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India

The growth of ultra-processed foods in India

An analysis of trends, issues and policy recommendations

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Foreword

Good health and nutrition have a common element --- a balanced diet.

India's emphasis on transitioning from food security to nutritional security is strongly reflected across national policies and multiple initiatives of the Government of India (GoI) including Poshan 2.0, Pradhan Mantri Poshan Shakti Nirman (PM POSHAN) and Eat Right India initiatives, which aim to ensure both availability and accessibility of nutritious foods.

Undermining these efforts are a rising trend in the sale and consumption of foods high in fat, sugar and salt (HFSS) as a consequence of intense marketing and promotion of unhealthy foods. This is further compounded by sedentary lifestyles. These are major drivers of noncommunicable diseases (NCDs) such as obesity, diabetes, cardiovascular diseases (CVDs) and premature deaths.

The Food Safety and Standards Authority of India (FSSAI) is working on building an enabling policy environment to limit the consumption of unhealthy foods and promote healthy eating through policy interventions such as restrictions on marketing, promotion, and sale of HFSS foods as well as front-of-pack labelling to help consumers make informed food choices.

To strengthen policy and support the implementation of best practices for reducing consumption of unhealthy foods, this report generates the necessary evidence by analysing the sales trends of HFSS foods and beverages over the last decade and includes a landscape analysis of the regulatory environment governing sales of processed foods and beverages.

The findings in the report present a strong case for a multipronged approach to curb the rising burden of diet-related NCDs in India. This would necessitate a foods systems response involving implementation of nutrition-linked taxes for reducing affordability of unhealthy foods, providing incentives for producing healthier food alternatives, limiting inappropriate marketing and creating awareness on nutrition and a balanced diet.

India is one of the first countries in the WHO South-East Asia Region to develop a National Multisectoral Action Plan for Prevention and Control of Common NCDs, which provides a framework for coordinated response across sectors.

Policy and programme implementation, keeping the consumer at the centre, and in collaboration with stakeholders at all levels will create a conducive environment for healthy eating and a healthy India.

Dr Roderico H. Ofrin
WHO Representative to India

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Abbreviations

AAGR	average annual growth rate
CAGR	compound annual growth rate
CFS	Committee on World Food Security
CII	Confederation of India Industry
CNNS	Comprehensive National Nutrition Survey
CSD	carbonated soft drink
CVD	cardiovascular disease
DALY	disability adjusted life years
DGFT	Directorate General of Foreign Trade
DW	Durbin-Watson
EU	European Union
FDA	Food and Drug Administration
FICCI	Federation of Indian Chambers of Commerce and Industry
FNB	Food and Nutrition Board
FoPL	front-of-pack labelling
FSC	Food Standards Code
FSSAI	Food Safety and Standards Authority of India
FY	financial year
GBD	global burden of disease
GDP	gross domestic product
GPP	green public procurement
GST	goods and services tax
GVA	gross value added
HFSS	high fat, sugar and salt
HSR	health star rating
IBA	Indian Beverage Association
ICDS	Integrated Child Development Services
ICMR	Indian Council of Medical Research
IFPRI	International Food Policy Research Institute
ILSI	International Life Science Institute
IMF	International Monetary Fund
IOCL	Indian Oil Corporation Limited
MDM	mid-day meal
MoCI	Ministry of Commerce and Industry
MoF	Ministry of Finance
MoFPI	Ministry of Food Processing Industries

MoHFW	Ministry of Health and Family Welfare
MoRD	Ministry of Rural Development
MoSPI	Ministry of Statistics, Planning and Implementation
MoWCD	Ministry of Women and Child Development
NAS	National Accounts Statistics
NCD	noncommunicable disease
NFSA	National Food Security Act
NGO	non-governmental organization
NIN	National Institute of Nutrition
NIP	nutrition information panel
NNMB	National Nutrition Monitoring Bureau
NPM	nutrient profile model
PDS	public distribution system
PHVO	partially hydrogenated vegetable oil
PLI	production-linked incentive
POSHAN	Prime Minister's Overarching Scheme for Holistic Nutrition
RBI	Reserve Bank of India
SEAR	South-East Asia Region
SFS	sustainable food system
SSB	sugar-sweetened beverage
TFA	trans fatty acid
UAE	United Arab Emirates
UK	United Kingdom
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNICEF	United Nations Children's Fund
UNSDG	United Nations Sustainable Development Goal
USA	United States of America
VGFSyN	Voluntary Guidelines on Food Systems and Nutrition
WFP	World Food Programme
WHO	World Health Organization
WRI	World Resources Institute
Y-o-Y	year-on-year

Executive summary

Closely linked with India's rapid economic growth is a simultaneous transition in dietary patterns. There has been a shift towards consumption of ultra-processed foods, a key risk factor for noncommunicable diseases (NCD) early in life, which has been documented in multiple studies. However, there is inadequate data on trends in sales and consumption of ultra-processed foods in India. In this context, this report:

(1) analyses the sales trends in India's ultra-processed food category and the changes post-COVID-19 pandemic;
(2) forecasts growth;
(3) examines global best practices and India's initiatives on ensuring access to healthy diets; and
(4) recommends policy actions to reduce consumption of unhealthy food and help India attain nutrition security.

1. Trends in ultra-processed foods sales in India

The analysis covered five popular categories of ultra-processed food in India, namely (a) chocolate and sugar confectionery, (b) salty snacks, (c) beverages, (d) ready-made and convenience food, and (e) breakfast cereals. **Overall, this sector grew at a compound annual growth rate (CAGR) of 13.37% in retail sales value between 2011 to 2021.**

- The share of ultra-processed foods in the retail sales of total processed food (essential/staple plus ultra-processed) was 43% in 2011 and 36% in 2021. It is projected to be 39% by 2032. The share in retail sales volume declined from 47.7% in 2011 to 46.1% in 2021.

- Size and growth vary by the five broad categories in ultra-processed foods. In terms of retail sales value, chocolate and sugar confectionery accounted for the maximum market share during 2011-2021, followed by ready-made and convenience food. Beverages was in the third place till 2019, but in 2021 salty snacks came in third.

The year-on-year (y-o-y) growth rate of ultra-processed food retail sales value saw a sharp decline to 5.50% (2020) from 12.65% (2019) during the COVID-19 pandemic, but after the pandemic there seems to be a sharp 'V-shaped' recovery (11.29% growth between 2020-2021).

- In terms of retail sales volume, the share of beverages was the highest during 2011-2021, followed by chocolate and sugar confectionery and ready-made and convenience food in the second and third place, respectively.

Salty snacks had a compound annual growth rate (CAGR) of 16.78% in retail sales between 2011 to 2021. Its share in the total ultra-processed retail sales value increased from 14% in 2011 to 18% in 2020 to 19% in 2021.

- Per capita retail sales of ready-made and convenience food are increasing, at a fast pace, even during the pandemic since they take less preparation time, while many other categories like beverages saw a dip as people became health conscious. The share of this category will increase with new products manufactured under schemes like Production-Linked Incentive (PLI) scheme.

- Subcategory-wise analysis shows that sweet biscuits accounted for over 43% of the market share in retail sales value within the category - chocolate and sugar confectionery in 2021. Consumers may not be aware of the harmful impact of sweet biscuits. They are cheap, ease to store, have a long shelf-life, and are often consumed as an impulse snack.

- Within beverages, the share of soft drinks/ carbonates has declined from 59% in 2011 to 37% in 2021. By retail volumes, in 2021, concentrates/ squashes account for 77% of the market, followed by soft drinks/carbonates at 13% and juices at 9%. Concentrates/squashes also have high free sugar content.

Within the beverages category, carbonated soft drinks (CSDs) have the lowest growth rate, in terms of both, value and volume. While consumers are shifting from CSDs to juices and milk-based drinks, these may also have high free sugar content.

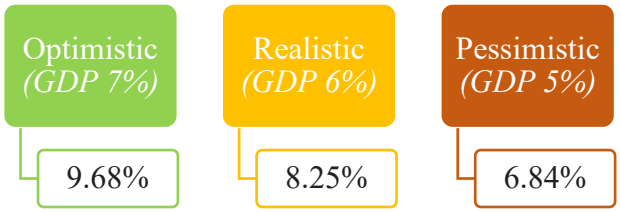
- While the market for breakfast cereals is much small compared to many developed countries, several varieties in India have high sugar content.

- Over the years, there has been a shift in the retail sales channels, from independent small grocers (kirana stores) to organised retail formats and e-commerce, although independent small grocers continue to dominate the market with over 70% sales on ultra-processed food through this channel. Hence, there is a need to restrict the point of sales marketing. Only in the case of ready-made and convenience food, hypermarkets had the largest share (36%) in 2021.

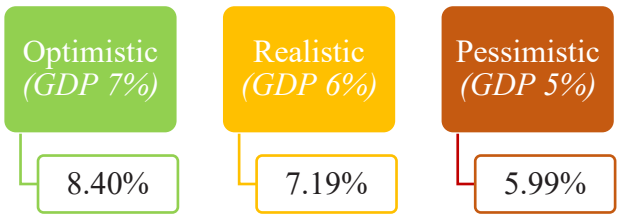
Around 80% of the production and over 70% of sales are through independent small grocers (kirana stores) or the unorganised sector. Any policy intervention should take into account the production and sale channels.

2. Three scenario forecast (2023-2032): ultra-processed vs essential foods

(a) Ultra-processed foods



(b) Essential/staple foods



- Under all three GDP growth scenarios, both ultra-processed and essential/staple food have a higher growth rate than the GDP growth rate.
- Ultra-processed food is predicted to grow faster rate than essential/staple food. Hence, in a growing economy, there is a greater need to shift consumption to healthier food to prevent an obesity epidemic.
- In all three scenarios, despite a higher CAGR, the share of ultra-processed food is less than the share of essential/staple foods.
- Salty snacks is estimated to have the highest projected growth rate, followed by breakfast cereals and beverages.
- The share of salty snacks increased from an estimated 20% in 2023 to 28% in the optimistic scenario, 27% in the realistic scenario and 26% in the pessimistic scenario in 2032.
- By 2032, despite a decline in market share, the category chocolate and sugar confectionery will continue to dominate ultra-processed food, followed by salty snacks and ready-made and convenience food.

Overall, the forecasted values show that there is a constant upward trend in the consumption of ultra-processed food, and even if consumption of these is low compared to home-cooked foods, the upward trend needs to be curtailed with policy interventions to prevent an obesity epidemic in India which is evident in western countries.

3. Key stakeholders and policy initiatives to promote healthy diet

Globally, countries have adopted many policy interventions to promote healthy diets or reduce the consumption of unhealthy food. These include a comprehensive nutrition policy or roadmap, nutrition-focused regulations; higher taxes on unhealthy food and lower taxes or subsidies/incentives for healthy food products; nutrition labelling for guiding consumers towards right purchases; awareness programmes; nutrition-linked public procurement policy; regulations limiting advertising/marketing of ultra-processed foods and ban on certain products like partially hydrogenated fats (PHVOs) rich in trans fats, to name a few. Execution of such policies/programmes involves multiple stakeholders, including policy-makers, food experts, nutritionists, industry bodies, industry, NGOs, and consumer bodies. The key stakeholders towards to whom such interventions are targeted include food processors/manufacturers and consumers.

4. Status and the way forward

Mapping some of the global best practices and India's policies and initiatives, it can be seen that a number of initiatives have been taken in India aligned with the global best practices to support nutrition security and a healthy diet. India is also one of the first countries in the WHO South-East Asia Region to develop a National Multisectoral Action Plan for Prevention and Control of Common NCDs, which provides a framework for coordinated response across sectors. However, there are certain policy gaps in India. These include absence of: a clear definition of ultra-processed food or HFSS food; an overarching nutrition roadmap targeting the reduction of consumption of unhealthy foods; nutrition-based taxes and incentives; adequate and comprehensive policy/guidelines for procurement of processed food in government institutions targeting reduced consumption of sugar, salt and fat; and comprehensive advertisement and marketing regulation to name a few. Given the quasi-federal governance structure and multiple governance bodies, policies and initiatives have often been taken up in a piecemeal way and there are hardly any initiatives to support product reformulation, innovation, and exports of healthy products. Some initiatives are voluntary and not mandatory. A number of regulations are evolving, and there are ongoing stakeholders' consultations on issues like front-of-the-pack labelling (FoPL). Multi-stakeholders engagement in raising consumer awareness and using social media platforms to promote healthy diet is limited.

Given these gaps, the following proposed nine recommendations can help India attain nutrition security and meet the UN Sustainable Development Goals (UNSDGs) by 2030:

i. **Have a clear and transparent definition of HFSS and its product subcategories:** The Food Safety and Standards Authority of India (FSSAI), in consultation with other stakeholders, should come up with a clear and transparent definition of HFSS food.

ii. **Strengthen existing policies and programmes to address the dual burden of undernutrition and overnutrition**: While India already has come up with policies and programmes such as Saksham Anganwadi and Poshan 2.0 (herein after referred to as Poshan 2.0), these do not adequately cover the issue of overnutrition and unhealthy diet-related diseases. After consultation with all the stakeholders and taking their views and concerns into account, there is a need to strengthen the existing policies and move towards a comprehensive national nutrition policy which covers the dual problems of under and overnutrition and, clearly specifies the objectives, goals and targets.

iii. **Have nutrition-linked taxes:** Once HFSS foods are defined by the FSSAI, the GST Council needs to link their tax structure with the HFSS food definitions. A nutrient-based tax model focuses on higher taxes for products which have fat, sugar and salt beyond the recommended levels and lower taxes for the healthier and reformulated options. Moreover, nutrition-linked taxes have to meet three objectives: (a) incentivise manufacturers to reformulate their products; (b) make healthy products cheaper for consumers; (c) discourage the production of unhealthy products.

iv. **Fiscal incentives should be linked to nutrition:** Subsidies and other fiscal incentives can drive production, exports and consumption. Hence, these should be linked to nutrition. For example, the PLI scheme by the Ministry of Food Processing Industries (MoFPI) can be nutrition-linked rather than any type of food production. The Ministry of Commerce and Industries (MoCI), under the Foreign Trade Policy, can support exports of reformulated and healthy products, the demand for which is rising in key export markets. Global studies show that positive fiscal interventions (for example, subsidies on healthy food) can reduce the prices of the products, making healthy products more accessible to consumers. Positive fiscal incentives, such as food vouchers or coupons, can help influence and change consumer behaviour towards the consumption of healthy foods. Further, subsidies on inputs like sugar can reduce the cost of manufacturing as compared to other healthier options. Hence such subsidies may be relooked into based on their health impacts.

