.078	0.530	0.035	**(0.846)**							
EC(7)	0.247	0.041	-0.046	0.004	0.010	0.038	**(0.918)**						
NQ(8)	-0.022	0.067	0.130	0.123	0.069	0.017	-0.030	**(0.957)**					
PRO(9)	0.091	0.093	-0.077	0.200	0.138	0.127	0.103	-0.046	**(0.901)**				
CON(10)	0.090	0.132	0.053	0.158	0.015	0.119	-0.005	-0.003	-0.125	**(0.915)**			
PRI(11)	0.171	-0.080	-0.019	0.029	0.093	0.157	0.123	-0.043	0.072	0.111	**(0.901)**		
EFF(12)	0.197	0.233	0.010	0.435	0.159	0.178	0.079	-0.022	0.374	0.059	0.239	**(0.925)**	
ATTI(13)	0.281	0.198	0.128	0.586	0.135	0.374	0.016	0.088	0.144	0.190	0.411	0.310	**(0.919)**

Note: 1) Values in the parentheses are the square root of the AVE value.

2) Other values are inter-item correlations

3) Abbreviations used: SP= Social pressure, HC=Health Consciousness, INT=Intention, HEDO=Hedonic, EC=Environmental Concern, NQ= Nutritional Quality, PRO= Process, CON=Convenience, PRI= Price, EFF= Effort, ATTI=Attitude

If the correlations between the constructs exceed 0.85, then those constructs should not be included in the structural model as it violates the discriminant validity assumption (Kline, 2012). As per Table 4.10, the correlation between the constructs has not exceeded the threshold value of 0.85 which again support the presence of discriminant validity.

The construct validity which comprises of convergent validity and reliability, discriminant validity and face validity as recommended by Campbell and Fiske (1959); Cooper and Schindler (2001); and Hair et al. (2010) are satisfied for valid measurements of the constructs under consideration.

4.5 EVALUATING THE FITNESS OF MEASUREMENT MODEL

The basic purpose of evaluating the various fit indices was to check the goodness of fit between the data collected and the proposed model. Even though, there are various fit indices which can reflect the goodness of fit in a model, in a structural equation analysis there are three broad fit indices categories which the researchers recommend that at least one index from these fitness indices must be used, they are, Absolute Fit, Incremental Fit, and Parsimonious Fit (Hooper, Coughlan, & Mullen, 2008).

Various researchers have strongly advocated the use of indices such as χ^2 statistics, RMSEA, SRMR, CFI and PNFI over other indices as they are very sensitive to sample size, parameter estimation and model misspecification (Boomsma, 2000; Kline, 2005). In the present study, all these indices (χ^2=1449.58(p=0.000), RMSEA=.032, SRMR=.026, CFI=.984, PNFI=.854) are within the threshold value, thereby confirming the model fit (Table 4.11 & Figure 4.6). Further, Hoelter's critical N value (minimum required 200) are 414 and 427 at 0.05, and 0.01 level of significance

respectively confirming the appropriateness of sample size for the given model (Byrne, 2009).

Table 4.11 Summary of Measurement Model Fit Indices

Indices		Level of Acceptance	Model Indices
Absolute Fit			
Chi-square	(χ^2)	p value >0.05	1449.587 (p=0.000
Ratio of Chi-square to DF	(χ^2 /df)	Ratio of χ2 to df ≤ 2 or 3	1.64
Root Mean Square Error of Approximation	(RMSEA)	<0.06 to 0.08	0.032
Goodness-of-Fit Statistic	(GFI)	≥ 0.95	0.909
Adjusted Goodness-of-Fit Statistic	(AGFI)	≥ 0.95	0.893
Root Mean Square Residual	(RMR)	*Smaller, the better; 0 indicates perfect fit*	0.038
Standardised Root Mean Square Residual	(SRMR)	≤ 0.09	0.026
Incremental Fit			
Normed-Fit Index	(NFI)	≥ 0.95	0.961
Comparative Fit Index	(CFI)	≥ 0.95	0.984
Non-Normed Fit Index(Tucker-Lewis index)	[N N F I (T L I)]	≥ 0.95	0.982
Parsimonious Fit			
Parsimony Goodness-of-Fit Index	(PGFI)	*The closer to 1 the better, though typically lower than other indexes and sensitive to model size*	0.772
Parsimonious Normed Fit Index	(PNFI)	*Very sensitive to model size*	0.854

Source: Compiled by the author

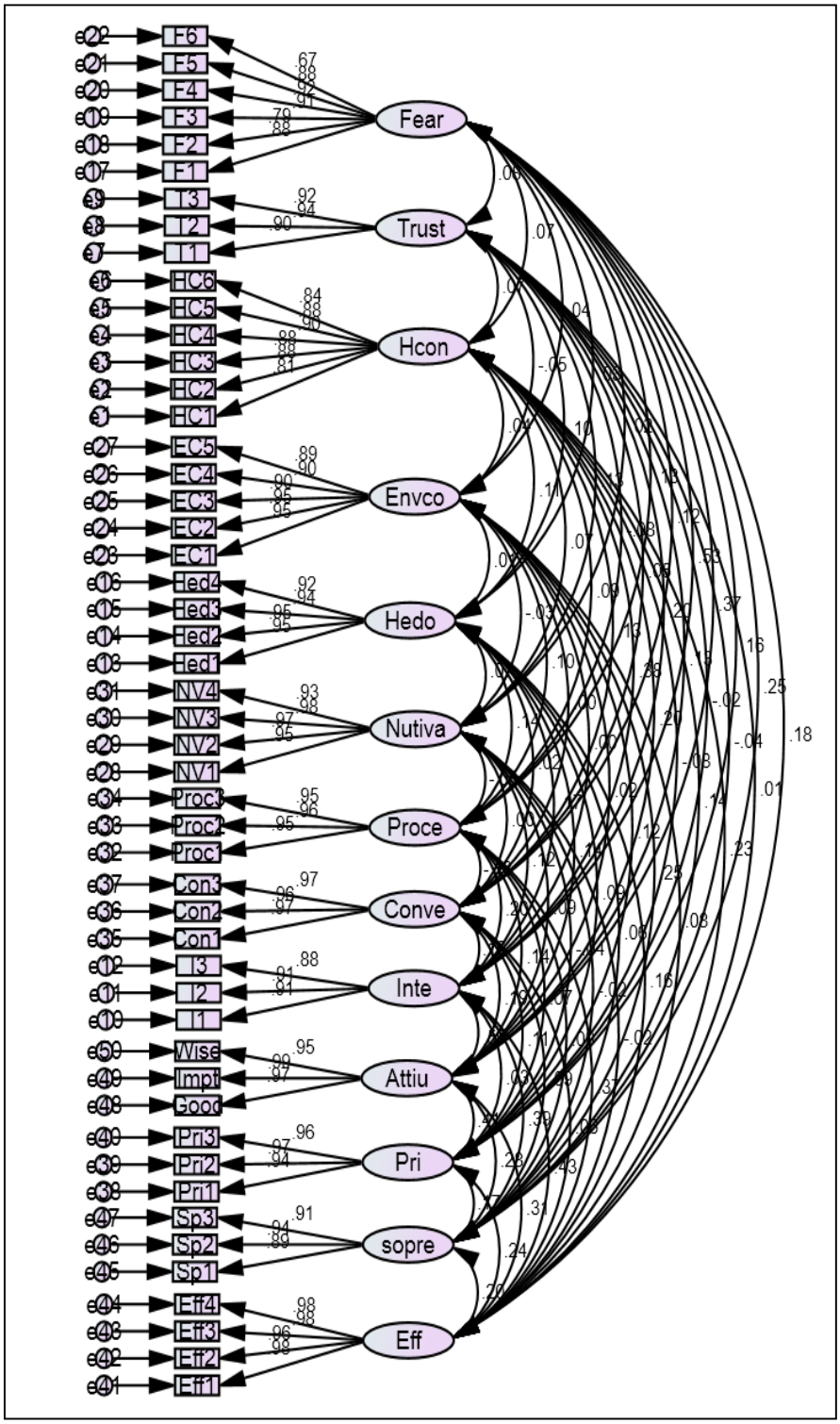


Figure 4.6 Measurement Model of SEM

4.5.1 Measurement of Invariance

As there exist three groups of consumers (regular, occasional and potential buyers), it was essential to evaluate the measurement of invariance, which comprises of configural invariance and metric invariance. Configural invariance checks whether the factor structure was equivalent across different groups and the metric invariance is used to analyse whether the psychological meaning of latent constructs are approved by these groups equivalently (Vandenberg & Lance, 2000; Kline,2015).

The measurement model was evaluated without constraining, creating the three groups and the results provided a good fit [(χ^2=5634.872(p=0.000); χ^2 /*df*=1.617; RMSEA=.031; SRMR=.050; CFI=.949; PNFI=.787)] confirming the existence of configural invariance which means the three groups were equivalent. To confirm the metric invariance, a chi-square difference test was performed on the measurement model by constraining (all the 50 items were constrained to 1) the parameters along with the latent constructs (13 factors). As the p-value was insignificant, the chi-square difference test (Table 4.12) shows metric invariance confirming that groups were invariant.

Table 4.12 Outcome of χ^2 Difference Test for Measurement of Invariance

Model	**χ^2 Value**	***df***	**$\Delta\chi^2$**	**Δdf**	***p*-value**	***NNFI***	***CFI***	***RMSEA***
Unconstrained (Configural)	5634.872	3291	—	—	—	.935	.942	.034
Constrained (Metric)	6304.671	2665	669.799	629	0.11	.922	.928	.037

Note: NNFI= Non-Normed Fit Index, CFI= Comparative Fit Index, RMSEA= Root Mean Square Error of Approximation

4.6 EVALUATION OF CONCEPTUAL MODEL WITHOUT MODERATING VARIABLES

After satisfying the validation criteria and measurement model fit the structural model without moderating variables was analysed. The fit indices were again found to be in line (Hair et al., 2010) with the threshold values [χ^2=1413.5(p=0.000), χ^2/df= 1.95; RMSEA =.039, SRMR =.061, CFI =.977, PNFI =.885; AIC =1607.490; BCC =1620.971; BIC =2039.032; CAIC = 2136.032]. The unstandardized regression coefficients with its significance values and the standardised path coefficients are shown in Table 4.13 and Figure 4.7 respectively.

Table 4.13 Unstandardized Regression Path Coefficient of the Conceptual Model

Linkages	Regression Coefficient	SE	p
Fear−−>Atti	.245	.030	*p<0.001*
Trust−−>Atti	.039	.019	*p<0.05*
HC−−>Atti	.073	.021	*p<0.001*
EC−−>Atti	-.002	.012	ns
Hedo−−>Atti	.032	.014	*p<0.05*
Nutri−−>Atti	.026	.011	*p<0.05*
Proc−−>Atti	.027	.009	*p<0.01*
Conv−−>Atti	.040	.010	*p<0.001*
Atti−−>Int	.483	.046	*p<0.001*
Fear−−>Int	.356	.036	*p<0.001*
Trust−−>Int	.072	.020	*p<0.001*
HC−−>Int	.201	.024	*p<0.001*
EC−−>Int	-.012	.013	ns
Hedo−−>Int	.032	.014	ns
Nutri−−>Int	.026	.011	ns
Proc−−>Int	.030	.010	*p<0.01*
Conv−−>Int	.008	.011	ns

Note: ns=non significant, HC= Health Consciousness, EC= Environmental Concern, Hedo = Hedonic Quality, Nutri=Nutritional Quality, Prod=Production Process, Conv=Convenience, Atti=Attitude, Int=Purchase Intention