v. **Implement the labelling guidelines**: The Draft Notifications on Food Safety and Standards (Labelling & Display) Amendment Regulations (2022) of FSSAI should be implemented, after stakeholders' consultation. It should have a clear and transparent definition of HFSS food and an FoPL appropriate for the country context defined. Proper monitoring mechanisms have to be in place to ensure that manufacturers adhere to the labelling guidelines and that consumers are not misinformed.

vi. **Efficiently use advertisement and marketing to ensure nutrition security and restrict marketing/ advertisement of unhealthy foods:** The advertising and marketing regulation should restrict the promotion of HFSS foods by the manufacturer as well as by the retailer (both offline and online). More awareness programmes are required to promote (a) the benefits of healthy eating habits and (b) the harmful impact of unhealthy eating. Both traditional and social media can be used for this purpose. In a multilingual country like India, this should be done in different languages covering all age groups of the population through institutes like schools, colleges, offices, etc.

vii. **Build awareness about healthy eating habits and the harmful impacts of unhealthy eating:** The government, in collaboration with platforms such as government schools, universities, non-government organisations (NGOs), as well as food bloggers and nutritionists, should actively promote the consumption of fruits and vegetables, and increase awareness of the National Institute of Nutrition's (NIN's) dietary guidelines.

viii. **Ensure provision of healthy food under the food safety net programmes:** Procurement guidelines for the Poshan 2.0 (Integrated Child Development Services Scheme), PM Poshan (Mid-Day Meal Scheme) and the Public Distribution System should allow for provision of healthy foods to the beneficiaries of these programmes to ensure they receive optimal nutrition.

ix. **Have data-driven policy making:** The data for certain subcategories like carbonated drinks by sugar content is not available. There is a need for detailed surveys to capture such data. In addition, surveys at the retail end can look at the nutrition content of different products displayed in the retail outlets, consumer surveys can help to understand consumer preferences and consumption habits. There is also a need for surveys to see if government run institutes (like government schools, colleges and office canteens) are meeting the required nutritional guidelines in their procurement practices. These are some examples of surveys, which can help to design efficient policies, understand the effectiveness of existing policies and monitor policy outcomes. Additionally, with the support of data, further research in some areas are needed to help in design of targeted policy. These include (a) more detailed study of issues at state and district levels (b) product-specific interventions that may be required such as how to link fiscal interventions with sugar level in beverages and (c) how to address the issue of sales and manufacturing of ultra-processed food through the informal sector/non-branded products, which account for majority of the market in India.

1

Introduction

Globally, there has been a rapid increase in the production and consumption of processed food, over the last decade. The global processed food industry was valued at US$ 1925.7 billion in 2020 and is projected to reach US$ 3407.2 billion by 2030, growing at a compound annual growth rate (CAGR) of 5.2%.[1] Studies (Global Food Research Program, 2021; Kelly, 2016; Popkin, 2017) show that there is a universal shift from traditionally home cooked food to more of processed foods due to variety of reasons like rising incomes and urbanisation, or the growth of the modern food retail sector. The processed food industry is also vital for reducing food loss and increasing the shelf-life of agricultural produce and emerges as an important sector as the focus on sustainable growth and development increases. In terms of the nutritional content and the nature of processed food, they can be classified into two broad categories; namely, ultra-processed food/ food with high fat, sugar, sugar and salt (HFSS) content[2] and essential/staple food (for details see Box 1).[3] Thus, as the processed food industry grows, both essential/staple and ultra-processed food sector also grow.

Box 1: Food with high fat, sugar and salt content (HFSS)

Nutrient profiling is a scientific method to categorize food and beverage items based on their nutritional composition. Thus, according to the World Health Organization (WHO) South-East Asia Region (SEAR) model, processed food and beverage items can be classified as food that is more likely to be a part of a healthy diet and food which may contribute to excess consumption of energy, saturated fats, trans fats, sugar or salt. Food items in the second category are often referred to as foods high in fat, salt and sugar or HFSS foods.

According to the Ministry of Women and Child Development (MoWCD), Government of India, *'HFSS foods may be defined as foods (any food or drink, packaged or non-packaged) which contain low amounts of proteins, vitamins, phytochemicals, minerals and dietary fibre but are rich in fat (saturated fatty acids), salt and sugar and high in energy (calories) that are known to have negative impact on health if consumed regularly or in high amounts'.*

For this report, HFSS food is referred to as ultra-processed food.

Source: WHO (2017a) and MoWCD (2015)

Today, India is one of the fastest growing economies with a large and growing population,[4] thereby providing a large market for the processed food sector. The demand has further accelerated with an increase in income levels (Ministry of Food Processing Industries (MoFPI), 2017; Confederation of India Industry (CII), 2019). India was the third-largest retail market in the world, with food and grocery retail accounting for 68% of the total retail market in financial year (FY) 20.[5] The overall consumer spending on food and beverages grew at a CAGR of 9.6% during 2011-2021 (Euromonitor International - WHO India, 2022). The average annual growth rate (AAGR) of the food processing sector in the last five years ending 2019-20 has been 11.18% while the Gross Value Added (GVA) by the sector in 2019-20 was ₹ 2.24 lakh crore (MoFPI, 2022). The overall per capita sales of processed foods in India nearly doubled from US$ 31.3 in 2012 to US$ 57.7 in 2018 while the retail value of ultra-processed food and beverages grew exponentially from US$ 0.9 billion in 2006 to over US$ 37.9 billion in 2019 (Euromonitor International, 2019; Pandav et al., 2021).

1. Source: https://www.alliedmarketresearch.com/packaged-food-market (accessed 22 December 2022)
2. Since there is no globally accepted definition of ultra-processed food, for the purpose of this report ultra-processed food refers to HFSS food.
3. For this study, we have referred to the WHO Nutrient Profile Model for South-East Asia Region. To implement the set of recommendations on the marketing of foods and non-alcoholic beverages to children (WHO, 2017a). For more details see https://apps.who.int/iris/handle/10665/253459 (accessed 13 May 2023).
4. According to International Monetary Fund (IMF) World Economic Outlook, India's real GDP growth rate is estimated to be 5.9% in 2023. For more details see https://www.imf.org/external/datamapper/NGDP_RPCH@WEO/OEMDC/ADVEC/WEOWORLD. According to the United Nations (UN) Population Fund, India's population is 1,428.6 million in 2023. . For more details see https://www.unfpa.org/data/world-population/IN (accessed 28 July 2023).
5. Source: https://www.ibef.org/industry/retail-india (accessed 28 April 2023)

As a developing country, India, in the past, had focused on achieving food security. After achieving food security, the country is now focusing on nutrition security (Chapter 8, Economic Survey 2022 – 2023) as it battles with the dual burden of malnutrition (undernutrition and overnutrition)[6], with increasing incidence of noncommunicable diseases (NCDs) morbidities due to diet related attributed to dietary risk factors. Many studies have raised concerns related to the adverse health impact of ultra-processed foods and their correlation to growing cases of NCDs (refer to Box 2 for details).

Box 2: Impact of increase in consumption of ultra-processed food

Several studies (like Mathur and Pillai, 2019) have found that the consumption of excess amounts of fats and oils, confectionery products including sugar (such as biscuits) and savoury snacks combined with other risk factors such as poor physical activity, has a significant positive relationship with health issues such as overweight/obesity, diabetes and cardiovascular diseases (CVDs). For example, the National Nutrition Monitoring Bureau (NNMB) survey highlighted that overweight/obesity has specifically increased in men and women consuming energy above 1587 calories/day, protein above 41-57 gm/day and fat above 19 to 32 g/day. An Indian Council of Medical Research (ICMR) - National Institute of Nutrition (NIN) study released in 2020 had shown that in India, the average daily intake of visible fats among the urban population in seven metro cities was 33 gm per day, higher than the recommended levels of ICMR (20 gm per day). National Family Health Surveys in India have shown that between 2005-2006 and 2019-2020, the prevalence of overweight and obesity grew by more than 10 percentage points to reach 29.8% among men and 33.2% among women in urban India, and 19.3% and 19.7%, respectively, in rural India. The nutritional imbalances among children are rising and the overweight and obesity rates among children have increased cumulatively to 19.3% between 2005-2006 and 2015-2016. The India Comprehensive National Nutrition Survey (CNNS) 2019 showed that the onset of overweight and obesity started to prevail at an early age, with 4% of children and 5% of adolescents observed to be overweight.

Studies (like Popkin and Ng, 2021) have provided empirical evidence that with nutrition transition and an increase in rates of overweight/obese people, individuals are at higher risks of various cardiometabolic diseases or NCDs. In their study, the Global Burden of Disease (GBD) Collaborators (2019) found that in the case of India, low intake of whole grains was the leading dietary risk factor for the increased prevalence of NCD induced deaths, mostly CVDs and diabetes. CVDs contributed to around 28.1% of the total deaths in India in 2016 and 14.1% of total deaths due to the total disability adjusted life years (DALY) in 2016 (Prabhakaran et. al., 2018). According to the GBD Diseases and Injuries Collaborators (2020), ischemic heart disease saw the highest number of deaths at 1.52 million deaths, in India in 2019. As per the report, even premature deaths from NCDs have doubled in India from 22% in 1990 to 50% in 2019.

A review of studies looking at dietary patterns in India identified that diets high in sweets and snacks were associated with a higher risk of diabetes (Green et. al., 2016). Another ICMR- INdia DIABetes study (2017) highlighted that the overall prevalence of diabetes in India was 7.3%, while prediabetes was 10.3%. In fact, across the four regions of India where the study was conducted, the ratio of newly diagnosed cases to known diabetes cases was recorded to be 1:1.

Source: Compiled by authors from various studies and sources.

6. Malnutrition refers to both deficient and excess nutrient intake, imbalance of essential nutrients or impaired nutrient utilization. The double burden of malnutrition consists of both undernutrition and overweight and obesity, as well as diet-related noncommunicable diseases. For more details refer to https://www.who.int/health-topics/malnutrition#tab=tab_1

The food processing industry traditionally uses high levels of sugar, salt and saturated fats in their products, which is a major determinant of the nutrition quality in ultra-processed foods (Food Safety and Standards Authority of India (FSSAI), 2017). Thus, with the growth in the manufacturing of ultra-processed food, the nutrition transition is leading to the consumption of unhealthy diets and increasing the prevalence of overweight/obesity, consequently, a rise in NCDs in India [WHO, 2018a; Mathur and Pillar, 2019; International Life Science Institute (ILSI) India, 2018; Ministry of Statistics, Planning and Implementation (MoSPI) and World Food Programme (WFP), 2019; Pengpid and Peltzer, 2019]. According to ICMR, the share of deaths due to NCDs in India increased from 38% in 1990 to 61.8% in 2016, and unhealthy diets were one of the major reasons cited.[7] The number of deaths due to NCDs further increased to 66%, according to WHO, in 2019.[8]

Despite several studies on the correlation between ultra-processed food and NCDs in India, there is a dearth of evidence and data-based studies on the size of the ultra-processed foods market and how it has changed pre and post the coronavirus (COVID-19) pandemic. The consumption of processed food consumption may have risen during the pandemic or rising health concerns may have driven consumers to more healthier products.[9] There are other issues related to the pandemic including tensions and lack of exercise. These trends have important implications for policy-making. The purpose of the report is to support data driven policy making to support the government's objective of nutrient security and healthy diet in the Indian context and to also align the policies with the United Nations Sustainable Development Goals (UNSDGs) like SDG2 (Universal access to safe and nutritious food and end to malnutrition) and SDG3 (Reduce mortality from NCDs).[10]

1.1 Objectives

The objective of this report is to (a) analyse the sales trends[11] in India's ultra-processed food sector, and the changes post COVID-19 pandemic; (b) examine the global best practices to reduce the consumption of unhealthy food; (c) present the policies and initiatives taken in India, and identify the gaps and other issues in India; and (d) suggest policy recommendations to for promoting healthy and nutritional diet.

1.2 Coverage of ultra-processed and essential foods

As discussed in the above section, the processed food sector can be grouped into two broad categories, ultra-processed foods and essential/staple foods, based on the nature and nutrition content of the products. Therefore, in this context, for the purpose of this report, the ultra-processed food category comprises HFSS items such as chocolate and sugar confectionery, salty snacks, beverages, ready-made and convenience food, and breakfast cereals. Detailed coverage of the ultra-processed category is in Table A1, Annexure A.

On the other hand, essential/staple food comprises of items such as dairy products (for example, milk, butter, ghee), edible oils (for example, olive oil, palm oil, soy oil), processed cereals (for example bread, rice, pasta), raw frozen food (for example, shelf stable tomatoes, fruits, or meat).

7. Source: https://pib.gov.in/Pressreleaseshare.aspx?PRID=1796435 (accessed 18 May 2023)
8. Source: https://data.worldbank.org/indicator/SH.DTH.NCOM.ZS?locations=IN (accessed 18 May 2023)
9. Source: https://www.outlookindia.com/business/84-people-say-health-awareness-has-increased-after-covid-19-pandemic-says-survey-news-278146 (accessed 11 July 2023)
10. For more details on UNSDGs see https://www.globalgoals.org/goals/ (accessed 11 May 2023)
11. Sales is used as proxy or surrogate for consumption in the absence of NNMB consumption data.

1.3 Methodology and data sources

The report is based on secondary data and information analysis based on data sources such as the time series database - Euromonitor International's Passport (it is referred to as Euromonitor database in the report), which gives the retail sales and trends related to processed food sector (see Table 1). To analyse the macro-economic trends for forecasting, indicators such as gross domestic product (GDP), private final consumption expenditure, disposable income, and GVA from the National Accounts Statistics (NAS) of the MoSPI have been used. The growth assumptions for forecasting are based on the macro-economic forecasts of the Reserve Bank of India (RBI) and the International Monetary Fund (IMF). For analysing the trends in the export-import basket of India's processed food sector, data has been compiled from the export-import data bank of the Directorate General of Foreign Trade (DGFT), Ministry of Commerce and Industry (MoCI) at HS 4/6-digit level, which is available in fiscal year (the latest year being 2022 – 2023, till January).

Table 1: Details of data compiled from Euromonitor database

Components	Sales
Data components and indicators	All India level analysis for key sales related parameters: volume/value of retails sales, per capita retail sales, sales by retail channel - store based retailing (for example, hypermarkets, supermarkets, independent grocery retailers) and e-commerce food retail channels. For retail sales, the data on volumes/values, per capita retail sales and CAGR have been calculated.
Geographical coverage	All India level
Data collection process	Euromonitor uses various primary and secondary sources to arrive at the numbers for any specific sector. Primary sources use material from trade surveys and their own methodology for estimation. The secondary sources are largely from desk research, store checks and company research. Finally, data from all sources are collated together to estimate the sales for any product
Time period	Calendar year - January to December (2011-2021)

However, it is important to note that there are some limitations to the Euromonitor database. These are given in Box 3.

A descriptive analysis and a three-scenario analysis have been done to show the past trends and future growth (2023-2032) of ultra-processed foods in India. To address the limitations of the forecast data provided by the Euromonitor database (given in Box 3), and for a more robust forecast of demand for processed foods, econometric modelling technique has been used. The variables used for forecasting purpose is retail sales data for each category, while for predictor variables, a set of macro-economic data has been used (see Section 3 for details). Three forecasting scenarios have been developed, namely (a) most likely (realistic), (b) optimistic and (c) pessimistic, to provide a range within which the market size for the products should be restricted to.

Box 3: Limitations of Euromonitor dataset

- All data on market sizes, company shares, and channel shares represents only take-home values and volumes, commonly called off-trade. They do not include any purchases made on-premise (on-trade) at for example, hotels and restaurants and do not include any sales through catering.
- Information on beverages does not include hot drinks such as tea, coffee, and cocoa.
- Information on rice, juices and coconut water only relates to the sale of packaged products and not products sold loose at shops or roadside stalls.
- The dataset does not cover traditional Indian sweets (*mithai*), whether sold packaged or loose. For some subcategories, such as juice (not from concentrate, 100% or coconut and other plant water), data is available from 2014 onwards.
- Retail sales through e-commerce channel is not available for all years. For example, for beverages, e-commerce sales data is available from 2015 onwards.
- For all data on market sizes and channel shares, all values are reported in Indian Rupees, with the historic data reported on the basis of current prices and forecast data (2022-2026) based on constant 2021 prices and applied across all the years from 2022-2026.
- The Euromonitor database also provides forecasted retail sales (for both value and volume), for the years 2022 to 2026. However, for the forecast estimates, the inflation rate for 2021 has been considered and applied across all the years from 2022-2026.

1.4 Structure

In the next section, Section 2, we discuss the sales trends of ultra-processed foods using the retail sales value and volume data from the Euromonitor database. In Section 3, the demand forecast for the years 2023 to 2032 is presented. While Section 4 presents the institutional structure and key stakeholders governing food and nutrition in India, Section 5 discusses the policies related to the processed food sector, at the global and domestic level. Section 5 also presents some best practices across other developing and developed countries, and issues prevalent in the Indian food processing sector. The last section, Section 6, presents policy recommendations to help reduce the burden of NCDs, ensure nutrition security and healthy diet aligning with the objective of the government and its UNSDGs.

2

Trends in growth of processed food in India

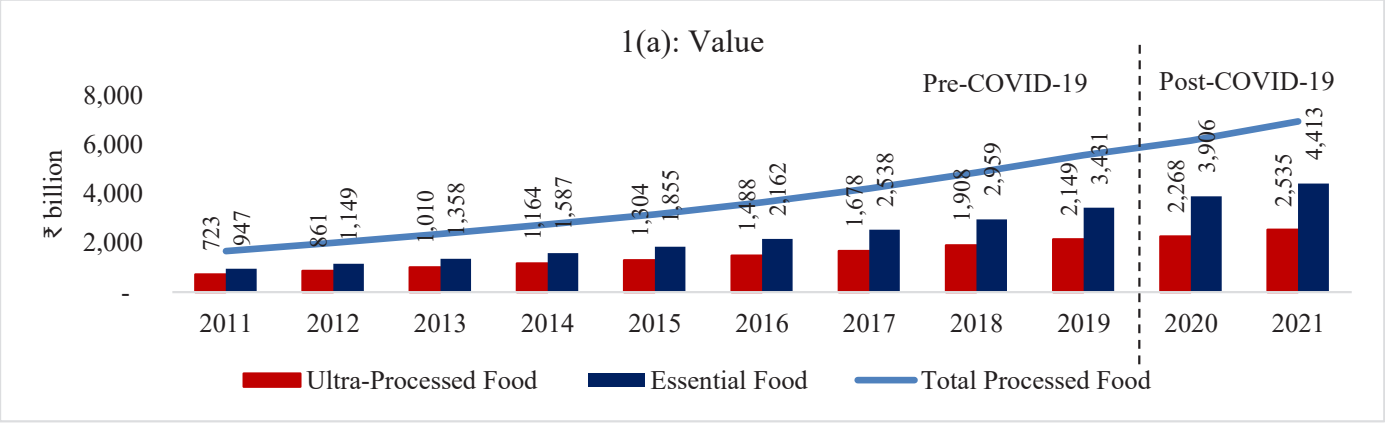
This section focusses on the retail sales trends in terms of value and volume of the processed food, with a focus on the ultra-processed food during the period - 2011 to 2021. In subsection 2.1, we present the trends in total food processed sector. In subsection 2.2, an analysis of retail sales trends in the five ultra-processed categories is presented, followed by a deeper analysis of subcategories of ultra-processed food in subsection 2.3. India's trade in processed food sector is analysed in subsection 2.4 and subsection 2.5 presents the key takeaways of the data analysis.

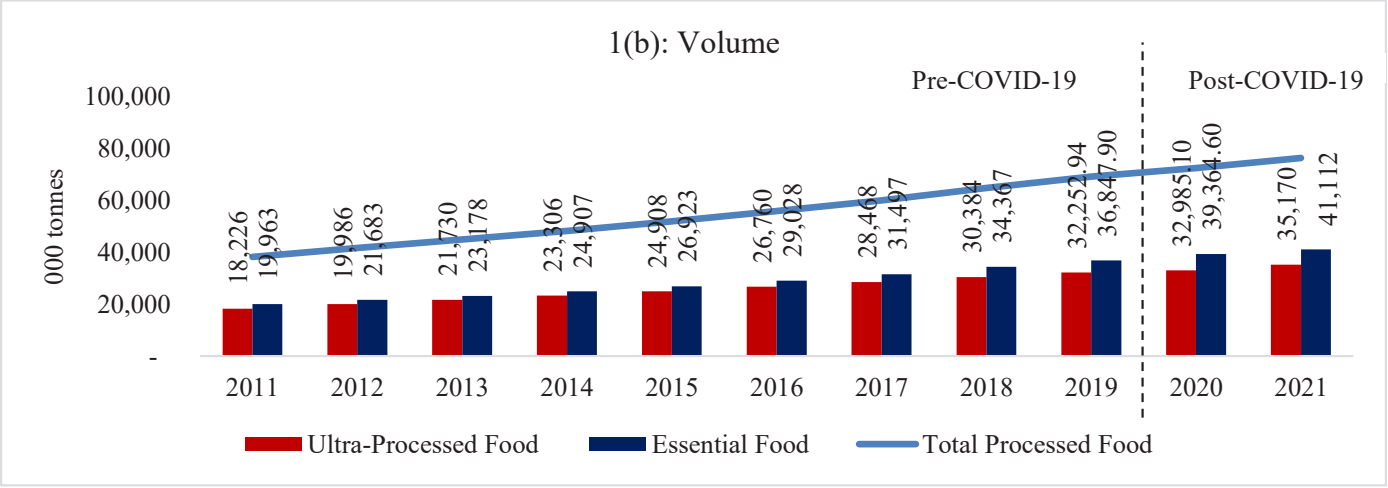
2.1 Trends in total processed food: ultra-processed and essential foods

The Indian processed food sector (ultra-processed and essential/staple foods) has observed a steady growth, in terms of both retail sales value and volume (see Fig. 1(a) and (b) respectively), between 2011 and 2021. In terms of retail sales value, the total processed food sector has grown at a CAGR of 15.32%; while in terms of retail sales volume, the CAGR was 7.16%, during the same period.

Focusing on ultra-processed sector in terms of retail sales value, although the sector has grown at a CAGR of 13.37%, from 2011 to 2021, its growth rate is less than the essential/staple food category (CAGR of 16.64%). The share of ultra-processed food in total processed food has declined from 43% in 2011 to 36% in 2021 in terms of retail sales value. This may be due to the pandemic. There is also a growing government focus on awareness related to healthy diets and processing of healthy food like millets or organic. In developing countries, in general, essential/staple has a larger share of the processed food market and this is seen in India as well. In terms of retail sales volume, the share of ultra-processed food declined from 47.7% in 2011 to 46.1% in 2021 (see Fig. 1(b)).

Fig. 1: Retail sales of total processed food vs ultra-processed food vs essential foods: 2011 to 2021





Source: Compiled from Euromonitor database

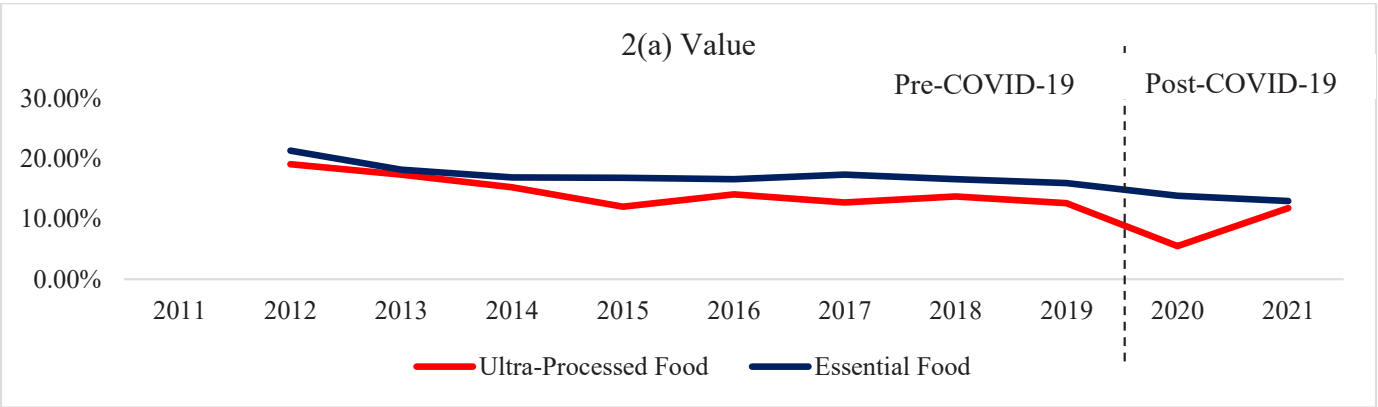
2.1.1 Impact of COVID-19 on retail sales of ultra-processed food

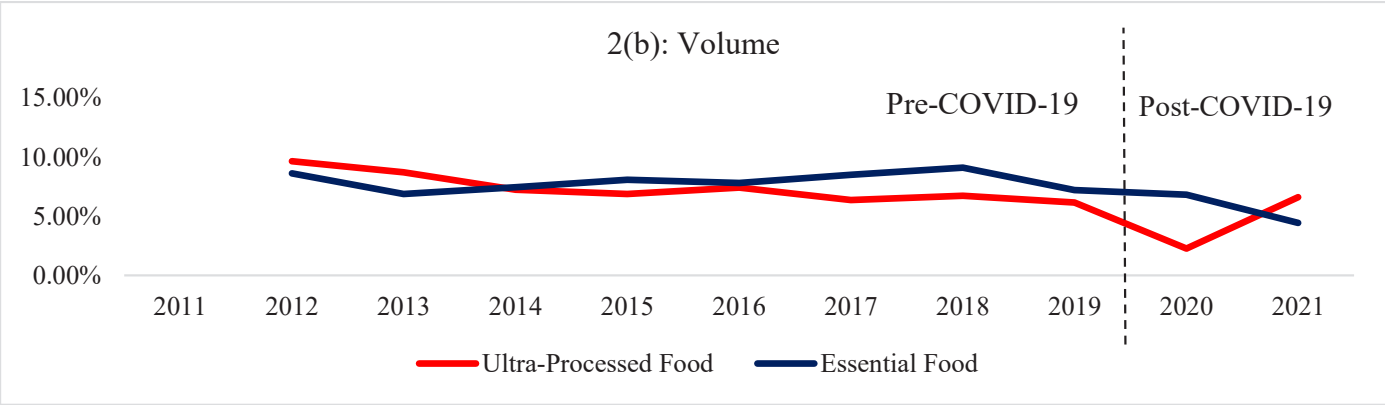
The share of ultra-processed food, in total processed food, declined in 2020 for both retail sales value and volume. The category observed a decline from 39% in 2019 to 37% in 2020. Despite the recovery in 2021, the share of ultra-processed in total retail sales value declined to 36%. The share of essential/staple food, on the other hand, increased from 61%, to 63%, to 64% in 2019, 2020, and 2021, respectively.

Post-COVID-19 pandemic, retail sales of ultra-processed food observed a sharp V-shaped recovery in 2021, which is a cause for concern.

In terms of the year-on-year (y-o-y) growth rate, ultra-processed food retail sales value saw a sharp decline to 5.50% (2020) from 12.65% (2019) during the COVID-19 pandemic, but after the pandemic there seems to be a sharp V-shaped recovery and in future the growth may be very fast, which is a cause for concern. In comparison, the y-o-y growth of essential/staple food observed a smaller decline in sales value during the pandemic; from 15.95% in 2019 to 13.84% in 2020 (see Fig. 2(a)). In 2021 while the y-o-y growth rate of ultra-processed food retail sales value increased to 11.79%, the y-o-y growth rate for essential/staple food declined to 12.98%.

Fig. 2: Retail sales (year-on-year) growth: pre- and post- COVID-19





Source: Compiled from Euromonitor database

There is an upward trend in ultra-processed food except during COVID-19 pandemic, post which there is a sharp V-shaped rise. This may lead to diet related illnesses. In this light, it is important to analyse the retail sales trends across different subsectors of ultra-processed food, which may be due to changing trends in the consumer diet.