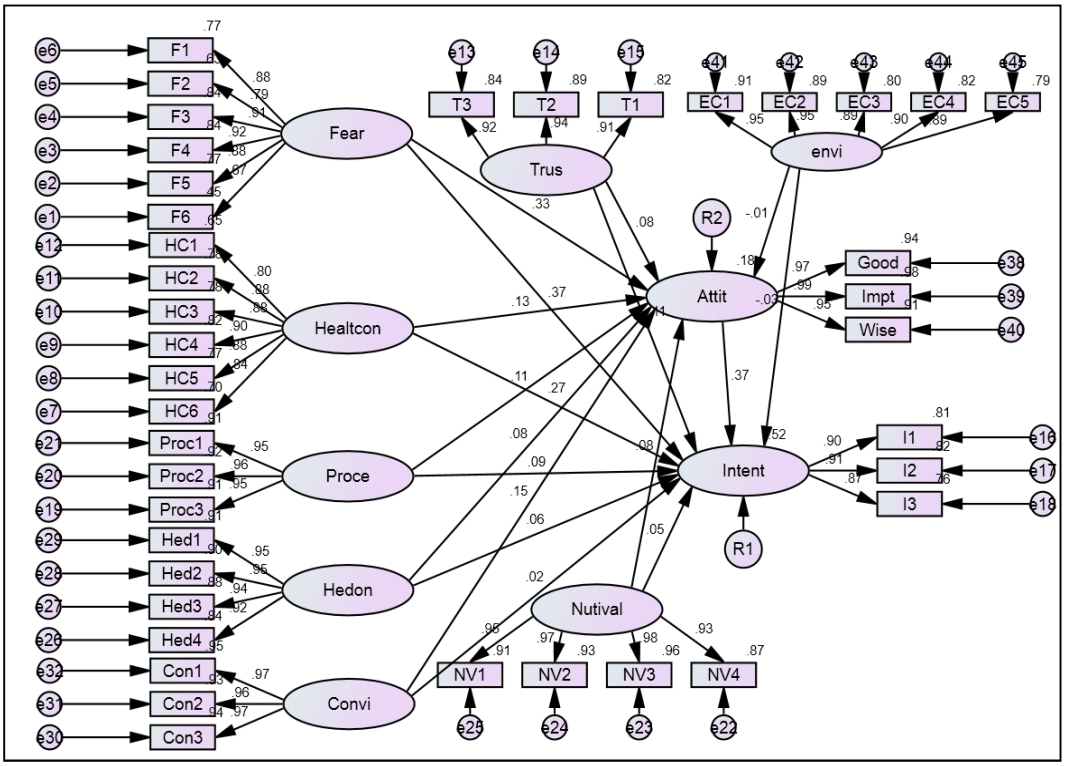


Figure 4.7 Structural Model without Moderating Variables

As there exists a good fit, hypotheses testing was carried out. To test mediation bootstrapping technique, an inferential method, a procedure which helps to determine the standard errors and t statistics of the proposed hypothesised model was used (Preacher & Hayes, 2004; Shrout & Bolger, 2002). Bootstrapping technique which is a resampling procedure was carried out using 5000 re-samples along with bias-corrected 95% confidence intervals (Hair et al., 2014). The following section presents the results of the hypotheses testing.

4.7 HYPOTHESES TESTING

The direct relationships stated in the hypotheses were analysed in AMOS without introducing a mediating variable in the path diagram. To

analyse the indirect effect, the mediating variable, attitudewas introduced in the direct relationship model, and path coefficientwas evaluated. Along with this, bias-corrected significant value was obtained with the help of the bootstrapping technique. Table 4.14 presents the outcome of hypotheses testing.

Table 4.14 Direct Effect and Mediation Analysis

Parameters	Regression coefficient (c)* β	Direct Effect (c') β	Indirect Effect (mediation)	SE	LLCI	ULCI	Hypotheses
Fear−−>Int (H1)	.491***	.356***		.057	.303	.432	Supported
Trust−−>Int(H3)	.139***	.072**		.029	.030	.185	Supported
HC−−>Int(H5)	.321***	.272***		.032	.209	.338	Supported
EC−−>Int(H7)	-.032^{ns}	-.029 ^{ns}		.034	-.100	.035	Not Supported
Hedo−−>Int(H9)	.092**	.031 ^{ns}		.021	-.014	.143	Supported
Nutri−−>Int(H11)	.084*	.020^{ns}		.014	-.012	.123	Supported
Proc−−>Int(H13)	.135*	.030*		.012	.018	.164	Supported
Conv−−>Int(H14)	.077*	.008 ^{ns}		.013	-.047	.092	Supported
Atti−−>Int(H17)		.483***		.059	.280	.461	Supported
Fear−−>Atti−−>Int(H2)			.118***	.025	.079	.178	Supported ^{p}
Trust−−>Atti−−>Int(H4)			.019*	.011	.001	.045	Supported ^{p}
HC−−>Atti−−>Int(H6)			.035***	.013	.015	.066	Supported ^{p}
EC−−>Atti−−>Int(H8)			-.001^{ns}	.006	-.012	.011	Not Supported
Hedo−−>Atti−−>Int(H10)			.016*	.008	.002	.032	Supported ^{f}
Nutri−−>Atti−−>Int(H12)			.012*	.006	.002	.025	Supported ^{f}
Proc−−>Atti−−>Int(H14)			.013**	.005	.004	.024	Supported ^{p}
Conv−−>Atti−−>Int(H16)			.019***	.006	.009	.033	Supported ^{f}

Note: c = Direct effect without mediation; c' = Direct effect with mediation; β =standardized regression coefficient; SE=Standard Error; LLCI= Lower level of Confidence Interval; ULCI= Upper level of Confidence Interval p=Partial mediation; f=Full mediation*p <.05; **p <.01; ***p <.001; ns= non significant, HC= Health Consciousness, EC= Environmental Concern, Hedo = Hedonic Quality, Nutri= Nutritional Quality, Prod= Production Process, Conv = Convenience, Atti= Attitude, Int= Purchase Intention

4.7.1 Direct Effect and Mediation analysis

The direct effect of the eight factors presumed to play significant roles in OF&V purchase and the mediating effect of attitude on purchase intention is tested here.

4.7.1.1 Direct and Mediation Effect of Fear

Analysis on causal linkage found that fear towards conventional food products has a positive direct impact on the consumers' purchase intention of OF&V (*β=.491; p=<.000*) thereby supporting hypothesis 1 which stated that "*Consumers' fear towards conventional food items which are not in conformity with the basic standards of organic production has a positive impact on purchase intention of organic fruits & vegetables*". The result from the mediation analysis indicated that the indirect effect of attitude toward OF&V had significant effect on the direct relationship between fear and consumer purchase intention (*β=.118, SE=.025; p=<.000; CI95 [.079, .178]*), thereby supporting hypothesis 2, which stated that *"the relation between consumers' fear and purchase intention is mediated by attitude toward organic fruits & vegetables"*. With the presence of the mediating variable, the magnitude of the direct path has reduced from *β=.491* to *β=.356* clearly indicating the mediation effect of attitude on the direct path. However, as the direct path was still significant, we can confirm that a partial mediation through attitude exists between the constructs fear and purchase intention.

Thus, attitude towards OF&V mediates 27% [(.491-.356)/.491=.274] of fear toward conventional food products' effect on purchase intention in the current study. This implies that consumers' attitude towards organic food products represents the generative mechanism through which fear towards conventional food products are able to influence purchase intention

of OF&V. In other words, for those consumers who consider buying OF&V as important, wise and good, their positive relationship between fear towards conventional food products and purchase intention will enhance. In contrast, even though consumers have positive fear towards conventional food products, their purchase intention will weaken when they consider the purchase of OF&V as unimportant, foolish and bad.

4.7.1.2 Direct and Mediation Effect of Trust

Trust towards producers, certifying agencies and retailers played a significant and positive role in consumers' purchase intention toward OF&V (*β=.139; p=<.000*), thereby supporting hypothesis 3 which stated that "*consumers' trust toward organic institutional bodies and market agents has a positive impact on purchase intention".* Mediation analysis revealed that the indirect effect of attitude toward OF&V had a significant effect on the direct relationship between trust and consumer purchase intention (*β=.019, SE=.011; p=<0.05; CI95 [.001, .045]*), thereby supporting hypothesis 4 which stated that *"the relation between trust and purchase intention is mediated by the consumers' attitude toward organic fruits & vegetables".* Though the magnitude of the direct effect had reduced in the presence of the mediating variable from *β=.139* to *β=.072*, it was still significant clearly predicting the partial mediation effect of attitude in the relation between the constructs. Thus, attitude towards OF&V mediates 48% [(.139-.072)/.139=.482] of consumers' effect of trust towards third parties on purchase intention in the current study.

Consumers' attitude towards organic food products significantly affects the relationship between trust towards third parties and purchase intention of OF&V. In another words, for those consumers who consider purchase of OF&V as important, wise and good, their positive relationship

between trust towards third parties and purchase intention will enhance. In contrast, even though consumers' have positive trust towards third parties, their purchase intention will weaken when consumers consider purchase of OF&V as unimportant, foolish and bad.

4.7.1.3 Direct and Mediation Effect of Health Consciousness

There exists a significant and positive relation between health consciousness and purchase intention of OF&V (*β=.321; p=<.000*), supporting hypothesis 5 which stated that *"health consciousness has a positive impact on consumers' purchase intention of organic fruits & vegetables"*. Mediation analysis revealed that the indirect effect of attitude toward OF&V has a significant effect on the direct relationship between health consciousness and consumer purchase intention (*β=.035, SE=.013; p=<0.000; CI95 [.015, .066]*), supporting hypothesis 6 which stated that *"the relation between health consciousness and purchase intention of consumers is mediated by their attitude toward organic fruits & vegetables.* In the presence of the mediating variable, the magnitude of the direct path has reduced from *β=.321* to *β=.272* clearly indicating the mediation effect of attitude on the direct path between health consciousness and consumer purchase intention. As the direct path is still significant, we can confirm that a partial mediation of 15 % [(.321-.272)/.321=.152] through attitude exist between the constructs health consciousness and purchase intention.

Consumers' attitude towards organic food products significantly affect the relationship between health consciousness and purchase intention of OF&V. Consumers who consider purchase OF&V as important, wise and good will have a positive relationship between health consciousness and purchase intention. In spite of a positive relation between health

consciousness and purchase intention, the relation will weaken when consumers consider purchase of OF&V as unimportant, foolish and bad.

4.7.1.4 Insignificant Effect of Environmental Concern in Kerala

There exists no significant direct relationship between consumers' environmental concern and their purchase intention of OF&V (*β=-.032; p=ns*), thereby rejecting hypothesis 7 which stated that "*environmental concern has a positive impact on consumers' purchase intention of organic fruits & vegetables*". Mediation analysis indicated that the indirect effect of attitude toward OF&V had no significant effect on the direct relationship between environmental concern and consumer purchase intention (*β=-.001, SE=.006; p=ns; CI95 [-.012, .011]*), thereby not supporting hypothesis 8 which stated that *"the relation between environmental concern and purchase intention of consumers' is mediated by their attitude toward organic fruits & vegetables"*.

4.7.1.5 Direct and Mediation Effect of Hedonic Quality

There exist a significant and positive relation between hedonic quality and purchase intention of OF&V (*β=.092; p=<.01*), thereby supporting hypothesis 9 which stated that "c*onsumers' perception of hedonic quality has a positive impact on purchase intention of organic fruits & vegetables*". Mediation analysis indicated that the indirect effect of attitude toward OF&V had significant effect on the direct relationship between hedonic quality and consumer purchase intention (*β=.016, SE=.008; p=<.05; CI95 [.002, .032]*), thereby supporting hypothesis 10 which stated that *"the relation between hedonic quality and purchase intention is mediated by the consumers' attitude toward organic fruits & vegetables"*.

With the presence of the mediating variable, the magnitude of the direct path has reduced from *β=.092* to *β=.031* clearly indicating the mediation effect of attitude on the direct path between hedonic quality and purchase intention. However, as the direct path became insignificant, we can confirm **full mediation of attitude** existing between the constructs hedonic quality and purchase intention. Thus attitude towards OF&V mediates 66% [(.092-.031)/.092=.663] of hedonic quality's effect on purchase intention in the current study. This implies that consumers' attitude towards organic food products is acting as a generative mechanism through which hedonic quality of OF&V are influencing the purchase intention of OF&V. In other words, for those consumers who consider purchase of OF&V as important, wise and good, their positive relationship between hedonic quality of OF&V and purchase intention will enhance. In contrast, for those who consider the purchase of OF&V as unimportant, their purchase intention will weaken even if the hedonic quality is appreciated.