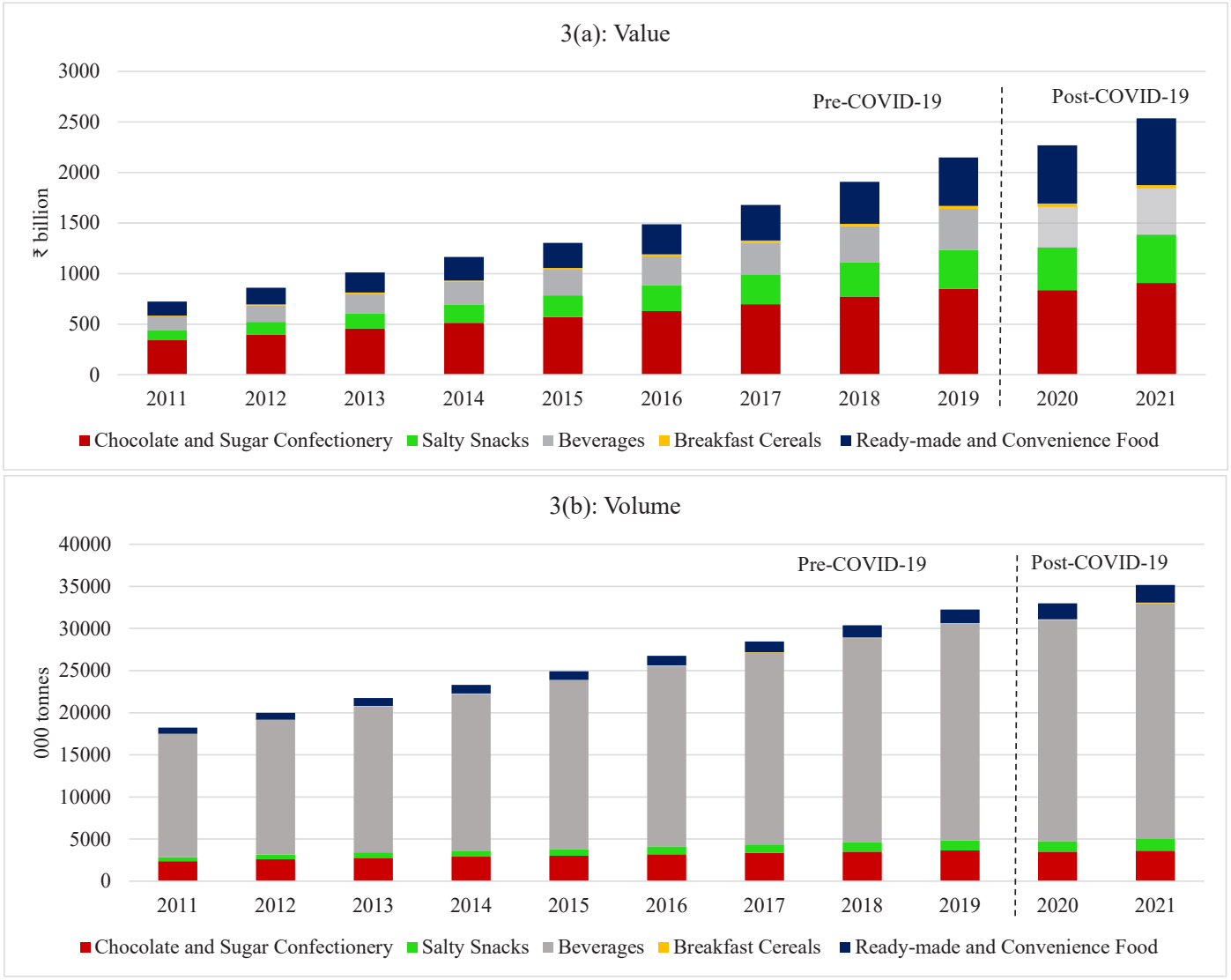
2.2 Trends in retail sales of ultra-processed foods: by categories

The ultra-processed food sector comprises of five categories, namely chocolate and sugar confectionery, salty snacks, beverages, ready-made and convenience food and breakfast cereals. As seen in Fig. 3, in terms of retail sales value, chocolate and sugar confectionery accounts for the maximum market share from 2011 to 2021, followed by ready-made and convenience food, and beverages at the second and third place respectively till 2019. In 2021, market share of beverages was overtaken by salty snacks. In 2011 the share of the three categories, chocolate and sugar confectionery, ready-made and convenience food, and beverages in ultra-processed food were 39%, 22%, and 19% respectively.

The high growth rate of salty snacks is a major cause of concern, as increased consumption of such food items can lead to greater incidences of hypertension and other NCDs among the consumers.

In 2021, although the chocolate and sugar confectionery accounted for the highest market share in terms of retail value, its share is rapidly declining, at a CAGR of (-) 2.71% from 2011 to 2021. On the other hand, salty snacks is observing a rise in retail sales at the high rate of 16.78%, from 2011 to 2021. Its share in the total ultra-processed retail sales value has increased from 14% in 2011 to 18% in 2020 and to 19% in 2021. The high salt content of such food items can make consumers vulnerable to hypertension, heart and kidney diseases, to name a few (Euromonitor International - WHO India, 2022).

Fig. 3: Retail sales of ultra-processed food categories: 2011 to 2021



Source: Compiled from Euromonitor database

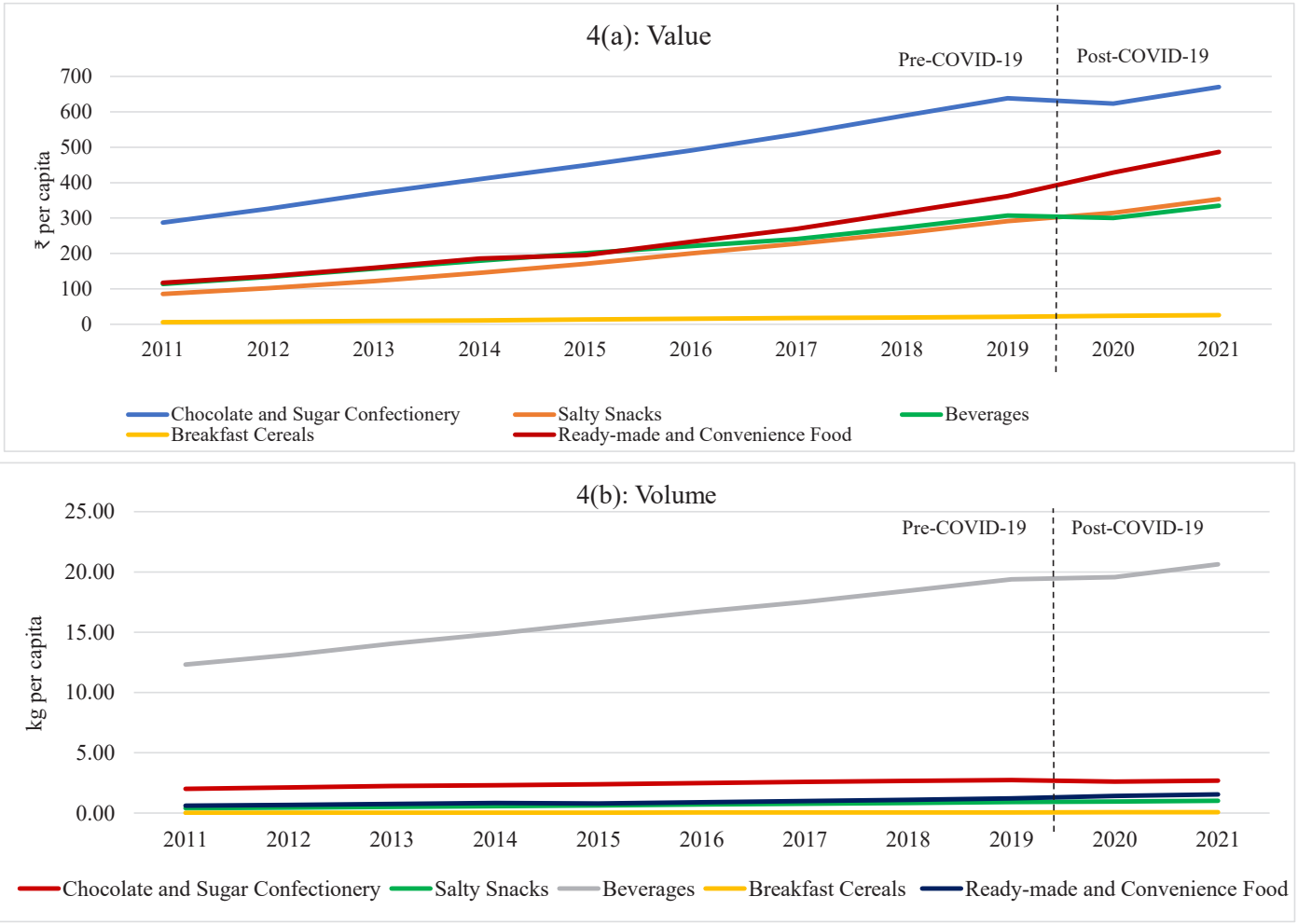
In terms of retail volume, the share of beverages is the highest throughout the decade (see Fig. 3(b)). It is followed by chocolate and sugar confectionery, and ready-made and convenience food at the second and third place, from 2011 to 2021. However, the CAGR for retail sales volume of beverages is 6.7%, from 2011 to 2021. It is only followed by chocolate and sugar confectionery at 4.30%. In terms of growth rate, breakfast cereals has the highest growth rate (15.8%) although it has the smallest share in total processed retail sales volume from 2011 to 2021.

Per capita retail sales of ready-made convenience food are increasing at a fast pace in the last few years. Despite having the lowest per capita retail sales, breakfast cereals have the fastest growth in terms of volume between 2011 and 2021.

In terms of per capita retail sales of ultra-processed food categories, for both retail sales value and volume, as evident from Fig. 4. It important to note here that the per capita retail sales of the categories chocolate and sugar confectionery, beverages and salty snacks declined during

the pandemic (see Fig. 4(a)). With rising health concerns amid the pandemic, people moved away from the typically unhealthy food items which tend to be HFSS (Chopra et al., 2020). At the same time ready-made convenience food sales have observed a steep increase over the last few years. In addition, the category is likely to grow more with new products manufactured under the central sector schemes like Production-Linked Incentive (PLI) scheme for the food processing industry.[12]

Fig. 4: Per capita retail sales of ultra-processed food categories



Source: Compiled from Euromonitor database

2.2.1 Impact of COVID-19 on ultra-processed foods categories

With work-from-home and COVID-19 restrictions in 2020 the demand for easy to eat items such as breakfast cereals and ready-made and convenience food items (see Table A1 in Annexure A), increased in 2020. However, the y-o-y growth rates of breakfast cereals and ready-made and convenience food declined again in 2021, as lockdowns and restrictions were removed, in terms of both retail sales value and volume but they continue to be high (double-digit growth) (see Table 2). These products are rich in fat and salt and other artificial preservatives used can have multiple health impacts.[13]

12 Source: https://mofpi.gov.in/PLISFPI/central-sector-scheme-production-linked-incentive-scheme-food-processing-industry-plisfpi (accessed 10 May 2023)

13. Source: https://www.health.harvard.edu/blog/common-food-additives-and-chemicals-harmful-to-children-2018072414326 (accessed 27 June 2023)

Table 2: Year-on-year growth rate of ultra-processed food: pre- and post-COVID-19

Ultra-processed food category	Retail sales value (%)			Retail sales volume (%)		
	2019	2020	2021	2019	2020	2021
Chocolate and sugar confectionery	9.61	(-) 1.36	8.64	3.24	(-) 3.88	4.01
Salty snacks	14.44	9.20	13.40	9.67	5.26	8.75
Beverages	13.89	(-) 1.15	12.66	6.08	2.04	6.53
Breakfast cereals	12.47	12.91	10.17	11.38	12.88	14.47
Ready-made and convenience food	15.78	19.83	14.68	11.43	16.97	10.91

Source: Computed from Euromonitor database

2.3 Trends in retail sales of top ultra-processed subcategories

Within each of the ultra-processed foods categories, there are different products which are referred to as subcategories. For example, beverages can be carbonated sugar sweetened beverages (CSSBs), juices, energy drinks, flavoured milk etc., while chocolate and sugar confectionery includes a wide range of products such as sweet biscuits, cakes and pastries and ice-creams (see Table A1 in Annexure A). These have varied levels of nutritional content. For example, a carbonated beverage can be with or without sugar, which have different nutritional content. In this context the following subsection discusses the type of products which are the most popular in the Indian market and their respective channel of sales.

2.3.1 Chocolate and sugar confectionery

In the chocolate and sugar confectionery category, sweet biscuits accounted for the majority share in terms of both retail sales value (45.75%) and volume (68.07%) in 2011. It was followed by chocolate confectionery and ice cream and frozen desserts in the same year (see Table 3). Over the years although the top five products in terms of market share changed. The sweet biscuits subcategory continues to dominate the market in terms of both retail sales value and volume. Further in this subcategory, plain biscuits (for example, Parle-G, rusk, and Marie biscuits), accounted for over 70% of the market in terms of retail volume in 2011.

Consumers may not be aware of the harmful impact of sweet biscuits. They are cheap, ease to store and have a long self-life. They are often consumed as an impulse snack and are available in small packaging. Hence, low per unit cost makes it more affordable.