4.7.1.6 Direct and Mediation Effect of Nutritional Quality

Significant values (*β=.084; p=<0.05*) of the test asserts the positive relation between nutritional quality and purchase intention of OF&V thereby supporting hypothesis 11 which stated that "*perception of nutritional quality has a positive impact on consumers' purchase intention of organic fruits & vegetables".*

Attitude has an indirect mediation effect between nutritional quality and consumers' purchase intention (*β=.012, SE=.006; p=<0.05; CI95 [.002, .025]*). Hence hypothesis 12 which stated that *"the relation between nutritional quality and purchase intention is mediated by the consumers' attitude toward organic fruits & vegetables"* stands valid. With the presence

of the mediating variable, the magnitude of the direct path has reduced from *β=.084* to *β=.020* clearly indicating the mediation effect of attitude on the direct path. However as the direct path became in significant, we can confirm the presence of **full mediation of attitude** existing between the constructs nutritional quality and purchase intention. Here, attitude towards OF&V mediates 76% [(.084-.020)/.084=.761] of nutritional quality's effect on purchase intention. Consumers' attitude towards organic food products is acting as a generative mechanism through which nutritional quality of OF&V is significantly influencing the purchase intention of OF&V. In other words, for those consumers who consider purchase of OF&V as important, wise and good, their positive relationship between nutritional quality of OF&V and purchase intention will enhance and vice versa.

4.7.1.7 Direct and Mediation Effect of Production Process

The causal linkage analysis showed that there exists a significant (*β=.135; p=<0.05*) and positive relationship between production process, as perceived by the consumers, and their intention to purchase of OF&V, thereby supporting hypothesis 13 which stated that "*consumers' perception of production process has a positive impact on purchase intention of organic fruits & vegetables*". Mediation analysis revealed that the indirect effect of attitude toward OF&V has significant effect on the direct relationship between production process and consumer purchase intention (*β=.013, SE=.005; p=<0.01; CI95 [.004, .024]*), thereby supporting hypothesis 14 which stated that *"the relation between production process and purchase intention is mediated by the consumers' attitude toward organic fruits & vegetables".* With the presence of mediating variable, the magnitude of the direct path has reduced from *β=.135* to *β=.030* clearly indicating the mediation effect of attitude on the direct path of production process and

purchase intention. However as the direct path was still significant, we can confirm that a partial mediation of attitude exists between the constructs production process and purchase intention. Thus attitude towards OF&V mediates 77% [(.135-.030)/.135=.767] of production process's effect on purchase intention in the current study.

Consumers' attitude towards organic food products acts as a generative mechanism through which production process are influencing the purchase intention of OF&V. In other words, for those consumers who consider purchase of OF&V as important, wise and good, their positive relationship between production process and purchase intention will enhance. Even if consumers consider production process as important, their purchase intention will weaken when they disregard the buying of OF&V.

4.7.1.8 Direct and Mediation Effect of Convenience

Convenience has significant (*β=.077; p=<0.05*) and positive effect on consumers' purchase intention thereby supporting hypothesis 15 which stated that "*consumers' perception of convenience has a positive impact on purchase intention of organic fruits & vegetables*". Mediation analysis indicated that attitude has a significant effect on the relationship between convenience and consumer purchase intention (*β=.019, SE=.006; p=<.000; CI95 [.009, .033]*), thereby supporting hypothesis 16 which stated that *"the relation between convenience and purchase intention is mediated by the consumers' attitude toward organic fruits & vegetables"*.

Attitude's mediation brought down the magnitude of the effect of a direct path from *β=.077* to *β=.008* clearly indicating its influence and **full mediation** exist between the constructs, convenience and purchase intention, as the direct path became insignificant on mediation effect. Attitude towards

OF&V mediates 89% [(.077-.008)/.077=.896] of convenience's effect on purchase intention in the current study. This implies that consumers' attitude towards organic food products act as a generative mechanism through which convenience is influencing the purchase intention of OF&V. In other words, for those consumers who consider purchase of OF&V as important, wise and good, their positive relationship between convenience and purchase intention will enhance. In contrast, even though consumers have found convenience as important, their purchase intention will weaken when they have a very low attitude towards buying OF&V.

4.7.1.9 Direct Effect of Attitude on Intention

Hypothesis 17 which stated that "*the positive attitude of consumers toward organic fruits & vegetables will have a positive impact on purchase intention*" was found to be truly significant (*β=.483; SE=.059; p=<.000; CI95 [.280, .461]*) on testing.

All the assumptions stated as hypotheses except H7 and H8 were found to be significant. The direct relation between environmental concern and purchase intention (H7) and the mediating role of attitude in the direct relationship between environmental concern and purchase intention of OF&V (H8) were not supported. Hence an alternative model to the current conceptual model needs to be evaluated.

Eventhough the current conceptual model provides a good model fit, when a path become insignificant it is suggested to test for an alternative model (Anderson & Gerbing, 1988). Thus an alternative model was obtained by constraining (equalled to zero) the insignificant paths environmental concern−−>attiude−−>purchase Intention along with the direct paths hedonic−−>purchase Intention;nutritive quality−−>purchase intention; and

convenience−−> purchase intention, which become insignificant due to full mediation. Thereafter, a comparison of the constrained model with the unconstrained model was made using the Chi-square difference test (See Table 4.15).

In a χ^2 difference test, we test to prove the null hypothesis which states that there exist no significant differences between constrained and unconstrained model, thereby improving the explainability of the construct and fulfilling the rule of parsimony (Anderson & Gerbing, 1988).

Table 4.15 Outcome of χ^2 Difference Test for Alternate Model

Model	Path Constrained	χ^2 Value	*Df*	$\Delta\chi^2$	Δdf	*p*-value
Unconstrained	__	1413.5	723	__	__	__
Constrained	Insignificant paths	1415.2	724	1.7	1	0.19

There is no significant difference between the two models ($\Delta\chi^2$=1.7, *df*=1, p=0.19) on comparison. The model fit indices of alternate model are as follows: χ^2=1415.2(p=0.000); χ^2 /*df* =1.95; RMSEA =.039; SRMR =.061; CFI =.977; PNFI =.886; AIC =1607.590; BCC =1620.932; BIC =2034.683; CAIC =2130.683. The fit indices of the alternate model are almost similar to the conceptual model. Therefore, the alternate model which excludes the EC−−>Atti−−>Int path was accepted (further probing of this insignificant path will be discussed in Chapter 5).

It was also found that the percentage of variance explained by the seven factors (excluding environmental concern) had increased from r^2 =.40 to r^2 = .51 when the mediating variable attitude was included, which reiterate the influence of consumers' attitude in the purchase of OF&V.

4.7.2 Test for Moderation of Social Pressure, Effort and Perceived Price

Researchers often found it difficult to evaluate the effect of interaction on a continuous scale (continuous interaction) in a model involving latent variables (Ping, 1995). The popular methods for analysing the interaction effects are product term regression analysis (Aiken & West, 1991), subgroup analysis, two-step single indicant estimation method (Ping, 1988), constrained and unconstrained approach (Algina & Moulder, 2001; Jöreskog & Yang, 1996; Marsh, Wen, & Hau, 2004) and residual centering approach (Little, Bovaird, & Widaman, 2006).

In product term regression analysis, dependent variable is regressed on independent variables which comprise of summated scale and their products. In the subgroup analysis, the median split is performed on the continuous interaction scale, and it has been criticised for reduction in statistical power. In two-step single indicant estimation method, all the indicators are mean centred, and the summated scale is used to create the product terms.

In both constrained and unconstrained approach, mean centred items are used to calculate the product latent variables. However, in the constrained approach proposed by Algina and Moulder (2001), the non-linear constrained item has to be incorporated, whereas in the unconstrained approach proposed by Marsh et al. (2004) they have asked to omit the constrained variable proposed by Algina and Moulder in their model. An in-depth understanding of these approaches can be gained from the original studies of Kenny and Judd (1984), Ping (1988), Aiken and West (1991), Algina and Moulder (2001) Jöreskog and Yang (1996) Marsh et al. (2004).

The interaction or moderation effect of perceived price, social pressure and effort in the relation between consumers' attitude and their purchase intention were evaluated using residual centering approach.

4.7.2.1 Residual Centering Approach

The residual centering approach is a two-step procedure, and in the first stage, we multiply the uncentered indicators of first-order effect variables (independent and moderating variables) to generate product terms which will be further regressed on all the first order indicators (Little et al., 2006).

For instance, if we are checking the effect of social pressure on positive relationship between consumers' attitude towards OF&V and their purchase intention, we multiply the indicators of 'attitude towards OF&V and 'social pressure' thereby generating product terms. Attitude towards OF&V' had three items, good(g), important(i), wise(w) and social pressure also had three items sp1, sp2, sp3, so when these indicators were multiplied we get nine multiple items (gsp1, gsp2, gsp3, isp1, isp2, isp3, wsp1, wsp2, wsp3). Further, these nine items will be regressed on all first-order indicators [good(g), important(i), wise(w), sp1, sp2 and sp3].

The residual generated from this regression will be saved in the data file. For instance, residual resulting from the regression of gsp1 on six indicators good(g), important(i), wise(w), sp1, sp2 and sp3 was named as zmsp_1, similarly rest of the eight product terms were regressed and residuals were saved (zmsp_2, zmsp_3, zmsp_4, zmsp_5, zmsp_6, zmsp_7, zmsp_8, zmsp_9).

The three items of attitude and three items for social support, resulted in nine product terms leading to nine multiple regression analysis and nine

residuals were generated from it. These nine residuals are exported to AMOS for the evaluation of latent product term variable.

In the second stage in AMOS, latent interaction model will be specified. This same procedure is followed to check the moderating effect of perceived price and effort.

4.7.2.2 High Price Inhibitor of Purchase Intention

High or low price can inhibit or enhance the purchase intention of consumers. Perceived price acts as a moderator in influencing the relationship between consumers' positive attitude toward OF&V and their purchase intention *(b=-.04, p<.05)* with a good model fit (χ^2=3179.183 (p=0.000); χ^2/df=1.817; RMSEA=.067; SRMR=.060; CFI=.942; PNFI=.852), thereby supporting hypothesis 18 which stated that, *'the positive attitude of consumers in purchasing organic fruits & vegetables is moderated by price, such that the relationship weakens (strengthens) with higher (lower) levels of price perceived by the consumers'.*

According to Wheaton(1987) and Schumacker and Lomax (2004), considering the χ^2/df (chi-square/degree of freedom ratio) alone to check the model fit is not acceptable as χ^2value is sensitive to sample size and a large sample inflates the χ^2valuethus resulting in a poor model fit. Therefore, other fit indices (RMSEA, SRMR, CFI, and PNFI as given above) were also considered, and it was found to be above the acceptable threshold level. The outcome of the analysis of interaction of perceived price on purchase intention using AMOS is shown in Figure 4.8.

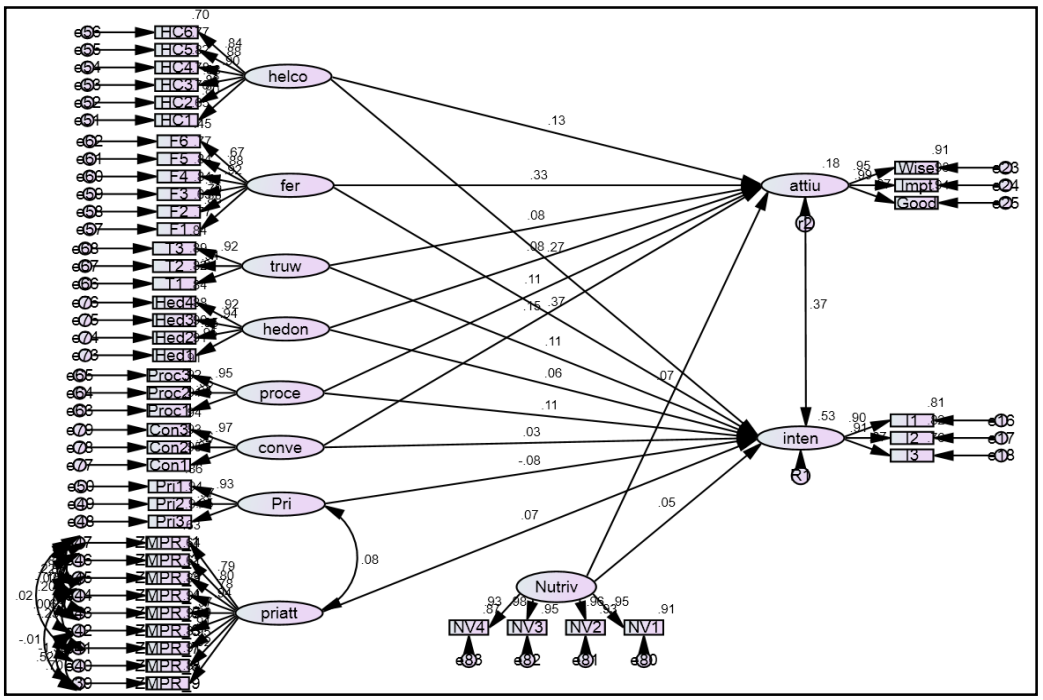


Figure 4.8 Moderating Effect of Perceived Price on Purchase Intention

4.7.2.3 Willingness to Take Effort and Enhancement of Purchase Intention

Moderating effect of effort in influencing the relationship between consumers' positive attitude toward organic fruits & vegetables and buying intention existed *(b=.04,p<.05)* with a good model fit (χ^2=4624.016(p=0.000); χ^2 /*df*=1.606; RMSEA=.076; SRMR=.080; CFI=.867; PNFI=.792), thereby supporting hypothesis 19 which stated that *'the positive attitude of consumers in purchasing organic fruits & vegetables is moderated by individual effort, such that the relationship strengthens (weakens) with higher (lower) levels of readiness to take effort'*. The interaction effect evidenced through analysis in AMOS is shown in Figure 4.9.

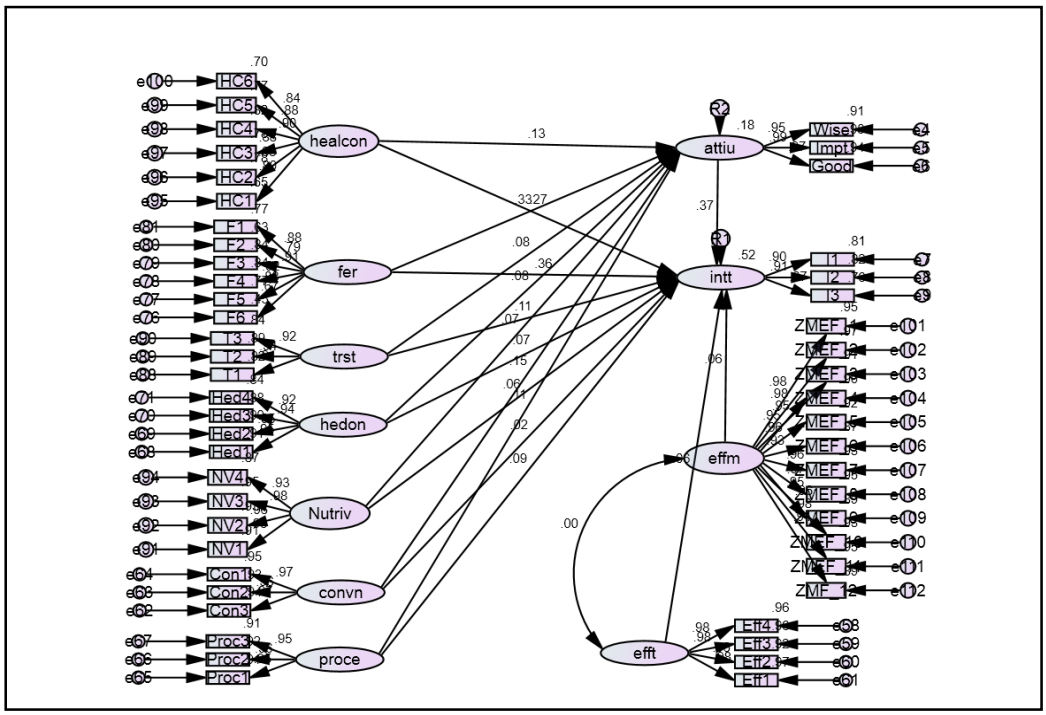


Figure 4.9 Moderating Effect of Effort on purchase intention

4.7.2.4 Enhancement of Purchase Intention by Social Pressure

As per the residual centering approach moderating effect of social pressure in influencing the relationship between consumers' positive attitude toward OF&V and their purchase intention existed *(b=.08,p<.01)* along with a good model fit (χ^2=3429.253(p=0.000); χ^2/df=1.107; RMSEA=.076; SRMR=.061; CFI=.925; PNFI=.835), thereby supporting hypothesis 20 which stated that *'the positive attitude of consumers in purchasing organic fruits & vegetables is moderated by social pressure, such that the relationship strengthens (weakens) with higher (lower) levels of social pressure'.*

Analysis of the interaction effect carried out in AMOS is shown in Figure 4.10.

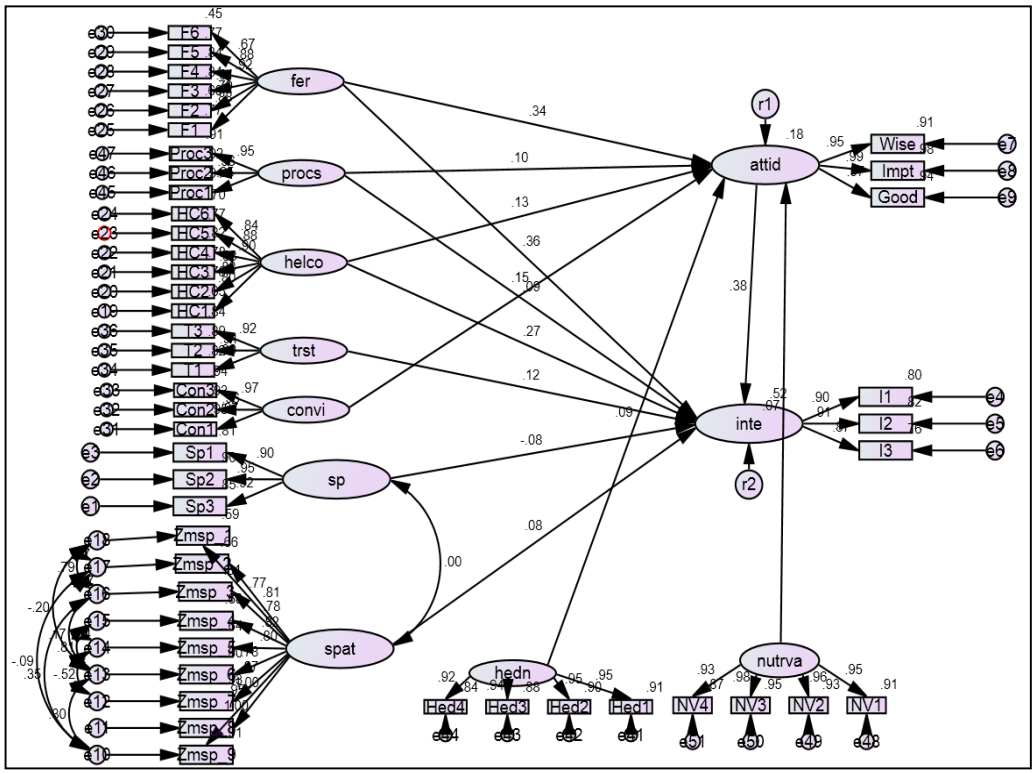


Figure 4.10 Moderating Effect of Social Pressure on Purchase Intention

4.8 EFFECT OF SOCIO-DEMOGRAPHIC VARIABLES

The influence of variables such as age, gender, marital status, education, having children at home, income, and region on consumers' purchase intention of OF&V were analysed using AMOS 20. Age (*b*=.156,*p*<.*01*), gender (*b*=.082,*p*<.*01*), marital status (*b*=.070,*p*<.*05*), education (*b*=.174,*p*<.*01*), children at home (*b*=.315,*p*<.*01*) have significant influences. Profiles such as respondents below the age of 40 years (*b*=.285, *p*<.*01*), females (*b*=.081, *p*<.*01*), married (*b*=.09, *p*<.*01*), education above bachelors degree (*b*=.414, *p*<.*01*) have more significant and positive effect on purchase intention. However, these variables do not have

any substantive effect on the outcome variable. Income and region, in general, do not have significant effect on consumers' purchase intention of OF&V.

Some studies have stated that in general, income does not have an effect on the consumption of organic buying (Thompson & Kidwell, 1998; Durham & Andrade, 2005). According to Curlet al. (2013) high-income groups may show more preference for buying organic food products than low-income groups. In this study, high income has shown a significant influence ($b=.318$, $p<.01$) on the purchase of OF&V, the low-income group still remaining insignificant.

4.9 MULTI-GROUP STRUCTURAL EQUATION MODELING (MGSEM) TO IDENTIFY SIGNIFICANT FACTORS OF PURCHASE INTENTION

A multi-group analysis was done to identify the factors which differentiate the regular buyers from occasional and potential buyers on their intention to purchase OF&V. Even though groups were found to be equivalent in the measurement model (Section 4.5.1) it is recommended to check the invariance in the structural model also (Anderson & Gerbing, 1988). Hence, all the factors such as fear, trust, health consciousness, environmental concern, hedonic quality, nutritional quality, production process, convenience, perceived price, effort and social pressure, which were identified to have an effect on consumers' purchase intention of OF&V were loaded in the structural model to have a direct relationship with purchase intention. Both the unconstrained and constrained models were run, and a chi-square difference test was done to reconfirm the presence of invariance between the groups (Table 4.16).

Table 4.16 Outcome of χ^2 Difference Test to Assure the Presence of Invariance

Model	χ^2 Value	*Df*	$\Delta\chi^2$	Δdf	*p*-value	*NNFI*	*CFI*	*RMSEA*
Unconstrained	5360.445	3069	__	__	__	.933	.936	.034
Constrained	5491.086	3189	130.641	120	0.239	.930	.933	.035

Note: NNFI= Non-Normed Fit Index, CFI= Comparative Fit Index, RMSEA= Root Mean Square Error of Approximation

Three models (regular, occasional and potential buyer models) were subjected to multi-group analysis with a $\chi 2$ difference test, constraining one path at a time to be equal across groups. If the $\chi 2$ values are insignificant, the paths are different for regular, occasional and potential buyers.

MGSEM (Table 4.17) showed that in the case of a few paths there exist no distinction as the $\chi 2$ difference tests were found to be significant when the paths were constrained. The paths involving factors such as fear, health consciousness and social pressure, and purchase intention are equal across groups; however, a clear path distinction was seen among other paths.

Production process (*b*=.438), trust (*b*=.326) and hedonic quality (*b*=.285) were the main three factors that motivated regular buyers to purchase OF&V, whereas convenience, price and effort are not significant factors for them. It is important to note that ***environmental concern (b=.112), which was not significant in the combined model of all groups, is considered significant by regular consumers***.

Table 4.17 Importance of Factors in Purchasing OF&V (Multi-Group Structural Equation Modeling)

Factors	Regular Buyers	Occasional Buyers	Potential Buyers
	B	*B*	*B*
Trust	.326***	.319***	.081^{ns}
Environmental Concern	.112*	.026^{ns}	.018^{ns}
Hedonic Quality	.285***	.117*	.204***
Nutritive Quality	.235***	.130*	.136*
Production Process	.438***	.284***	.017^{ns}
Convenience	.090^{ns}	.096^{ns}	.331***
Perceived Price	-.086^{ns}	-.077^{ns}	.133*
Willingness to take Effort	.010^{ns}	.072^{ns}	.134*

ns=non significant

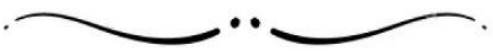
For occasional buyers, trust (*b*=.319) was the most significant motivating factor, followed by production process (*b*=.284) and hedonic quality (*b*=.117). Similar to regular buyers, convenience, price and effort were not significant factors to motivate occasional buyers to purchase OF&V. For the third group, i.e. potential buyers, convenience (*b*=.331) and hedonic quality (*b*=.204) were important factors to buy organic food; whereas, trust, environmental concern and production process are not significant factors. Further detailed discussion on MGSEM is given in chapter 5.