Table 3: Share of top five chocolate and sugar confectionery subcategories: 2011 vs 2021

Subcategory	2011	Subcategory	2021
Retail sales value (%)			
Sweet biscuits	45.75	Sweet biscuits	43.17
Chocolate confectionery	16.26	Chocolate confectionery	14.98
Ice cream and frozen desserts	12.80	Sugar confectionery	11.12
Sugar confectionery	10.25	Ice cream and frozen desserts	11.04
Cakes and pastries	5.13	Snack bars and fruit snacks	8.18
Retail sales volume (%)			
Sweet biscuits	68.07	Sweet biscuits	66.22
Ice cream and frozen desserts	8.90	Sugar confectionery	8.57
Sugar confectionery	7.00	Ice cream and frozen desserts	8.21
Cakes and pastries	6.92	Cakes and pastries	7.46
Chocolate confectionery	4.39	Chocolate confectionery	3.54

Source: Compiled from Euromonitor Database

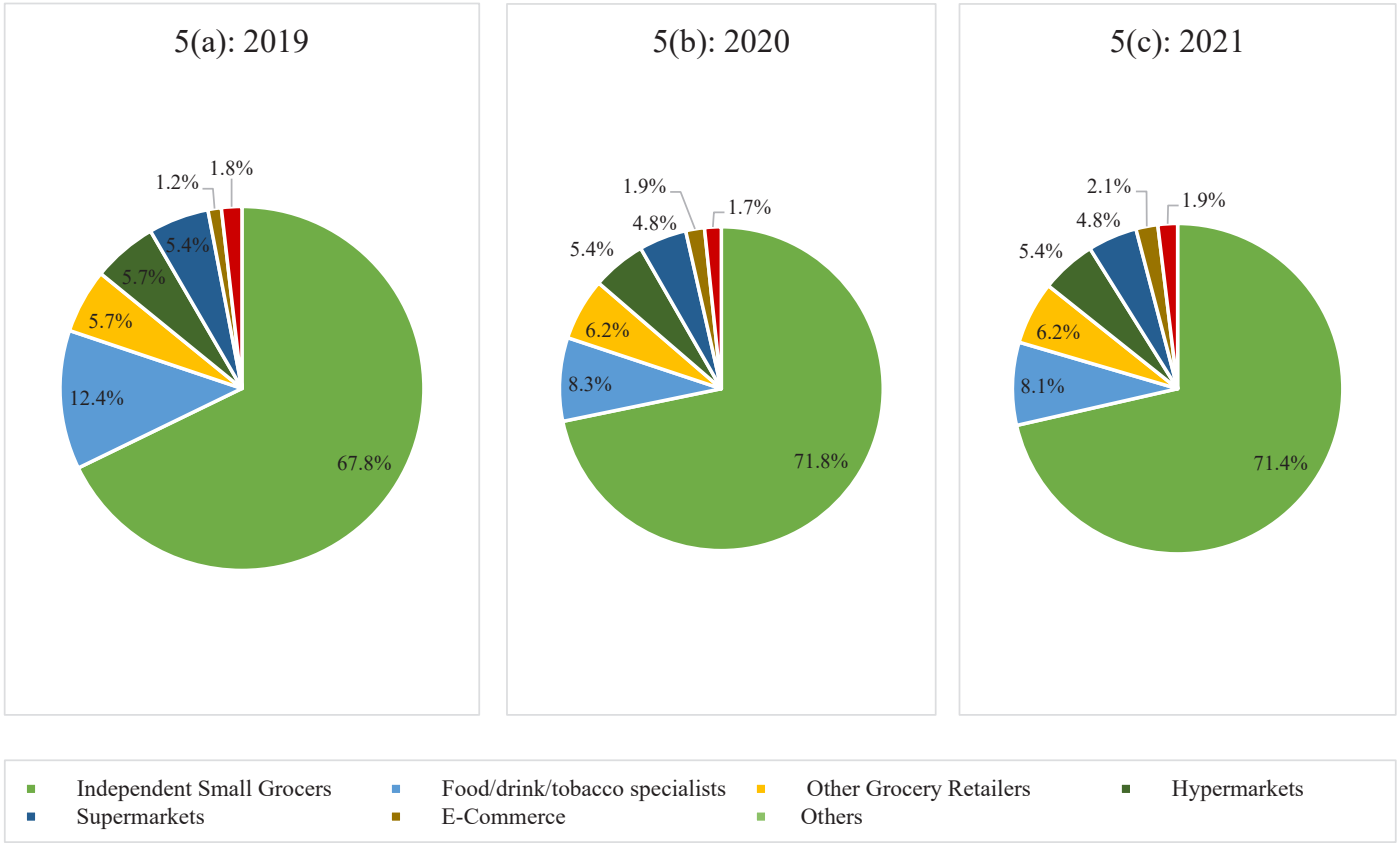
Although the desserts subcategory has the least share in the market (in terms of retail volume), it is a fast-growing category at a CAGR of 14.12%. Moreover, despite the pandemic induced restrictions and health concerns the volume sales of various subcategories in chocolate and sugar confectionery increased. For example, items such as chocolate spreads, cereal bars, and desert mixes registered a y-o-y growth of 17.4%, 16.7%, and 11.8%, respectively, from 2019 to 2020. One reason for their increased sales can be their long shelf-life. On the other hand items such as ice cream saw a decline of over 45% from 2019 to 2020.

Within the chocolate and sugar confectionery category, it is important to focus on sweet biscuits subcategory for policy-making. This is because it is mostly consumed by children, is affordable and there has also been an increase in marketing of such food as being healthier products. It is also important to understand incentives and cost behind the product reformulation, support product reformulation, map the healthier alternatives/substitutes that are available in the market, restrict marketing and raise consumer awareness of the harmful impacts and check the cost of the reformulated products as costly products may be beyond the reach of majority of the consumers. The advertising and marketing regulations need to consider that sweet biscuits is a popular snack among children and targeted efforts are needed to reduce marketing and advertisement of such products to children.

Around 70% of retail sales of chocolate and sugar confectionery is through independent small grocers (kirana stores), and policy interventions need to take that into account. Specifically point of sale marketing restrictions, freebies, discounts, etc., need to be examined, focusing on their impact along with global best practices in regulations.

It is also important to see the retail sales channels for the products to see how the products reach the consumers. Majority of the sales of chocolate and sugar confectionery is through independent small grocers whose share increased from 41% in 2011 to over 70% in 2021 (as shown in Fig. 5). Although sales through e-commerce is still low, pandemic induced restrictions boosted its share from 1.2% in 2019 to 2.14% in 2021.

Fig. 5: Retail sales channel for chocolate and sugar confectionery: 2019 vs 2020 vs 2021



Note: Others comprise of Health and Beauty Specialist Retailers, Other Foods Non-Grocery Specialists, Convenience Stores, Forecourt Retailers

Source: Compiled from Euromonitor Database

2.3.2 Beverages

The beverages category comprises of products with varied sugar levels. While some products such as cola carbonates have high added sugar content, there are also beverages such as zero-sugar carbonates and 100% fruit juice containing artificial sweeteners and free sugars which are equally harmful (WHO, 2023a). As shown in Table 4, flavoured milk drinks has registered the highest growth in the last decade, followed by juice.

Table 4: CAGR of beverages' subcategories through 2011 to 2021: retail sales value vs volume

Subcategory	Compound Annual Growth Rate (2011 – 2021)	
	Value (%)	Volume (%)
Soft drinks/carbonates	7.85	5.64
Concentrates/squashes	8.84	6.26
Juice	18.64	12.58
RTD tea	10.85	8.41
Energy drinks/ sports drinks	11.60	11.72
Flavoured milk drinks	21.28	17.87

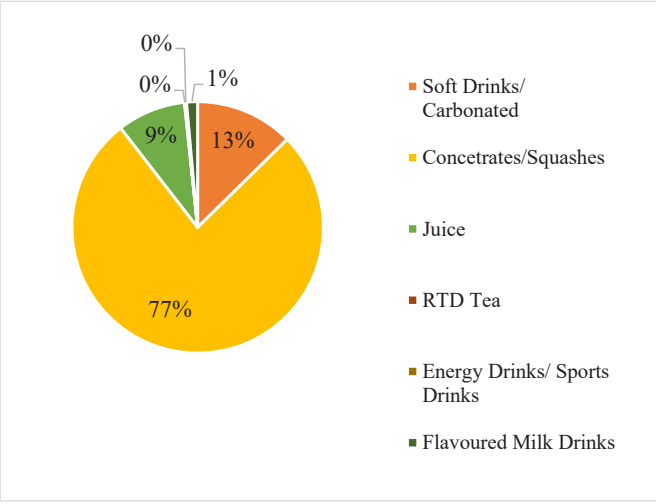
Source: Compiled from Euromonitor Database

In terms of retail sales value, in 2011 soft drinks/carbonates accounted for 59% of the market, followed by juice at 30% and concentrates/squashes and flavoured milk drinks at 4%. However, over the years the market share is shifting from soft drink/carbonates to the other subcategories as also evident from the Table 4. For instance, in 2019 soft drinks/carbonates share declined to 45% of the market in terms of retail sales, while juices accounted for 41% of the market, followed by flavoured milk-drinks at 8%. The share of the soft drinks/carbonates and juices further changed due to pandemic in 2020. In 2021, the share of soft drinks/carbonates declined to 37% while the share of juices increased to 49%.

Carbonated soft drinks (CSDs) have the lowest growth rate both in terms of value and volume. While consumers are shifting from carbonated drinks to juices and milk-based drinks, these also have high free sugar content.

In terms of retail volumes in 2021, concentrates/squashes accounted for 77% of the market (a decline from 80% in 2011), followed by soft drinks/concentrates at 13%, and juices at 9% (see Fig. 6).

Fig. 6: Retail sales volume of beverages in 2021



Source: Compiled from Euromonitor Database

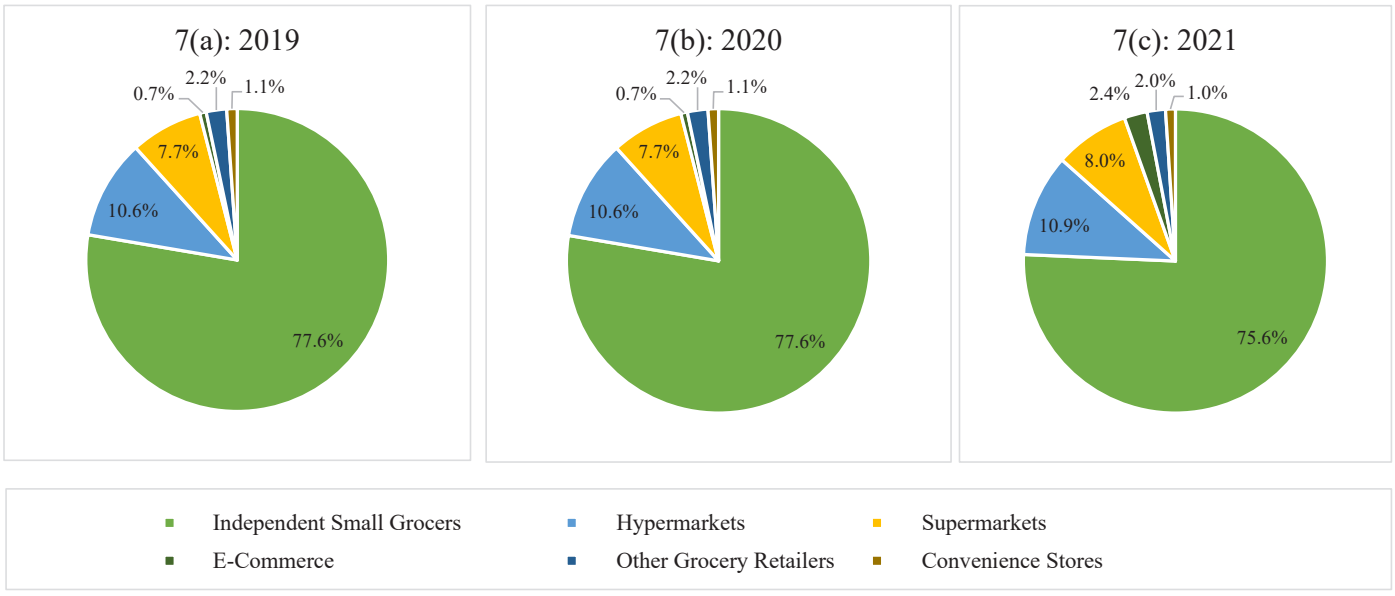
Within the juices subcategory, there are different products types, like not from concentrate, 100% juice, reconstituted 100% juice, or juice-drinks, with up to 24% juice content. Although juice drinks (containing up to 24% juice) account for the maximum sales volume throughout 2011-2021, sales volume of 100% juice and coconut water and other plain water has grown the most in this period. While their sales volume was negligible in the first few years of the decade, they have grown at a CAGR of over 98% and 32%, respectively, from 2014 to 2021. Similarly, within concentrates, powder concentrates has the maximum sales in terms of retail volume at 77% market share in 2021 but it only accounts for 1% market in terms of retail sales value. A previous WHO study pointed out that powder concentrates such as Tang, Nestea Instant Iced-Tea mixes are readily available, often have low prices, and have sugar levels higher than the WHO recommended level of 5g/100g (WHO, 2017a).

From a policy perspective, it is important to note that health consciousness may be pushing consumers away from carbonated SSBs to juices or flavoured milk as observed during the COVID-19 pandemic, consumers shifted towards fruit and vegetable juices to help boost their immunities. However, such beverages may also have high free sugar content. An earlier study on the beverage sector by the authors (Mukherjee, Mukherjee and Menon, 2022) found that reformulated products are coming up in the market, and companies are willing to innovate. However, there are no incentives for reformulated products or a nutrition-based tax model. The high cost of reformulation, huge subsidy on sugar, which reduce the input costs, and the risk associated with the fact that consumers may reject such products, along with huge price differences between SSBs and healthier options prevent market penetration of the healthier options.

Studies such as Euromonitor International-WHO India (2022) and Mukherjee, Mukherjee and Menon (2022) confirmed that the consumption of comparatively healthier options is primarily confined to urban high and high-middle-income groups, primarily due to the high prices driven by the high cost of product reformulation and lack of fiscal support.

Focusing on the retail channels, as shown in Fig. 7, independent small grocers have the maximum share in sales at 76%. However, the share declined from 79% in 2011. A reason for the decline in offline sales could be the COVID-19 related restrictions which led to online shopping. E-commerce sales observed a sudden increase in sales from 0.70% share in 2019 to 2.45% in 2021. Also, sales from hypermarkets and supermarkets increased from 8.91% and 6.31% in 2011, respectively, to over 8% in 2021. This may be due to higher discounts offered online and in hypermarkets/supermarkets. These channels often offer more varieties, and consumers can compare prices across a range of products.

Fig. 7: Retail sales channel for beverages: 2019 vs 2020 vs 2021

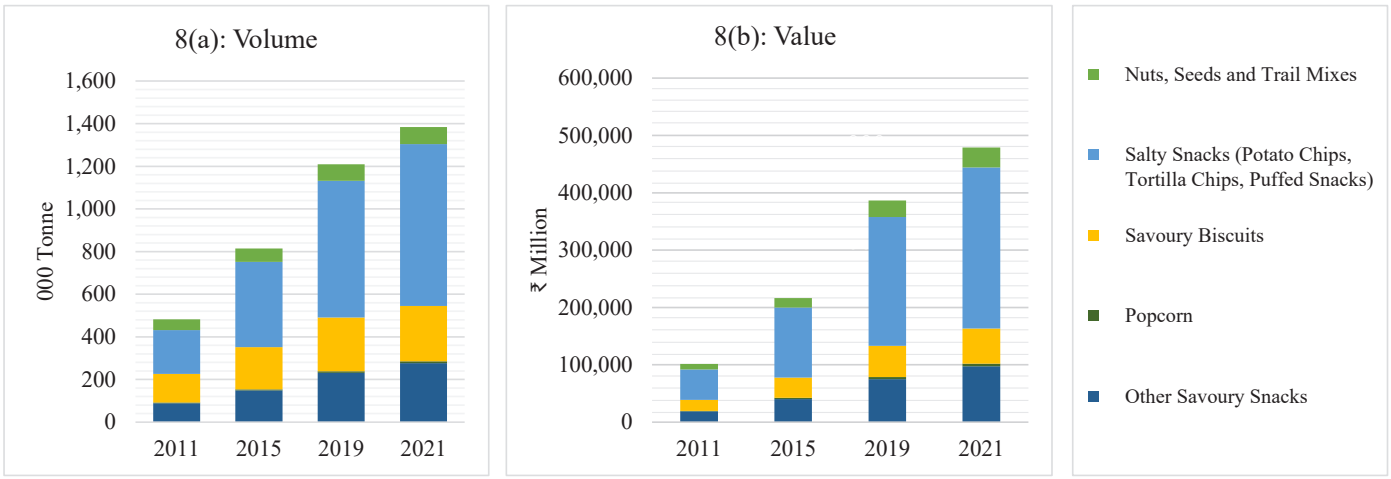


Source: Compiled from Euromonitor Database

2.3.3 Salty snacks

The salty snacks sector of the ultra-processed food sector has grown in terms of both retail sales volume and value between 2011 and 2021 (see Fig. 8). In terms of volume, the sales increased from 482 thousand tonne in 2011 to approximately 1384.1 thousand tonne in 2021. Focusing on the products which led the growth, products such as potato chips, tortilla chips, and puffed snacks account for the major share in the market; for both value and volume sales. The salty snack (potato chips, tortilla chips, and puffed snacks) item registered a CAGR of 14%, from 2011 to 2021 in terms of retail sales volume. It also accounts for 55% of the volume sales of the total sales in 2021. It was followed by other savoury snacks, and popcorn at the second and third place, with a CAGR of 12% and 9%, respectively.