4.11 SUMMARY

The demographic profile, frequency of purchase and awareness of respondents about organic food products were explored. The proportion of organic food products in daily consumption is found to be very low. There is low awareness level about the concept of organic food products. The chapter also looks into factor loadings and communalities to re-confirm the uni-

dimensionality of the scales of measurement. Preliminary screening of data, which consists of checking of consistency and missing value evaluation, identification of outliers, testing the normality assumptions, and measurement error were carried out. Correlation, reliability and validity were checked for analysing the causal link between the constructs.

Constructs such as fear, trust, health consciousness, hedonic quality, nutritional quality, production process and convenience were found to have influence on purchase intention of OF&V, and the mediating role of attitude in enhancing the direct relations were also established. The moderating effect of social pressure, perceived price and effort were also found to be significant. Multi-group analysis carried out to identify the factors which differentiate regular buyers from occasional and potential buyers and the importance consumers give to the factors such as trust, environmental concern, hedonic quality, nutritional quality, production process, convenience, price and effort were found to be different.



Chapter 5

SUMMARY OF FINDINGS AND IMPLICATIONS

This chapter provides the summary of major findings and discussion on the factors which motivate or hinder consumers' intention to purchase OF&V. The effect of situational factors in influencing the consumers' intention to purchase and the factors that differentiate purchases of regular, occasional and potential buyers are discussed here. Implications along with the contributions of the study to the existing body of knowledge and recommendations are also given.

5.1 SUMMARY OF FINDINGS

The awareness level of organic products is very limited as only 35.4% of the respondents were able to correctly identify the concept of organic fruits and vegetables (OF&V) i.e. 'without chemicals', and only 17.9% of the respondents were able to identify India's organic label. Fear towards conventional food products which are not in conformity with the basic standards of organic production is the most important factor which is influencing consumers to buy OF&V. As a whole, environmental concern does not have a significant effect in influencing consumers to buy OF&V. Among the dimensions of perceived quality, consumers gave importance to the production process followed by hedonic quality, nutritional quality and convenience.

For regular buyers, production process and trust were the major important factors for buying OF&V and convenience, price and effort were

insignificant for them. Trust and production process were the major important factors for the occasional buyers of OF&V and environmental concern, convenience, perceived price and effort were insignificant. Potential buyers consider convenience and hedonic quality as important factors to buy OF&V and trust, environmental concern and production process are insignificant in their purchase intention. Environmental concern was a significant factor only for regular buyers, and occasional and potential buyers consider it as insignificant.

Perceived price, effort and social pressure are significant in increasing/decreasing the relationship between attitude towards OF&V and purchase intention.

5.2 SOCIO-DEMOGRAPHIC VARIABLES

The demographic profiles of the respondents provide an insight into the type of consumers who will be interested in the purchase of OF&V. The influence of demographic profile on the purchase intention of consumers was analysed by retaining these items as control variables and found a significant influence of demographic variables such as age, gender, marital status, education, high income and children at home (See section 4.8).

a) *Age and Purchase Intention*

Majority of regular (54.2%), occasional (66.2%) and potential buyers (71%) of OF&V are young consumers who fall in the age bracket of 26-40 years, and the average age of respondents is 37 years. Consumers below the age of 40 years (434- 68.6%) are more positive on purchase intention of OF&V than others. Out of the 335 respondents who have children at home, 57% (191 out of 335 respondents) of the consumers below the age of 40 has children at home whereas only 42.9% (144 out of 335 respondents) of the consumers above the age of 40 have children at home. Respondents below

the age of 40 years have 55.4% (117 out of 211) of children below the age of 10 years (Annexure VI).

b) Gender and Purchase Intention

56.5% of the respondents were women, and as per studies, women play a prominent role in household decision making especially for food items. According to 2013 statistics, globally women control 64% of household spending, and the percentage of household consumption controlled by women in India were reported to be around 44% (Catalyst, 2015). A study conducted in Punjab found that 79 – 93 % of working women were involved in the buying decision of household food items (Bhatti & Srivastava, 2003). Women have a significant influence on the purchase of OF&V as more number of women make decisions regarding household food purchase than men.

c) Education and Purchase Intention

Previous organic consumer research studies have found that educated and married consumers who have children at home are more likely to buy organic food products (Briz & Ward, 2009; Chen, 2011; Lee, 2016). Majority of the respondents either had a Bachelor's degree (46.5%) or a Master's degree (32.6%) and this study is in tune with previous researches which state that consumers who are highly educated have more intention to purchase OF&V than others.

d) Marital status, the presence of children at home and Purchase Intention

72.9% of the respondents were married, out of which 53% of the respondents have children at home. Studies have reported that the presence of children at home can influence the purchase of OF&V. Hjelmar (2011) conducted a qualitative study in Denmark, in which he found that the presence of children at home motivates parents to buy organic products. The

importance of children for buying OF&V was found in other studies from USA (James, Rickard, & Rossman, 2009), Poland (Biemans, 2009), and UK (Padel & Foster, 2005).

e) Income, Region and Purchase Intention

There are studies, especially in US, which state that income is not an important factor for consumers to buy organic food products as individuals with high income may not necessarily buy organic and as organic expenditure accounts for a small portion of total expenditure in the household, other economic factors such as search cost is a major concern (Thompson & Kidwell, 1998; Durham & Andrade, 2005).

According to Curl et al. (2013), compared to low-income people, high-income people show a higher likelihood of organic consumption; however overall relationship between income and consumption is insignificant. Studies in Spain (Gil et al., 2000), Europe (Torjusen et al., 2004), and Greece (Tsakiridou et al., 2008) have found that income and region have a significant effect on the purchase of OF&V.

As a whole, in this study income of an individual do not have any significance on consumers' purchase intention, but higher income ($b=.318$, $p<.01$) than lower income has a significant effect on purchase intention of OF&V (Annexure VII).

Studies cited in this section reporting the significance or insignificance of income in purchase intention may reflect the per capita income differences of various countries and also regions on a global level.

Unofficial statistical reports and interviews with the experts in this field show that central Kerala has more organic stores than north and south Kerala. In Kerala, Ernakulam district has the highest number of regular buyers (47.7%) and occasional buyers (37%). Kozhikode has the highest

number of potential buyers (45.2%) making it very evident that *availability, rather than region is a very significant factor for the regular purchase of OF&V.*

5.3 FREQUENCY OF PURCHASE AND PROPORTION OF CONSUMPTION

The respondents fell into three groups namely, regular, occasional and potential buyers. Regular buyers are those who buy OF&V at least once a week; occasional buyers are those who buy at least once in a month and potential buyers are those who have not bought organic food products in the last one month at the time of data collection. This classification is adopted from the studies on organic food products by Midmore et al. (2005) and Zanoli and Naspetti (2002) in Europe and Italy respectively. Even though 123 (61.8%) respondents of the regular buyers cultivate OF&V at home, they still continue to buy organic products from outside, as complete self-sufficiency by growing OF&V at home is not possible in urban cities like Ernakulam, Thiruvananthapuram and Kozhikode. This fact is clear from the results that only 23 regular buyers were able to consume 41-60% of OF&V from their home garden, whereas 71 respondents buy the same portion of OF&V from shops. Compared to the regular buyers, 145 occasional and 140 potential buyers grow OF&V at home. However, only 18 occasional and 23 potential respondents were able to consume 41-60% of OF&V from home garden which clearly projects the insufficiency of cultivating OF&V in urban cities.

5.4 AWARENESS ABOUT ORGANIC FRUITS & VEGETABLES

Individuals who were interested in OF&V and who belong to a category of regular, occasional or potential consumers were taken into consideration for the current study. So by looking at the category and their

interest, we can assume that these respondents had some kind of knowledge of OF&V. However, the findings were not so encouraging.

5.4.1 Organic Concept and Logo

Only 35.4% of the respondents were able to identify the concept (without chemicals) of OF&V correctly, and only 17.9% of the respondents could correctly identify India's official organic logo (India organic). Lack of awareness was also found in previous studies done in Europe (Naspetti & Zanoli, 2006), Spain (Briz & Ward, 2009), and Italy (Conte, Passantino, Longo, & Voslářová, 2014), where the respondents were not able to correctly identify the *concept of organic*. Even though awareness do not always lead to buying, it can always initiate a buying. However, there are other studies which stated that increased knowledge could increase the probability of buying OF&V (Ellen, 1994 in USA; Gracia & De Magistris, 2008 in Italy). An objective awareness rather than a subjective awareness about OF&V is necessary to positively influence consumers to buy (Beharrell & MacFie, 1991).

A study conducted in Spain by Briz and Ward (2009) found that 63% of the respondents knew about OF&V; however when asked about the definition of organic, only 27% were able to define correctly. The study further found that there exists a relationship between awareness and actual buying, however when the awareness level increases beyond a limit, the likelihood of consumers buying OF&V declines. The researcher suggested that once the consumers are truly aware of the OF&V, their buying decision will be based on the product attributes rather than just perception.

Organic farming production process incure higher costs for the producers which the consumers may not take into serious consideration. If the consumers are convinced they may be willing to pay higher prices as

suggested by Padel and Foster (2005); Botonaki et al. (2006), in their studies in Europe and Greece respectively.

5.5 FACTORS AFFECTING PURCHASE INTENTION

Purchase of OF&V depends on many factors, some of which are major influencers. Eight factors namely fear, trust, health consciousness, environmental concern, hedonic quality, production process, nutritive quality and convenience were selected after a careful examination of previous studies to see their effect on purchase intention of OF&V. The findings in this regard are summarised in the following portions.

5.5.1 FEAR

Fear towards conventional food products is the most prominent factor in increasing the purchase of OF&V. As compared to the other constructs, standardised beta coefficient of fear has the highest value ($\beta=.491;\ p=<.000$) which implies that every one unit increase in consumers' fear towards OF&V will increase consumers' purchase intention by .49 units. Majority of the western studies have found that health consciousness and environmental concern are the major factors which motivate consumers to buy OF&V (Section 2.4.2 & 2.5.2), which may be due to the food safety assurance the western countries provide to their citizens. However, in India there exist a double standard approach by the government and producers where they comply by the food safety standards strictly while exporting and the products which are sold in the domestic market are left with non-compliance of standards. Regular availability of news and videos in social media regarding adulteration, unhygienic method of preparing food and high usage of pesticide in food products create fear among the consumers which can direct them to safer food products.

A study conducted by Kerala Agricultural University from January – March 2017 found that there exist insecticides and pesticides beyond permissible limits in cumin powder, curry masala, cardamom, chilli (long dry), chilli powder, kashmiri chilli powder, cumin seeds, dry ginger powder, kasuri methi, fennel powder, garam masala, tea powder, green chillies and coriander, mint, curry leaves, leafy vegetables, carrots and cauliflower (John, 2017; Nambudiri, 2017). Apart from the pesticide residue in food products, news regarding retailers contaminating the food products adds to the fear of consumers. Highly adulterated food items are milk, honey, spices, ice-cream, food grains and flour, coffee powder, tomato sauce, tea leaves, vegetable oils and ghee. Lack of stringent punishment under the law makes the culprits move around freely. Even though the law commission in 2017 recommended an amendment in the Indian penal code (section 272, 273) for harsh punishment, implementation is yet to come, and the culprits are to get only minimum imprisonment up to three months and a fine of Rs.1 Lakh only.

The government has a serious role in promoting organic food products and discouraging/ penalising the use of harmful chemicals and pesticides.

5.5.2 TRUST

Trust towards producers, certifying agencies and retailers play a significant and positive ($\beta=.139;\ p=<.000$) role in consumers' purchase intention toward OF&V. Previous studies have demonstrated that trust in third-party certification, producers and retailers can influence the willingness to pay for organic food products (Krystallis & Chryssohoidis, 2005). In order to increase trust towards the producers, the food mileage between consumers and producers have to be reduced as consumers are looking for

shorter distribution channel (Hamzaoui Essoussi & Zahaf, 2009). Locally grown food products are considered fresh and better tasting than those coming from other states and countries, which also enhance the trust of the consumers when they personally know the producers (Midmore et al., 2005).