Fig. 8: Retail sales volume and value of salty snacks



Note: Any snack products not included in the previous definitions fall under this heading. Examples of such products included are various types of namkeen, bhujias and papad. Source: Compiled from Euromonitor Database

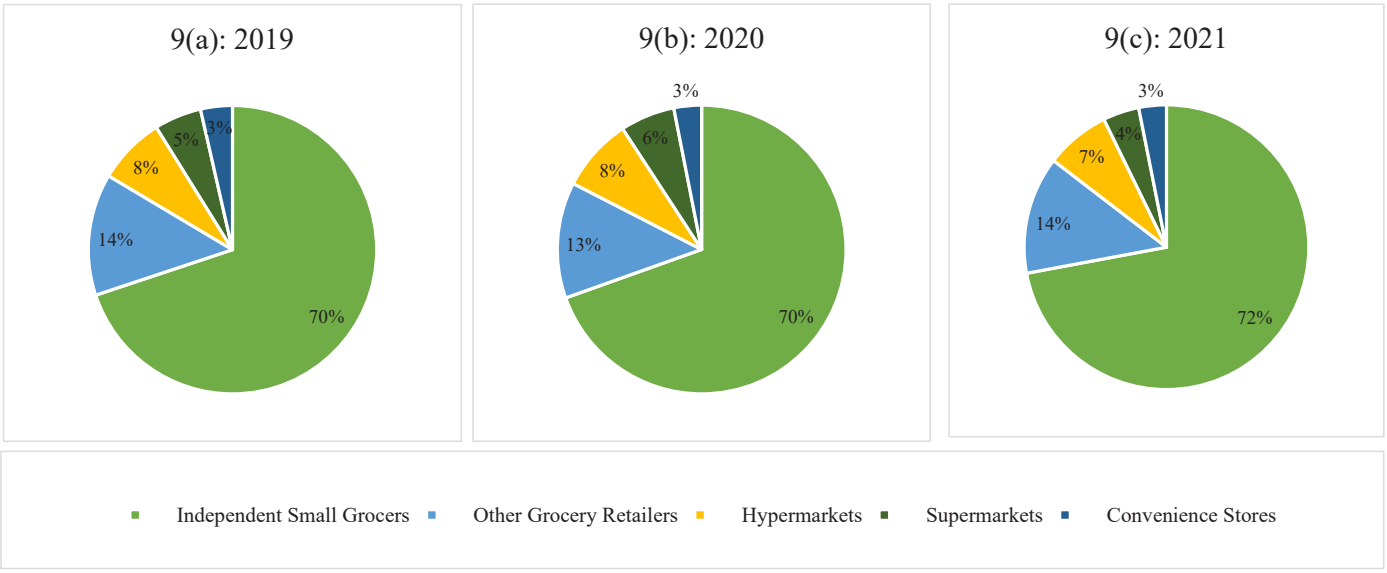
The volume sales of salty snacks (potato chips, tortilla chips, and puffed snacks) increased by 7% from 2019 to 2020. The salty snack market requires policy attention, especially in light of rising cases of hypertension among Indians (Euromonitor International - WHO India, 2022). Previous studies (such as Koya et al., 2022) found that less than one-fourth of hypersensitive patients in India had their blood pressure under control during 2016-2020. In this category, the salt and fat content in many products are more than three times the WHO SEAR) Nutrient Profile Model (NPM) norms. One of the core issues in getting the healthier variety to the market includes a lack of policy support for the healthier version. Further, unlike chocolates, these products are easy to store in any climatic conditions, have long shelf-life and can be easily distributed pan-India.

Easy availability of salty-snacks at affordable prices across the country, has increased consumption, thereby increasing health risks.

By retail channels, as in the case of other ultra-processed food products, majority of salty snacks is sold through independent small grocers (see Fig. 9). Therefore, marketing regulations should restrict the promotion of products like salty snacks. The other categories, such as hypermarkets and supermarkets, observed an increase in sales in 2020 and then decreased again. For example,

the sales share of hypermarkets increased from 6.9% in 2011 to 8.23% in 2020. The share of sales of salty snacks through e-commerce is insignificant.

Fig. 9: Retail sales channel for salty snacks: 2019 vs 2020 vs 2021



Source: Compiled from Euromonitor Database

2.3.4 Ready-made and convenience food

As shown in Table 5, the ready-made and convenience food subcategory is dominated by the sauces/ dressing/ condiments in terms of retail sales volume, followed by instant noodles and ready-to-eat (RTE) cooking ingredients. These products are often rich in sugar, salt and saturated fat, making them unfit for consumption on a regular basis.[14] In terms of retail sales value, these categories accounted for 90% of the market share in 2021, from 88% in 2011. However, in terms of CAGR, as seen in Table 5, frozen seafood has registered the highest growth from 2011 to 2021. It is followed by RTE cooking ingredients and ready meals.

Table 5: Retail sales volume of ready-made and convenience food subcategories

Amount In 000 Tonne

Subcategories	2011	2015	2019	2021	CAGR (%) (2011-2021)
Sauces/ dressings/ condiments	292.00	450.00	655.80	814.30	10.80
Instant noodles	212.00	197.80	433.80	628.40	11.48
RTE cooking ingredient	131.20	218.40	342.10	450.50	13.13
Milk substitutes and alternatives	37.20	48.80	69.80	70.00	6.53
Chilled/frozen meat	18.30	30.90	44.20	48.60	10.26
Ready-meals	13.30	21.70	31.30	40.40	11.75
Frozen processed fruits and vegetables	16.70	20.70	22.10	23.20	3.34
Soup	5.70	9.00	12.80	16.00	10.87
Frozen seafood	1.30	2.70	5.40	6.80	17.99

Source: Compiled from Euromonitor Database

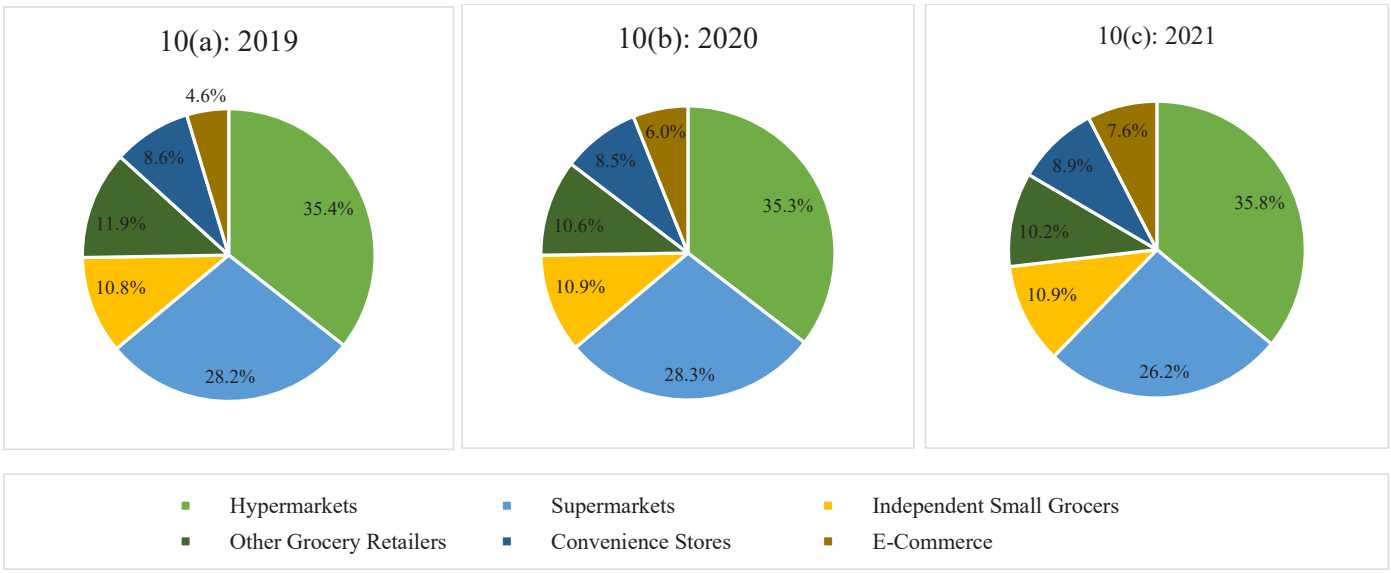
14 Source: https://www.emedihealth.com/nutrition/why-instant-noodles-bad-health (accessed 28 June 2023)

The retail sales of ready-made and convenience food increased during the pandemic year (2020). With more people working from home, meals with less preparation time became popular. For example, the volume sales of shelf-stable ready meals increased from 22 thousand tonnes in 2019 to 26.2 thousand tonnes in 2020; while instant noodles increased from 433 thousand tonnes to 549 thousand tonnes in 2020, an increase of 27%. The y-o-y percentage change declined to 14.3% in 2021, as COVID-19 restrictions were lifted.

The majority of ready-made and convenience food items are sold through modern grocery retail outlets such as hypermarkets and supermarkets. E-commerce sales have also seen growth.

The ready-made and convenience food category is the only ultra-processed food category whose majority of sales are through hypermarkets and supermarkets since 2011. In 2011, the share of sales through hypermarkets was 31%, which increased to 36% in 2021. The category's e-commerce sales also observed growth in share due to the pandemic, where its share increased from 4.6% in 2019 to 7.6% in 2021 (see Fig. 10). Meanwhile, sales through supermarkets, independent grocers and other grocery retailers declined from 31%, 12.5% and 16% in 2011 to 26%, 11% and 10% in 2021, respectively.

Fig. 10: Share of retail sales channel for ready-made and convenience food



Source: Compiled from Euromonitor Database

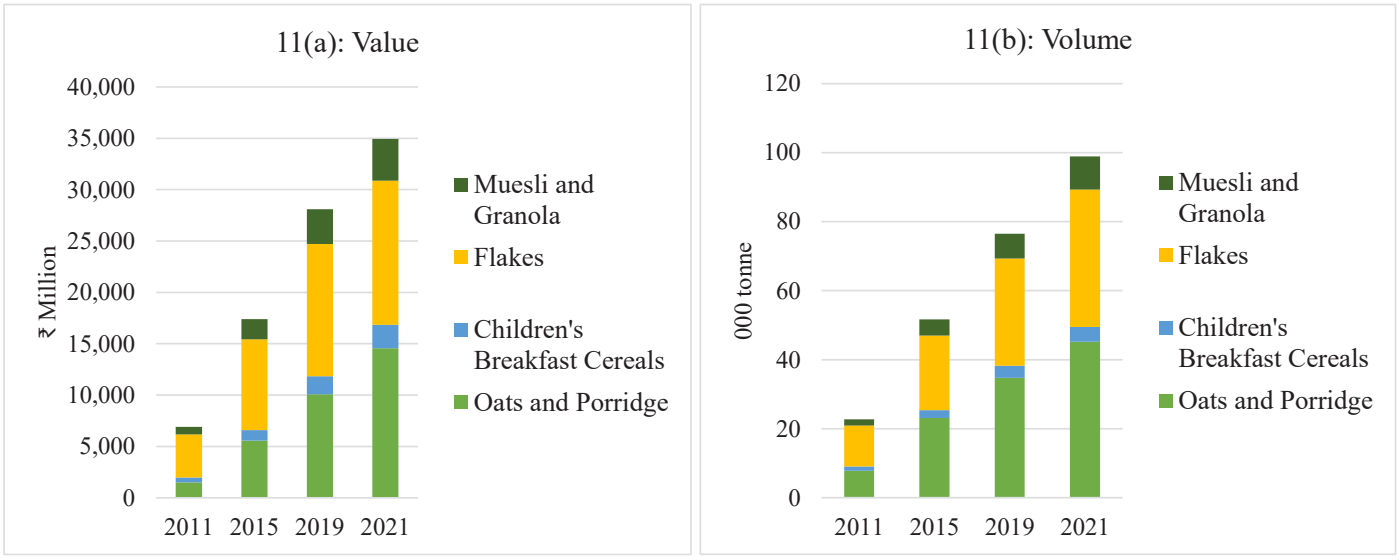
2.3.5 Breakfast cereals

The market for breakfast cereal is small, but new varieties are coming into the market including millet-based breakfast cereals. Unlike developed countries, children's breakfast cereals, which are generally high in sugar, are mainly confined to the high and high-middle-income populations in India due to high prices and affordability. In the breakfast cereals subcategory, flakes (for example, cornflakes) account for the maximum market share in terms of both retail sales value and volume in 2011. In 2021, oats and porridge had the maximum market share. In 2011, the retail sales value of flakes was ₹ 4187 million, which increased to ₹ 14 008 million in 2021. The retail sales volume, for flakes, increased from 12 000 tonnes in 2011 to 40 000 tonnes in 2021; at a CAGR of 12.83%. However, the share of flakes in breakfast cereals has declined from

61% in 2011 to 40% in 2021, as the demand shifts towards other breakfast cereal items such as oats and porridge or muesli and granola. Oats and porridge have grown at 25.5% from 2011 to 2021 while muesli and granola have grown at a CAGR of 18.7%. Due to the easy preparation and on-the-go consumption of breakfast cereals, it is important to introduce healthier varieties with less sugar and a lower glycaemic index.

Breakfast cereals with high sugar and high glycemic index can be a concern as cases of diabetics are rising in India. A high glycemic index can result in sudden spikes in blood sugar levels, causing a health hazard for diabetics. There is also a steep rise in prediabetic cases among young children and adolescents in India. Therefore, there is need for product reformulation as it is easy to prepare and hence future demand will rise.