As the awareness level of certifying logo/label is low according to the study, it is essential to create awareness about it to generate trust and familiarity towards organic food products. A study conducted in Germany found that information provided by the nutritionists, physicians, environmental organisations and so on are considered trustworthy than information provided by the media, producers and authorities (Röhr, Lüddecke, Drusch, Müller, & Alvensleben, 2005). However, in Denmark and Britan, consumers consider certifying agencies, labels and logo more trustworthy than sellers (Wier et al., 2008). In this study also, if we notice the mean value of the trust which consumers have towards the certifying bodies (M=5.21), labels and logo (M=5.21), their mean values are higher than those for retailers (M=5.17), which shows that consumers always look for the labels and logos for verification. Hence, increasing the visibility of organic certification, labels and logos to instil confidence in consumers about the authenticity of OF&V will help in increasing the consumption.

5.5.3 HEALTH CONSCIOUSNESS

Readiness to undertake healthy action was found to be the second most important factor for consumers to buy OF&V. Previous studies conducted in India (Chakrabarti, 2010; Paul & Rana, 2012), Ireland (O'Donovan & McCarthy, 2002), USA (Durham & Andrade, 2005), UK (Padel & Foster, 2005), and Germany (Kriwy & Mecking, 2012) found health consciousness as the main motivating factor for consumers to buy organic food products. However, according to studies conducted in Scotland

(Michaelidou & Hassan, 2008) and Taiwan (Chen, 2007), health aspect is not the most important factor. Scottish people considered *food safety concern* and *ethical identity* as very important factors and health consciousness was found to be insignificant (Michaelidou & Hassan, 2008). Chinese consumers found health consciousness more important than food safety concern (Liu et al., 2013). All these indicate that the concern towards the consumption of conventional, and organic food can vary in different countries and cultures.

Even though the current study was in accordance with other previous studies which find health consciousness as an important factor, the degree of importance varies placing fear as the dominant factor, which might be due to the socio- economic and legal developments of Kerala.

5.5.4 ENVIRONMENTAL CONCERN

Environmental concern, in general, does not have any significant effect on the purchase intention of OF&V. This is in contradiction with western studies which claimed its importance. Studies from USA have found environmental concern as the most important factor for consumers to buy OF&V (Loureiro, McCluskey, & Mittelhammer, 2001; Durham & Andrade, 2005), whereas in the UK it was health benefit followed by environmental benefit (Padel & Foster, 2005; Chryssohoidis & Krystallis, 2005; Gracia & De Magistris, 2008).

It is argued that cultural and economic background can interfere in pro-environmental behaviour. Maslow's law of hierarchy of human needs was used by Lehmann in 1999 to claim that individuals in less developed countries are not concerned about the environment as their basic necessities are not fullfilled. He further stated that an individual would try to spare more energy, time and money for caring the environment only when his personal needs are met (as cited in Kollmuss & Agyeman, 2002).

Diekmann and Franzen (1999) opined that it's not because people in the developing nations are not concerned about the environment, but they have other pressing issues which need to be dealt with rather than environmental issues. Blake (1999) have altogether a different viewpoint on why there exists a gap between environmental concern and behaviour. He identified three barriers for carrying out environmental behaviour: 1)Individuality, 2) Responsibility, and 3) Practicality.

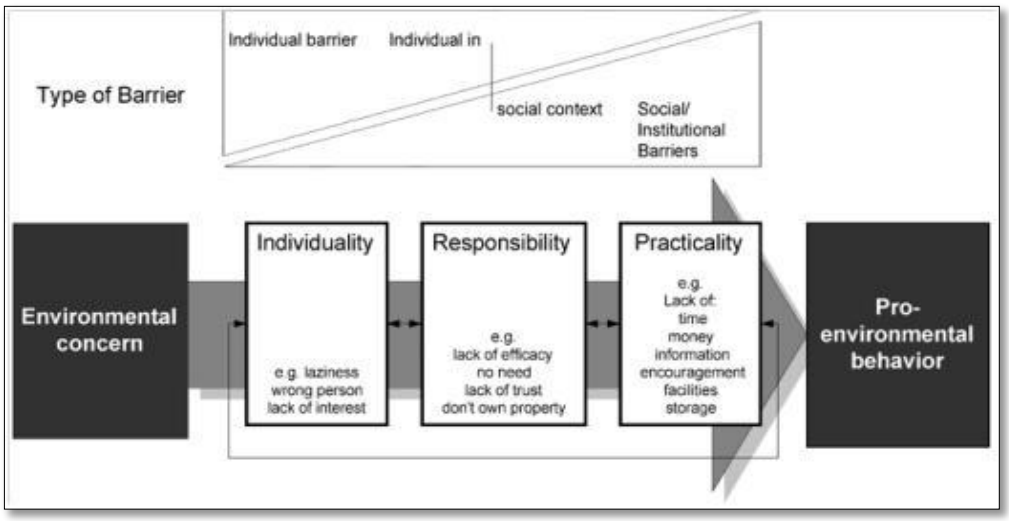


Figure 5.1 Barriers between Environmental Concern and Pro-Environmental Behavior (Blake, 1999)

Individuality talks about a person's attitude and temperament, where he/she might have a strong concern for the environment. Blake's second barrier, responsibility is related to 'Locus of Control', where an individual has to believe that his action can influence an event or an outcome. However, when that conviction is lacking, even if an individual is concerned, he won't be ready to act pro-environmentally.

Furthermore, when the individual notice a lack of responsibility on the part of the government and local bodies, he feels less motivated to be

responsible. Finally, the barrier of practicality, in this scenario individual will have the right attitude and intention to act pro-environmentally, however constraints such as of time, money and information act against an individual's action.

Thus we can assume that personal values of individuals can play a role in motivating them to choose products (Grunert, 1995), however it is not under the purview of the current study and future researchers can take up this aspect.

5.5.5 PERCEIVED QUALITY

All the dimensions of perceived quality were found to be significant for consumers to buy OF&V. Consumers consider production process ($\beta=.135;\ p=<0.05$) as the most important dimension of perceived quality followed by hedonic quality ($\beta=.092;\ p=<.01$), nutritional quality ($\beta=.084;\ p=<0.05$) and convenience ($\beta=.077;\ p=<0.05$).

a) Production Process

The finding is in tune with the studies conducted in Germany (Grebitus et al., 2007), UK (Padel & Foster, 2005), Greece (Botonaki et al., 2006), and Taiwan (Chen, 2007; Teng & Wang, 2015) where production process is the most important factor for consumers in buying OF&V. These consumers are interested in knowing whether OF&V are free from genetic modifications, pesticides, additives and artificial flavouring.

The socio-economic, geographic, demographic and other such factors differ considerably in various parts of the world. For example, land holdings of majority of people in Kerala are very small. Pest control using natural pesticides may not be practical in all situations; all these factors create apprehension in the mind of the consumers.

b) Hedonic Quality

A comparative study carried out by Prescott et al. (2002) among the consumers of Japan, Taiwan, Malaysia and New Zealand found that production process was important for Asian countries more than non- Asian countries. Respondents from New Zealand gave high rating to hedonic or sensory appeal and less rating to production process or natural content. The studies of Honkanen and Frewer (2009) from Russia and Steptoe et al. (1995) from the UK also found hedonic or sensory appeal as the most important factor for consumers to buy organic food products than production process.

c) Nutritional Quality and Convenience

Hedonic quality, nutritional quality and convenience are important predictors of attitude but not of purchase intention. This means that consumers attitude towards OF&V is formed by critically evaluating these dimensions of quality, however they do not directly predict the purchase intention of consumers. This indicates that the influence of hedonic quality, nutritional quality and convenience on purchase intention is indirect and their influence within the model is comparatively less.

Production process has a direct effect on the purchase of OF&V whereas, hedonic appeal, nutritional quality and convenience will have enhanced positive influence on purchase of OF&V when people have a positive attitude, implying mediating roles of these factors, on purchase of OF&V.

5.6 MEDIATING ROLE OF ATTITUDE

The importance of mediating variable attitude is very evident in the current study to enhance the intention of consumers to buy OF&V. The presence of attitude did not restrain the direct relation of factors like fear,

trust, health consciousness and production process on consumer purchase intention. This implies a statistically significant partial mediation. However, the direct relation of factors such as hedonic quality, nutritional quality and convenience were curtailed due to the presence of the mediating variable attitude, indicating full mediation in these paths.

Factors such as fear, trust, health consciousness and production process can have direct influences on purchase intention, where the role of attitude in influencing is limited. Factors such as hedonic quality, nutritional quality and convenience, are enhanced in effect when attitude plays a predominant role in purchase intention. Thus, it is evident that only when people have positive attitude towards OF&V, they will be able to overcome the problems, if any, related to hedonic quality, nutritional quality and convenience. For instance, individuals will buy OF&V when there is lack of availability near their workplace or home by taking extra effort only when they have a positive attitude towards OF&V.

It is evident from the structural equation model that all the constructs taken into consideration for the current study affect the consumer purchase intention of OF&V except environmental concern, nevertheless these direct relationships are mediated positively and significantly by the attitude towards OF&V. Thus it is evident that intention of the consumer is not only generated by the factors like fear, trust, health consciousness, production process, hedonic quality, nutritional quality and convenience but also by forming a positive attitude towards OF&V, which supports the findings of many previous studies (Michaelidou & Hassan, 2008; Zagata, 2012; Zhou et al., 2013; Teng & Wang, 2015; Singh & Verma, 2017).

5.7 MODERATION EFFECTS ON PURCHASE INTENTION

The direct effects of independent variables are often influenced by interactive variables termed as moderating variables. The seven independent variables under the study are moderated in their effects by variables - social pressure, effort and perceived price. The direct effects of independent variables under consideration on purchase intention are strengthened or weakened due to the effect of moderating variables which is discussed below.

a) Social Pressure

Social pressure positively moderates the relationship between attitude and purchase intention, confirming that when social pressure increases the consumers' intention to purchase OF&V increase and vice versa. Contrary to the findings of some previous researches in UK (Povey et al., 2000; Lobb et al., 2007) denying the moderation effect of injunctive and descriptive norms on purchase intention, the findings of this study support the influence of social pressure on an individual's purchase behaviour as found in the studies done in Finland (Tarkiainen & Sundqvist, 2005), Taiwan (Chen, 2007; Teng & Wang, 2015) and Pakistan (Al-Swidi et al., 2014).

Injunctive norms (individuals giving importance to the perception of *significant others* in performing or not performing a behaviour) are more important than the descriptive norms (the perception that others are or are not performing the behaviour in question) in influencing the purchase intention. Statements coming under injunctive norms such as *"Most people whose opinions I value think I should consume OF&V" (Mean value =5.33) and "I take shopkeepers' suggestions into consideration when I purchase OF&V" (Mean value =5.22)* are very important. *"Most*

people who are important to me consume OF&V" *(Mean value = 5.16)* coming under descriptive norms fare less in comparison with the injunctive norms.

Hence, in a collectivist country like India, where individuals give great importance to groups comprising of family, friends, peers and so on, promotion of OF&V should be done in a manner to reach larger groups.

b) Effort

In modern times a lot of importance is given to convenience in procurement. Willingness to take effort positively moderates the relationship between attitude and purchase intention. Willingness or lack of willingness to take effort positively or negatively influence the purchase intention. The effect of willingness to take effort found in this study was also found to be true in studies conducted by Vermeir and Verbeke (2006) in Belgium and Ruiz de Maya et al. (2011) in Denmark, Finland, Germany, Greece, Italy, Spain, Sweden, and the United Kingdom.

At present, availability of OF&V is limited, and the readiness of an individual to take extra effort is very decisive. Awareness, accessibility and visibility of OF&V may be increased to enhance consumption in spite of the difficulty in procurement.

c) Perceived Price

Perceived high price negatively moderates the relationship between attitude and purchase intention, i.e. when the price of OF&V increases, the consumer's intention to purchase OF&V decreases and vice versa. Studies done in Australia by Lockie et al. (2004) and in the UK by

Fotopoulos and Krystallis (2002) also found that consumers' perception of price as high act as a barrier in buying organic food products.

Solution to overcome consumer hesitance is to increase the consumer base by getting more people to consume OF&V. This can be done by converting potential buyers to regular buyers. Wier et al. (2008) found that heavy users are ready to pay a higher price than medium and light users. In this study also, high price does not significantly decrease the purchase of regular and occasional buyers (Section 4.9).

High perceived price is stated to affect the purchase of potential consumers negatively. Spreading the benefit of consuming organic foods can make the hesitant consumers buy more of OF&V.