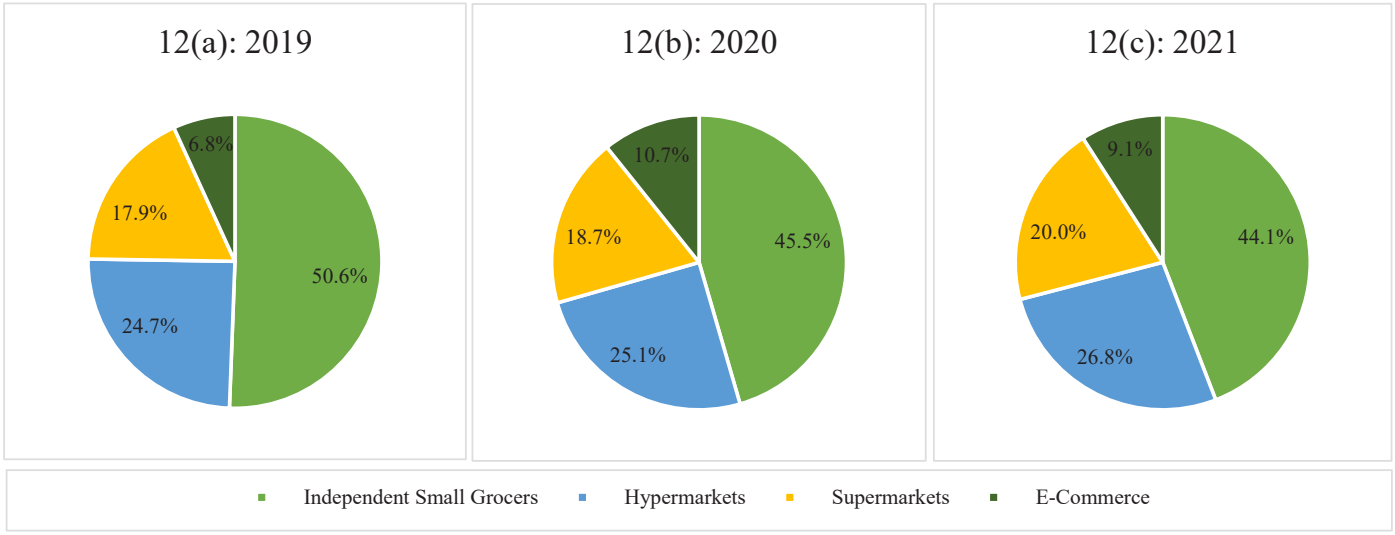
Fig. 11: Retail sales volume and value of breakfast cereal



Source: Compiled from Euromonitor Database

The majority of the sales of breakfast cereals, as shown in Fig. 12, is through independent small grocers, followed by hypermarkets and supermarkets. As of 2021, although independent small grocers are the largest retail sales channel, its share is declining since 2011; from 65% in 2011 to 44% in 2021. Meanwhile, the other retail channels have observed an increase in sales, specifically the e-commerce channel. Its share jumped from 6.8% in 2019 to 10.7% in 2020 as consumers focused on easier, ready-to-eat breakfast items during the lockdown. However, as lockdown and COVID-19 restrictions eased, sales through e-commerce channels declined in 2021.

Fig. 12: Retail sales channel for breakfast cereals: 2019 vs 2020 vs 2021



Source: Compiled from Euromonitor Database

The above analysis shows that there is a change in retail sales, by value and volume, across different categories and subcategories of ultra-processed food. While consumers may be shifting to certain products thinking that it is healthy or readily available, they still face a risk of diet related NCDs. At the same time, new products, new forms of marketing/promotion and new channels for accessing the consumers (like e-commerce) are coming up. During the pandemic, while Indian consumers have become more health conscious and are trying to shift to new products thinking it has better nutritional content, three factors (a) high prices; (b) quality and (c) taste of the reformulated products will determine its market penetration.[15] Reformulated products have to be made affordable. One way for that is reducing taxes on healthier options, and the other options include regulations such as the FoPL and restrictions on the marketing and advertisement of HFSS products, which will encourage manufacturers to compete to produce healthier versions of the products at competitive prices.

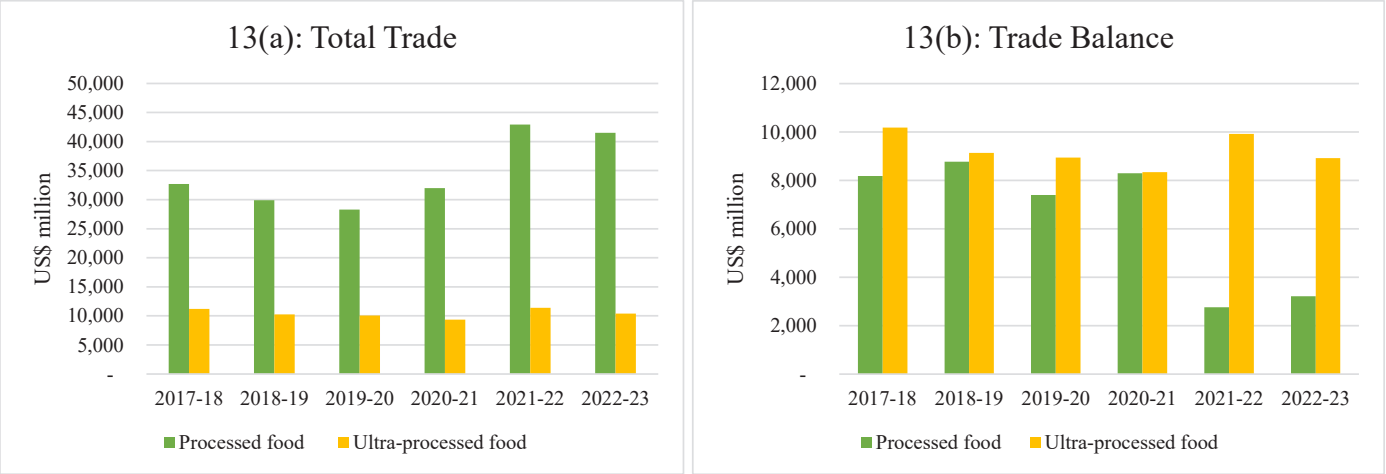
2.4 India's trade in processed food with a focus on ultra-processed foods

In a globalised world, trade in processed food (including essential/staple and ultra-processed) is growing, and India is among the top exporters of food products. Over the last five years, India's trade of processed food has increased from US$ 32 687 million in 2017-2018 to US$ 41 530 million in 2022-2023 (April to January). However, the share of ultra-processed food in the total processed food trade is declining (see Fig. 13(a)). From 34% in 2017-2018, the share of ultra-processed food in the total trade of processed food declined to 25% in 2022-2023 (April to January). In terms of trade balance, India has a positive trade balance (exports are higher than imports) for the overall processed food category and in the ultra-processed food subcategory from 2017-2018 to 2022-2023 (April to January) (see Fig. 13(b)). However, there is a decline in the trade balance, as exports suddenly declined during 2021-

> Although total trade of ultra-processed food is increasing, the share of ultra-processed food exports is declining. The global demand is shifting towards healthier food options, such as less/zero-sugar items or less salty healthier snacks, snacks without saturated or trans fats, and India has the potential to cater to the changing demand, through right policy support for reformulated products.

2022. The trade balance for ultra-processed food declined from US$ 10 179 million in 2017-2018 to US$ 8936 in 2022-2023 (April to January). One reason for this decline in exports is that consumers in many of the key export destinations such as the United States of America (USA), the United Kingdom (UK), Thailand, the Netherlands, Saudi Arab, and the United Arab Emirates (UAE),[16] are becoming more health conscious. There is, thus, a need to emphasise on the exports of reformulated/healthier products through production schemes and incentives to grow India's exports.

Fig. 13: India's trade of ultra-processed food over the last five years



Note: Data for 2022 – 2023 is available only for April 2022 to January 2023
Source: Compiled by authors from DGFT

2.5 Key takeaways

The above analysis shows that (a) certain types of ultra-processed food such as sweet biscuits, savoury biscuits or potato chips, tortilla chips, and puffed snacks have a large market share; (b) new products are penetrating the market within each category; (c) some categories which have a small market share are seeing fast growth, for example, muesli and granola in breakfast cereals or beverage items such as coconut and other plant waters; (d) by sales channels, majority of the sales continue to be through the independent small grocers (kirana stores) or the informal retailers; but new channels like e-commerce and hypermarket and supermarkets are growing and (e) India has a significant positive trade balance in the trade of ultra-processed food, especially in categories such as ready-made and convenience food. However, the sales of reformulated products are either not captured in the product classification and/or are limited, for example, within soft drinks/carbonates, there is no differentiation between zero-sugar carbonates, carbonates with fruit content, and regular carbonates. The products with large market shares in the HFSS food category (such as sweet biscuits, or potato chips, tortilla chips, etc.) need immediate attention to see whether there are any policy gaps or any policy support can help to have a reformulated/healthier option. In particular, there is a need to focus on restricting the marketing, advertisement and promotion of HFSS products and make reformulated products affordable. India is a consumer-oriented country, and as the consumer

15. Source: https://nuffoodsspectrum.in/2019/09/06/indian-consumers-keen-on-health-without-compromising-taste.html (accessed 18 May 2023)
16 Source: https://apeda.gov.in/apedawebsite/SubHead_Products/Dried_and_Preserved_Vegetables.htm and https://agriexchange.apeda.gov.in/indexp/Product_description_32head.aspx?gcode=0304 (accessed 18 May 2023)

demand shifts towards healthier products, the manufacturers/producers will produce products to cater to said demand and taste preferences. It is, therefore, important to understand the demand patterns of the consumers for policies targeting the consumption of HFSS food items. Before discussing policies and best practices, the next section presents the demand forecast of ultra-processed and essential/staple foods, from 2023 to 2032, based on their retail sales.

3

Demand forecast for processed foods focusing on ultra-processed foods over the next decade

In this section, we tried to forecast the future demand and supply trends for processed food in India. The factors that determine the demand for processed food include economic factors like GDP and disposable income; prices; affordability; demographic factors like the age group of the population; geographic factors like urban or rural part of the country (including accessibility) and government regulations.

A country's GDP and the disposable income of the population play a key role in determining the consumption of processed food. Although discretionary income - the income left after all essential/staple expenditures, would be an even better variable to measure the consumption of ultra-processed foods, such data is not available. The future projection of the GDP is available from sources like IMF, World Bank or RBI. While GDP per capita depicts an overall scenario, it does not capture the impact of skewed income distribution, if any, within the country. Income is another key determinant. At a low level of income, much of the income is spent on essential/staple food items and, therefore, consumers will move to ultra-processed and different food varieties as income/affordability increases. However, this may not be the case. Some studies suggest that over time the patterns of food consumption are changing significantly, even among the population in the lower income group (Banerjee and Duflo, 2011); for example, consumption of ultra-processed foods is increasing among low-income households. This may be due to several reasons such as lower prices of ultra-processed food products and high prices of reformulated healthier options, small packaging size of ultra-processed food products and ease of consuming on-the-go, lack of consumer awareness of health impact, and marketing and promotion and ease of availability of such ultra-processed food products. Overall, prices are an important determinant driving consumption. However, the relative price difference of products, within a category, may be difficult to obtain.

Apart from income or affordability, other factors such as consumer demographics and their awareness about the ill-health effects of the products, determine consumption patterns. The size and the growth of the population of the country play a key role in determining the market size and demand for the processed food sector. In many cases, the age groups and family composition (for example, with or without kids), women's participation in the workforce, nuclear versus joint family, etc., determine purchase behaviour and consumption. Geographic factors like urban or rural part of the country, metro cities, etc., determine the market size of processed food and so does government policies and regulations. Corporate-work culture and the wide network of store and non-store retail distribution channels also determine sales and demand. All of these factors have a certain impact on the consumption of ultra-processed foods. However, it is not known to what extent each of these factors may impact the consumption pattern.

To capture the causal relationship between processed food and beverages sector market and other dependent variables, we have used a regression model:

$$Y = a + b_1X_1 + b_2X_2 + \dots b_nX_n + e$$

where,
Y = dependent variable, sales of processed food product in this case
$X_1 \dots X_n$ = independent or predictor variables, which are the determining factor for processed food demand
a = the intercept constant
b = slope coefficients or regression coefficients to be calculated with regression analysis

n = number of independent variables
e = error term in the equation

Equation (1) can also be a multiplicative function that can be transformed into a log-log function of the type:

$$\ln Y = \ln a + b_1 * \ln X_1 + b_2 * \ln X_2 + b_3 * \ln X_3 \ldots b_n * \ln X_n \quad (3)$$

In this case, the regression coefficients b_1, b_2…..bn are the elasticities.

The final model is selected based on the robustness of the model, and accounting for the presence of multicollinearity.

For a robust forecasting additional tests such as the coefficient of determination R2 or adjusted R2 (coefficient of determination adjusted for degrees of freedom), the F-statistic and Durbin-Watson test (DW) have been conducted.

Box 4: Limitations and data gaps

The prime constraint for doing a robust analysis is the lack of detailed data on consumption by income groups and other socio-economic demographics. In absence of micro-level consumption behaviour data, we have used macroeconomic variables like GDP, disposable income, average price, and inflation as the independent variables to test their impact on processed food products demand in the country.

In 2020, with the coronavirus pandemic and the geo-political tensions, the GDP has adjusted several times. Further, forecasting the demand is difficult in a pandemic situation with only one-year data on the recovery period. There was a drastic slowdown of the economy (as reflected through GDP) during the COVID-19 pandemic. While on one hand, with reduction in income, households might have to reduce the consumption of ultra-processed food, we see a sharp V-shape recovery in 2021. Moreover, a longer time series data could have given a more robust econometric modelling.

Although there are some limitations and data gaps (see Box 4), nevertheless, with the available data we have tried to forecast the demand for essential/staple and ultra-processed foods. It is evident from the forecasting results (presented in Table 6) that the models are best explained by the variables GDP and disposable income. The results show that for the demand for several processed food products, the two independent variables - GDP and disposable income - explain the significant high data variation of $R^2 > 96\%$.