The effect of moderating variables in influencing the purchase of OF&V is of significance and special attention to these factors, even when the consumers have positive attitude towards purchasing OF&V, is a matter to be taken care of to increase the consumption levels.

5.8 FACTORS INFLUENCING REGULAR, OCCASIONAL AND POTENTIAL BUYERS

Multi - Group Structural Equation Modeling (MGSEM) highlights the factors which differentiate the regular, occasional and potential buyers.

Convenience in access is not an important factor for regular and occasional buyers; whereas it is important for potential buyers (Midmore et al., 2005; Lockie et al., 2002). This is not because regular and occasional buyers do not find inconvenience as a barrier rather they found value in purchasing organic food products (Padel & Foster, 2005). Therefore, if producers can increase the accessibility of organic food products, the demand for OF&V can be accelerated. According to Midmore et al. (2005)

and Zakowska-Biemans (2011), increasing convenience characteristics will reward producers' effort and also enhance the indication of quality of the product. Denmark, which has the highest market share of organic food products, is selling OF&V through supermarkets and non-speciality stores. Such moves can increase the consumption of OF&V in Kerala, a state which has a high population density and spread out habitation.

Perceived price and effort are insignificant for regular and occasional buyers, whereas these constructs were found to be significant for potential buyers in the purchase of OF&V.

Even though environmental concern was insignificant in the combined model, and for occasional and potential buyers groups, **regular buyers are significantly conscious of environmental impacts**. Studies of Tsakiridou et al. (2008) in Greece and Pino et al. (2012) in Italy also have found that regular buyers are more conscious about the environment than non-regular buyers. According to Sriram and Forman (1993), environmentally conscious consumers make it as a matter of life choice. The assumption of personal value of an individual in influencing the buying of OF&V discussed in section 5.5.4 may be recalled here.

Production process (*b=.43*) is considered as the most important factor for regular buyers, whereas for occasional buyers it is trust (*b=.32*), and for potential buyers, it is convenience (*b=.33*). Trust is not found to be a significant factor for potential buyers. Wier et al. (2008) also found that non-regular buyers demand organic labels and logos as they are very sceptic towards organic products, whereas for regular buyers, the information about the production process, suppliers and products give more confidence when they buy organic food products.

Building up trust, and convenience by increasing the availability of OF&V will lead the occasional and potential buyers to increase the quantum of purchase/ consumption.

5.9 IMPLICATIONS OF THE STUDY

The study contributes to both academic literature and practical approach to promote OF&V in Kerala.

5.9.1 Contributions to the Body of Knowledge

This study tried to identify the factors which motivate or hinder consumers in the purchase of organic food products. The moderating effect of social pressure, perceived price and effort found to be very significant in the study may be stressed upon for the promotion of OF&V. The current study was able to fill the gap which existed in organic consumer study in the Indian context. As there exist a huge potential for OF&V to grow in the domestic market, understanding the factors which motivate the consumers' intention to purchase OF&V is very vital.

According to this study emotional factor 'fear' can influence individuals to buy OF&V than rational factors. Studies conducted in western countries were mainly propagating the importance of health consciousness and environmental concern as the major factors for consumers to buy organic food products. The environmental concern which was found significant in majority of western studies (Chen, 2009; Magnusson et al., 2003; Durham & Andrade, 2005; Loureiro & Hine, 2002) was mostly found to be insignificant in the current study. This calls for further in-depth consumer behaviour studies to understand the environmental perception in developing countries like India, more specifically in Kerala, and also their approach to environmental issues.

5.9.2 Recommendations

Importance of the findings of this study can be reflected through right promotion of OF&V, stressing on the following important factors to the benefit of all the stakeholders, i.e. producers, suppliers and consumers.

a) Dealing with Fear in Purchase of OF&V

Fear towards consumption of conventional food products which are not in conformity with the basic standards of organic production is the most important factor for consumers to purchase OF&V in Kerala. Therefore, producers, retailers, government and other stakeholders should focus on this factor and take promotional measures to convert the potential and occasional buyers to regular buyers. This can be achieved through awareness, motivation campaigns and promotion (advertisements, offers, delivery to home etc) to get people habituated with organic food products to alleviate the fear of the consequences of ingesting pesticides and chemicals filled fruits and vegetables.

b) Perceived Price, Effort, and Social Pressure in Purchase of OF&V

The situational factors like perceived price, effort and social pressure can act as promoters or inhibitors for consumers in purchase of OF&V. In order to motivate the consumers to pay premium price and also to take the extra effort in buying OF&V, stakeholders need to increase the consumers' awareness about the health benefits which they derive by consuming organic food products. Increasing awareness about the certification, labels and logos of OF&V would also increase the value perception and trust towards organic food items. Creating value for the product in the mind of consumers is the core marketing strategy which the stakeholders have to follow. Creating awareness among family, friends and others can increase the social pressure which in turn will motivate more consumers to purchase OF&V regularly.

c) Create Convenience in Purchase of OF&V

In order to convert the potential buyers to regular buyers, availability, accessibility and visibility of the products are highly essential. Following the path of Denmark which has the highest market for organic food products in the world, selling OF&V through supermarkets and non-speciality stores could increase the sale of OF&V in Kerala to a great extent.

As supermarkets like Reliance and More were chosen by the respondents as the most preferred outlets for procuring household food items, providing separate and sufficient shelf space for OF&V would increase its accessibility.

d) Production Process and Trust in Purchase of OF&V

As regular and occasional buyers are more concerned about the production process and trust, the government should extend the certification and labelling system on organic cereals and pulses to organic fruits and vegetables. If this system becomes mandatory, it will allow the consumers to verify the place it is produced, whether it's free from pesticides, hormones, additives etc., and will enhance the trust towards OF&V.

Creating awareness/ promotion of the various factors (fear, trust, health consciousness, hedonic quality, nutritional quality, production process, and convenience) dealt with in the study may be used to awaken the hesitant consumers to use more of OF&V.

5.10 SCOPE FOR FUTURE RESEARCH

In view of the limitations mentioned in chapter 1, further researches in the following areas are suggested to understand the problems and scope of promoting the consumption of organic products.

a) *Other Products*

The current study focused on OF&V (which are the most sought-after organic food products) only, thereby excluding other categories of organic products such as organic cereals and pulses, organic cosmetics, organic dress materials etc. Therefore future researchers can study about these products and try to find out what factors influence its purchase.

b) *Producers and Suppliers*

The current study had focused only on the consumers' intention to purchase OF&V, and the production and supply side of organic products are not examined. The problems faced by the farmers to convert to organic farming and the difficulty faced by the suppliers to transport the organic food items from the place of production to place of selling were not under the purview of this study. Therefore, future researchers can undertake studies to identify the problems faced by farmers and suppliers of organic food items and how to overcome those issues.

c) *Qualitative studies*

As the current study used the questionnaire method, the subjective self-reporting of the construct without objectively analyzing their buying habits can affect the study. Therefore future researchers can think of qualitative studies by undertaking in-depth interviews and observations.

d) *Other Factors*

Future researchers can look into other possible internal and external factors which can motivate organic buying.

5.11 CONCLUSION

The presence of pesticides and insecticides in food products have increased drastically over the period of time due to man's greed to make

profit in a short span of time. While increasing the yield and shelf life of food products, the application of pesticides and insecticides have contributed to the increased incidences of lifestyle diseases. As an alternative solution to this issue, a few producers have started organic farming though, in majority of countries there are not many takers for it. This study was an attempt to identify the factors which can motivate and hinder consumers in buying organic fruits and vegetables. In Kerala, the market for organic fruits and vegetables have a long way to go.

Majority of the respondents have a general awareness of organic food products; however, awareness about the basic concept (without chemical) and India's organic logo is limited to a few consumers. Newspapers and TV being the major sources of information among the respondents, capturing their attention through these means would be effective.

Providing grow-bags to households and making them self-sufficient is not a feasible alternative solution among the urban population who lead a busy life. However, with the urban purchasing power, a great majority (Potential buyers) of respondents can be converted to regular buyers if the availability and accessibility of OF&V are increased. Availability through supermarkets will be increasing the consumption of OF&V.

The study has identified fear towards conventional food products as the most important factor for shifting consumers' food habit from conventional food items which are not in conformity with the basic standards of organic production to organic food products like fruits and vegetables in Kerala. In addition, there are other factors such as health consciousness, trust, hedonic quality, nutritional quality, production process and convenience which can also influence the consumers' intention by forming an attitude. The study also identified the importance of situational factors

such as perceived price, social pressure and willingness to take effort in exerting an influence on the direct relations between attitude and intention.

There are certain factors which differentiate the regular buyers from occasional and potential buyers. As the degree of intention to buy varied across these groups, the factors which motivate and hinder them in buying also varied. Even though fear, health consciousness and social pressure were similar across these groups, other factors projected a varied influence. Production process was the significant factor for regular buyers whereas for occasional buyers it was trust. Potential buyers seek convenience or ease of access to OF&V in the purchase.

Thus, the findings of the study would suggest the stakeholders of organic fruits and vegetables to take into consideration of various factors while promoting organic products, especially the fear towards conventional food products to positively channelize attitude towards the purchase of OF&V. Generating more access and trust towards organic fruits and vegetables will enlarge the consumer base by converting the potential and occasional buyers to regular buyers, thus leading more people to a healthy way of living.

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Annexure I Questionnaire

The purpose of my research is to understand the individual's buying behaviour of organic food products in Kerala. The study is focusing on organic fruits and vegetables (OF&V) available in the market. The result will be analysed and used as part of my PhD thesis. Your anonymity is absolutely guaranteed. Thank you for helping.

1) What type of organic buyer are you?

☐ Regular ☐ Occasional ☐ Potential Buyer

Directions: Please put ✓ mark appropriately.

Code	Statements *Conventional food= ordinary food products available	Strongly Disagree	Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Agree	Strongly Agree
HC1.	I reflect about my health a lot.							
HC2.	I'm very self-conscious about my health.							
HC3.	I'm alert to changes in my health condition							
HC4.	I'm usually aware of my health condition							
HC5.	I take responsibility for the state of my health.							
HC6.	I'm aware of the state of my health as I go							
F1.	I fear that conventional* food products available in market contain pesticide residue.							
F2.	I fear that agricultural products from conventional farming will cause diseases.							
F3.	I fear that exclusive consumption of ordinary food could cause lifestyle diseases such as cancer, asthma, obesity etc., in the long run.							
F4.	I fear that consumption of ordinary food reduces longevity							
F5.	I fear that the environment suffers under conventional agricultural practices.							

F6.	I avoid/ reduced the consumption of fruits/vegetables due to the fear of pesticide residue in food products							
EC1.	The current development path is destroying the environment							
EC2.	Unless we do something, environmental damage will be irreversible							
EC3	I practice environment saving activities (Ex: Campaigns, protest)							
EC4	I prefer consuming recycled products (Ex. Bags, Books)							
EC5	I dispose my garbage in different containers (Plastic & food waste)							
T1	Organic food label/logo gives me a feeling of trust							
T2	I have confidence on the merchants who sell organic certified products							
T3	I have trust in the food certification bodies when they claim the products as organic.							
Pri1	The price of organic food is too expensive for me							
Pri2	Buying organic food products is worth the money							
Pri3	Substitute products are available at lesser cost.							

Direction: Please put ✓ mark appropriately.

Code	**Statement** ***OF&V= Organic Fruits and Vegetables**	**Strongly Disagree**	**Disagree**	**Disagree Somewhat**	**Neutral**	**Agree Somewhat**	**Agree**	**Strongly Agree**
Eff1	I believe that I have the time and willing to travel extra distance to purchase OF&V*. **(In future/at present)**							

Eff2	I would be willing to visit several different stores, specifically to purchase OF&V. **(In future/at present)**							
Eff3	I feel that organic food is worth the extra effort that may be required to purchase it.							
Eff4	I would consider changing grocery stores if my local supermarket didn't carry organic food. **(In future/at present)**							
Sp1	Most people whose opinions I value think I should consume OF&V.							
Sp2	Most people who are important to me consume OF&V							
Sp3	I take shopkeepers' suggestions into consideration when I purchase OF&V.							
I1	I intent to purchase OF&V in future.							
I2	I expect to purchase different types of OF&V in future.							
I3	I want to purchase OF&V in future.							

Direction: Please state your <u>opinion</u> which of following attribute is important while purchasing organic fruits and vegetables

Code	Statement ***Genetic Modification= that has been artificially altered so as to produce a desired characteristic Ex: pest resistant seed, fruits etc.**	Not at all important	Low importance	Slightly important	Neutral	Moderately Important	Very Important	Extremely Important
Hed1	Smells nice							
Hed2	Looks fresh							
Hed3	Should have pleasant texture							
Hed4	Taste							

NV1	Contains a lot of vitamins and minerals							
NV2	Should have more nutritious							
NV3	Is good for my skin/teeth/hair/nails etc.							
NV4	Is high in fiber and roughage							
Proc1	Is free from genetic modifications *							
Proc2	Should not contain additives and artificial flavouring							
Proc3	Should be free from pesticides							
Con1	Can be brought in a shop close to where I live or work.							
Con2	Is easily available in shops and supermarkets.							
Con3	Wide varieties of organic product are available in the shop I visit.							

Direction: Please state your opinion about <u>buying of organic fruits and vegetables products in general</u>

<u>(Note to users of report: Measurement of Attitude)</u>

1. Good

_____:_____:_____:_____:_____Bad

Very Much Good Much Good Neither Much Bad Very Much Bad

2. Important

_____:_____:_____:_____:_____Unimportant

Very Much Important Much Important Neither Much Unimportant Very Much Unimportant

3. Wise

_____:_____:_____:_____:_____Foolish

Very Much wise Much wise Neither Much foolish Very Much foolish

1. What percentage of household food shopping do you do in general?

☐ 0% ☐ 15% ☐ 30% ☐ 45% ☐ 60% ☐ 75% ☐ 100%

2. How often do you do a '**main shopping**' for your household food items in general?

☐ Every day ☐ Every 2-3days ☐ About Once a Week ☐ A couple of times a month
☐ Once a month ☐ Less often ☐ Never

3. And how often do you shop in addition to your main shopping in general?

☐ Every day ☐ Every 2-3days ☐ About Once a Week ☐ A couple of times a month
☐ Once a month ☐ Less often ☐ Never

4. Where do you buy most of your household food items? (Rank 1, 2 & so on...)

☐ Supermarket chain local shops (e.g. Reliance, More) ☐ Local Supermarket (e.g. varkey's, veekey Mart)
☐ Small grocery stores or corner shops ☐ Local specialist shops (organic shops)
☐ Street markets ☐ Farm shops

5. From where did you hear about organic products? (Rank 1, 2 & so on...)

☐ Newspaper ☐ Magazines ☐ TV programme ☐ Trade Fair
☐ Seminar/Conference ☐ Friends ☐ Family ☐ Shop keeper

6. Which one of the following matches the most with your concept of organic food product?
(Tick only one)

☐ Without Chemical ☐ Natural/ Pure Food ☐ Healthy Food ☐ No- pollution related Food
☐ Food free from Genetically Modified organism ☐ With Chemical ☐ Don't Know the Answer

7. Identify India's official Organic Label

☐  ☐  ☐  ☐ 

☐ Don't Know

8. Do you grow organic fruits/vegetables at home?

☐ Yes ☐ No

9. If yes, what is the proportion of organic food products in your consumption from your **home garden**?

☐ 0-10% ☐ 11-20% ☐ 21-30% ☐ 31-40% ☐ 41-50%

☐ 51-60% ☐ 61-70% ☐ 71-80% ☐ 81-90% ☐ 91-100%

10. How often do you purchase organic fruits and vegetables?

☐ Once a Week ☐ A couple of times a month ☐ Once a month

☐ Have not brought in the last one month

11. What is the proportion of organic fruits and vegetables in your consumption from **your buying?**

☐ 0-10% ☐ 11-20% ☐ 21-30% ☐ 31-40% ☐ 41-50%

☐ 51-60% ☐ 61-70% ☐ 71-80% ☐ 81-90% ☐ 91-100%

Personal Information

1. Gender 2. Age_____

☐ Male ☐ Female

3.Marital Status

☐ Single ☐ Married ☐ Other

4. Education Level

☐ SSLC ☐ Higher Secondary ☐ Bachelors Degree ☐

☐ Diploma ☐ Masters Degree ☐ PhD ☐ Other Certification

5. Are there children in the household?

☐ Yes ☐ No Please specify the age of the youngest child_____

6. What is your approximate yearly gross household income (Indian Rupees)?

☐ Less than 1, 00,000 ☐ 1, 00,000-2, 00,000 ☐ 2, 00,000- 3, 00,000

☐ 3, 00, 000- 4, 00, 000 ☐ 4, 00, 000- 5, 00, 000 ☐ above 5, 00, 000

Annexure II Garrett Ranking Conversion Table

GARRETT RANKING CONVERSION TABLE

The conversion of orders of merits into units of amount of "socres"

Percent	Score	Percent	Score	Percent	Score
0.09	99	22.32	65	83.31	31
0.20	98	23.88	64	84.56	30
0.32	97	25.48	63	85.75	29
0.45	96	27.15	62	86.89	28
0.61	95	28.86	61	87.96	27
0.78	94	30.61	60	88.97	26
0.97	93	32.42	59	89.94	25
1.18	92	34.25	58	90.83	24
1.42	91	36.15	57	91.67	23
1.68	90	38.06	56	92.45	22
1.96	89	40.01	55	93.19	21
2.28	88	41.97	54	93.86	20
2.69	87	43.97	53	94.49	19
3.01	86	45.97	52	95.08	18
3.43	85	47.98	51	95.62	17
3.89	84	50.00	50	96.11	16
4.38	83	52.02	49	96.57	15
4.92	82	54.03	48	96.99	14
5.51	81	56.03	47	97.37	13
6.14	80	58.03	46	97.72	12
6.81	79	59.99	45	98.04	11
7.55	78	61.94	44	98.32	10
8.33	77	63.85	43	98.58	9
9.17	76	65.75	42	98.82	8
10.06	75	67.48	41	99.03	7
11.03	74	69.39	40	99.22	6
12.04	73	71.14	39	99.39	5
13.11	72	72.85	38	99.55	4
14.25	71	74.52	37	99.68	3
15.44	70	76.12	36	99.80	2
16.69	69	77.68	35	99.91	1
18.01	68	79.17	34	100.00	0
19.39	67	80.61	33		
20.93	66	81.99	32		

Annexure III Preferred Source of Purchase

Annexure III Table 1 Garrett's Score

Rank	Percent Position	Garrett's Value
1	15.8	69
2	32.5	59
3	49.1	50
4	65.8	42
5	82.5	31
6	99.1	7

Annexure III Table 2 Ranking Provided by the Respondents

	1st*69	2nd*59	3rd*50	4th*42	5th*31	6th*7
Supermarket Chain	436	60	70	30	20	16
Local Supermarket	104	69	380	15	14	50
Small Grocery stores	50	455	49	33	45	50
Local organic shops	40	42	45	40	462	43
Street Market	36	37	38	485	27	45
Farm shop	38	27	36	37	34	498

Annexure III Table 3 Garrett's Ranking Method

	1st	2nd	3rd	4th	5th	6th	Total	Avg Score	Rank
Supermarket	3008	3540	3500	1260	620	112	39116	61.89	1
Local	7176	4071	1900	630	434	350	31661	50.09	3
Small Grocery	3450	2684	2450	1386	1395	350	35876	56.76	2
Local organic	2760	2478	2250	1680	1432	301	23791	37.64	5
Street Market	2484	2183	1900	20370	837	315	28089	44.44	4
Farm shop	2622	1593	1800	1554	1054	3486	12109	19.15	6

Avg= Average score

Annexure IV Source of Information

Annexure IV Table 1 Garrett's Score*

Rank	Percent Position	Garrett's Value
1	11.8	73
2	24.3	64
3	36.8	57
4	49.3	50
5	61.8	44
6	74.3	37
7	86.8	28
8	99.3	7

Annexure IV Table 2 Ranking Provided by the Respondents

	1st*73	2nd*64	3rd*57	4th*50	5th*44	6th*37	7th*28	8th*7
Newspaper	300	73	50	50	50	32	50	27
Magazine	77	77	28	23	27	300	50	50
TV	86	355	53	28	30	26	24	30
Trade Fair	38	15	26	39	44	50	370	50
Seminar/Conference	32	15	16	50	25	44	50	400
Friends	53	53	20	450	17	11	12	16
Family	58	45	465	17	21	8	8	10
Shopkeeper	20	17	20	20	475	30	40	10

Annexure IV Table 3 Garrett's Ranking Method

	1st	2nd	3rd	4th	5th	6th	7th	8th	Total	Avg. Score	Rank
Newspaper	21900	4672	2850	2500	2200	1184	1400	189	36895	58.37	1
Magazine	5621	4928	1596	1150	1188	11100	1400	350	27333	43.24	6
TV	6278	22720	3021	1400	1320	962	672	210	36583	57.88	2
Trade Fair	2774	960	1482	1950	1936	1850	10360	350	21662	34.27	7
Seminar/ Conference	2336	960	912	2500	1100	1628	1400	2800	13636	21.57	8
Friends	3869	3392	1140	22500	748	407	336	112	32504	51.43	4
Family	4234	2880	26505	850	924	296	224	70	35983	56.93	3
Shopkeeper	1460	1088	1140	1000	20900	1110	1120	70	27888	44.12	5

Avg= Average score

Annexure V Chi- Square Distribution Table

Critical values of the Chi-square distribution with *d* degrees of freedom

	Probability of exceeding the critical value						
d	0.05	0.01	0.001	*d*	0.05	0.01	0.001
1	3.841	6.635	10.828	11	19.675	24.725	31.264
2	5.991	9.210	13.816	12	21.026	26.217	32.910
3	7.815	11.345	16.266	13	22.362	27.688	34.528
4	9.488	13.277	18.467	14	23.685	29.141	36.123
5	11.070	15.086	20.515	15	24.996	30.578	37.697
6	12.592	16.812	22.458	16	26.296	32.000	39.252
7	14.067	18.475	24.322	17	27.587	33.409	40.790
8	15.507	20.090	26.125	18	28.869	34.805	42.312
9	16.919	21.666	27.877	19	30.144	36.191	43.820
10	18.307	23.209	29.588	20	31.410	37.566	45.315

Annexure VI Age of the Respondents and Age of Children at Home

Annexure VI Table 1 Age of the Respondents and Age of Children at Home

Age of the respondents /Child's age	Below 10 Years	Above 10 years	Total
Below 40 years	117	34	151
Above 40 Years	94	90	184
Total	211	124	335

Annexure VII Income groups

Annexure VII Table 1 Income Groups

Factor	Frequency	Percentage
High Income	275	43.5
Low Income	357	56.5
Total	632	100

Annexure VIII List of Publications and Presentations

Publications

1. Jose, Heerah & Koshy, Moli P (2018). **"Factors Influencing Young Consumers of Organic Food Products to Lead a Healthy Lifestyle"**. *Indian Journal of Marketing,* 48 (10),7-19.
2. Jose, Heerah & Koshy, Moli P (2018) **"How Convenience and Trust towards Organic Food Products Reach Out the Customers: A Case on VFPCK",** Asian Journal of Management. 9,(1), 322-327.
3. Jose, Heerah & Koshy, Moli P (2017) **"Importance of Personal Value in Buying Organic Food Products",** Asian Journal of Research in Social Sciences and Humanities 7(11), 210-221.

Presentations

1. Paper titled **"Emerging Market for Organic Food Products: Role of Trust and Fear in Buying"** presented at 2017 Annual Conference of Emerging Markets Conference Board held at IIM Lucknow from January 5th -7th ,2017 (**Best Doctoral Student Paper Award**).
2. Paper titled **"Motivational Factors Leading to Healthy Lifestyle"** presented at International Conference on "Marketing, Technology and Society" held at IIM Kozhikode from September 29 to October 1, 2016.
3. Paper titled **"What Motivates Indian Consumers' to buy Organic Food in an Emerging Market?"** presented at National Conference on Invasion of Technology in Marketing and Society organized by Viswajyothi College of Engineering and Technology on Feburary 8th 2019.