Table 6: Results from the forecasting models

Category	Independent variable	No of Obs.	Prob >F	R-squared	RMSE	Elasticity	P>| t|	DW statistics
Ultra-processed food products								
Chocolate and sugar confectionery	GDP	11	0.000	98.13%	0.029	1.02	0.000	1.66
Salty snacks	GDP	11	0.000	96.82%	0.058	1.97	0.000	1.97
Beverages	GDP	11	0.000	98.33%	0.036	1.40	0.000	1.45
Breakfast cereals	GDP	11	0.000	94.71%	0.068	1.86	0.000	2.29
Ready-made and convenience food	Disposable income	11	0.000	97.43%	0.064	1.15	0.000	2.01
Essential/staple food products								
Dairy products	Disposable income	11	0.000	97.45%	0.056	1.02	0.000	2.16
Edible oil	Disposable income	11	0.000	98.38%	0.055	1.27	0.000	2.37
Processed cereals	Disposable income	11	0.000	95.92%	0.069	1.37	0.000	2.12
Raw and frozen food	Disposable income	11	0.000	98.06%	0.048	1.01	0.000	2.30

Source: Computed by Authors

Three scenarios are generated for the purpose of forecasting- realistic, optimistic and pessimistic. Though disposable income is identified as the determinant variable for all categories, to predict disposable income we have checked the GDP growth rates as predicted by the World Bank and IMF. The latest IMF forecast for Indian GDP is 5.90% for 2023. The IMF forecasts are similar to the World Bank forecasts.[17] Thus, we have considered 6.0% GDP growth as the realistic scenario. Table 7 shows the expected GDP growth rates for the three scenarios, and the predicted disposable income growth based on the GDP-disposable income relationship.

Table 7: Forecast scenarios and their GDP growth rates and disposable income growth

Forecast scenario	GDP growth rate (%)	Disposable income growth (%)
Optimistic	7	7.49
Realistic	6	6.2
Pessimistic	5	5.35

Source: Compiled by authors

17 Source: https://www.imf.org/en/Countries/IND#ataglance and https://www.worldbank.org/en/news/press-release/2023/04/04/indian-economy-continues-to-show-resilience-amid-global-uncertainties#:~:text=The%20World%20Bank%20has%20revised,growth%20and%20challenging%20external%20conditions (accessed 11 May 2023)

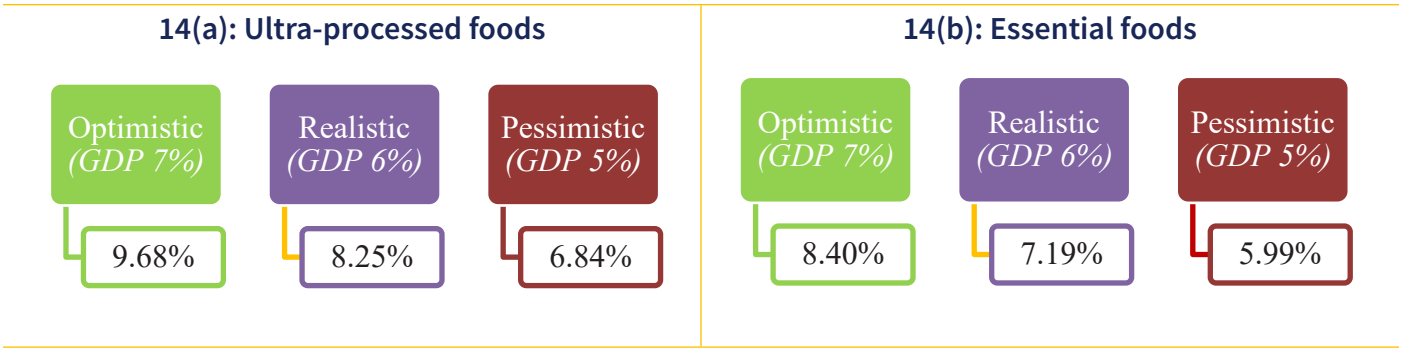
3.1 Key findings of demand forecast for processed foods

The modelling results suggest that the macroeconomic variables, GDP and personal disposable income, are the most important determinants for explaining the demand for both ultra-processed and essential/staple food products. In Fig. 14, we see that both ultra-processed and essential/staple food categories grow at a higher rate in all three scenarios, compared to the economic growth rates considered for 2023 to 2032; with ultra-processed food projected to have a faster growth than essential/staple food.

Despite a lower estimated CAGR for 2023 to 2032, the essential/staple food category continues to dominate the processed food market, irrespective of the scenario and GDP growth. Overall, by 2032 the market share for ultra-processed food is estimated to reach approximately 39% from 37% in 2023.

The share of ultra-processed foods in processed foods is expected to reach around 39% by 2032. In all three scenarios, ultra-processed food is growing faster than essential/staple food.

Fig. 14: Scenario forecast - ultra-processed vs essential foods CAGR



Source: Compiled by authors

3.1.1 Future projections of ultra-processed food subcategories: by scenario

Table 8 shows the varying CAGRs for the five ultra-processed subcategories, over the next decade. We see that salty snacks is estimated to have the highest growth from 2023 to 2032, followed by breakfast cereals and beverages in all the three scenarios. It is also interesting to note that in the total ultra-processed food market -

- the share of salty snacks increased from an estimated 20% in 2023 to 28% in the optimistic scenario, 27% in the realistic scenario, and 26% in the pessimistic scenario in 2032;
- the market share of beverages is estimated to remain 18% in the total ultra-processed food market in all three scenarios from 2023 to 2032;
- market share of ready-made and convenience food is estimated to decline from 26% in 2023 to 24% in 2032 in all three scenarios;
- market share of chocolate and sugar confectionery is estimated to decline by at least 5 percentage points from 2023 to 2032 in the pessimistic scenario; and
- despite the high growth rate of breakfast cereals, its market share remains 2% (see Fig. 15), throughout the next decade, in all three scenarios.

By 2032, despite a decline in market share, the category chocolate and sugar confectionery will continue to dominate the ultra-processed market; followed by salty snacks and ready-made and convenience food respectively, in all three GDP growth scenarios.

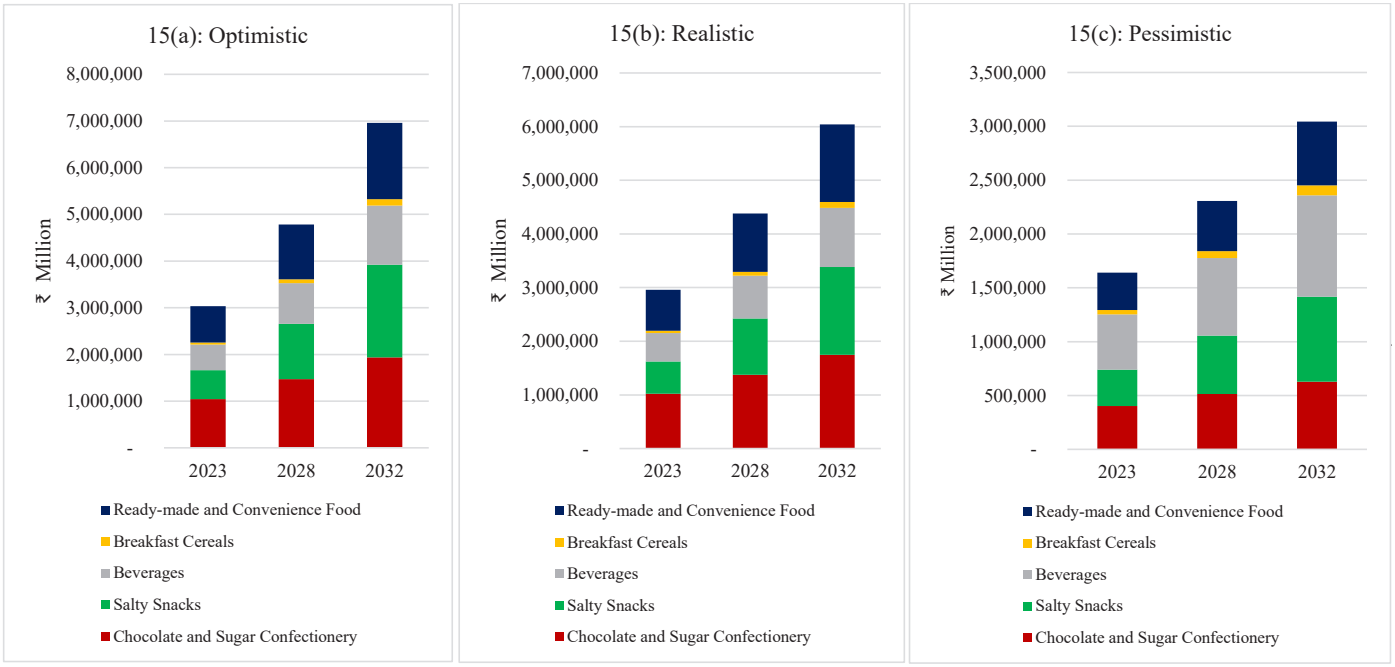
Table 8: Estimated CAGR of ultra-processed food from 2023 to 2032

Processed food category	CAGR for 2023 to 2032		
	Optimistic scenario (%)	**Realistic scenario (%)**	**Pessimistic scenario (%)**
Salty snacks	13.79	11.82	9.85
Breakfast cereals	13.02	11.16	9.30
Beverages	9.80	8.40	7.00
Ready-made and convenience food	8.61	7.38	6.26
Chocolate and sugar confectionery	7.14	6.12	5.10

Source: Computed and compiled by authors

The projections provide a range within which the market size of ultra-processed food would be, under different economic performances of the country (see Fig. 15 for forecast across ultra-processed food subcategories). For detailed year-wise forecast values, for each subcategory in the three scenarios (optimistic, realistic and pessimistic) from 2023 to 2032, refer to Tables B1, B2 and B3 in Annexure B.

Fig. 15: Forecast of retail sales for ultra-processed food: scenario analysis



Source: Computed by authors from Euromonitor database

Overall, the three different future growth scenarios show that ultra-processed food retail sales will continue to rise, but there are variations in growth by product subcategories, which has implication for policy. Before policy is discussed, the next section presents the institutional framework and some of the key stakeholders working towards achieving nutritional security in India.

4

Governance structure and key stakeholders

India has a quasi-federal governance structure with division of power and responsibility between the Centre and the states. In this section we discuss the governance structure and some key stakeholders who help to frame policies with respect to food and nutrition, with a focus on consumption of HFSS products.

4.1 Governance structure

At the Centre, the Food Safety and Standards Authority of India (FSSAI), under the Ministry of Health and Family Welfare (MoHFW), is the nodal agency for regulating the food sector. The Ministry of Food Processing Industries (MoFPI) is responsible for developing the food processing sector, while the Indian Council of Medical Research (ICMR)-National Institute of Nutrition (NIN), under the MoHFW, plays a key role in designing the dietary guidelines. The Ministry of Finance (MOF) along with the GST Council plays a key role in taxation, customs duties, and cess. The Ministry of Commerce and Industry (MoCI) is the nodal body for trade in processed food, including ultra-processed food, and is responsible for promoting exports. The Ministry of Women and Child Development (MoWCD) plays a key role in addressing diet sustainability and malnourishment/undernourishment, especially in children, adolescent girls, pregnant women and lactating mothers under the umbrella of Saksham Anganwadi and Poshan 2.0 (hereinafter referred to as Poshan 2.0). The Ministry of Consumer Affairs, Food and Public Distribution plays a key role in implementing the public distribution system (PDS) system in the country, and for providing subsidised nutritious foods to the population. It also regulates weight, measures and thereby package size, and certain labelling requirements for packaged commodities. The ministry is also involved in raising consumer awareness. It also regulates weight, measures and thereby package size, and certain labelling requirements for packaged commodities. The Ministry of Education (MoE) implements the Pradhan Mantri (PM) Poshan Shakti Nirman (POSHAN) Scheme, which aims to address hunger and malnutrition among school children, and simultaneously increase enrolment in schools.[18] The Ministry of Health (MoH) also has the School Health Programme for screening for malnutrition and aims to build awareness about health and nutrition (MoHFW and Ministry of Human Resource and Development, 2018).

The states have their separate governance structure to promote health and nutrition. Along with the policies and schemes at the centre, at the state level there are various policies/programmes to promote a healthy diet. For example, the Chhattisgarh Government launched the 'Mukhyamantri Suposhan Abhiyan' in October 2019 to provide nutritious food to villagers at the panchayat level.[19] In Gujarat, the Nutrition Programme (2019-2023) aims to contribute to a reduction in children's stunting and severe wasting by improving health, nutrition, and hygiene among pregnant women and children in Bhavnagar and Sabarkantha.[20] The focus of most of these programmes is on undernutrition and not on overnutrition or unhealthy diet related illnesses.

4.2 Key stakeholders

A number of international organisations, non-governmental organisations (NGOs), consumer bodies, think-tanks/academics, nutritionists, industry bodies and other stakeholders are working among themselves and with the government at the Centre and state levels on healthy diet. Apart from the WHO, United

18 Source: https://pmposhan.education.gov.in/ (accessed 28 June 2023)
19 Source: https://cmchhattisgarh.cgstate.gov.in/Suposhan-Abhiyaan (accessed 28 June 2023)
20 Source: https://www.powerofnutrition.org/programmes/gujarat-nutrition-programme-2019-2023 (accessed 13 December 2022)

Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), United Nations Children's Fund (UNICEF), International Food Policy Research Institute (IFPRI), World Bank and World Resources Institute (WRI) are working in India on different aspects on nutrition and healthy diet. For example, the MoHFW, in collaboration with UNICEF, came out with first exhaustive survey on child and adolescent nutrition - Comprehensive National Nutrition Survey in 2019. The survey looked into the status of, both, undernutrition (for example, micro-nutrient deficiencies) and overnutrition (incidence of NCDs) in India with respect to 110,000 children and adolescents across 30 states.[21]

21 Source: https://www.nutritionindia.info/ (accessed 30 November 2020)

5

Global best practices and India's policies to support healthy diet

Due to the adverse health impacts of increased consumption of ultra-processed foods, many countries and international organisations such as the WHO are coming up with policies/guidelines and nutrition-focused regulations, taxes, subsidies/incentives, nutrition labelling, awareness programmes; guidelines for public procurement; and guidelines on advertising/marketing to either incentivise consumption of healthy diets or disincentivise consumption of ultra-processed foods. While some developing countries like Sri Lanka have an overarching National Nutrition Policy (2021-2030) to address the dual concerns of malnutrition,[22] countries like Thailand are using measures like soda ban in schools, public awareness campaigns and taxation of sugar-sweetened beverages (SSBs) to address the rise of obesity and NCDs. Thailand introduced taxation of SSBs by sugar content in 2017 with proposed increase in specific tax rates for all SSBs every two years till 2023 (World Bank, Ministry of Public Health Thailand and Thailand Health Promotion Foundation, 2017). Execution of such policies/programmes involve multiple stakeholders including policy-makers, food experts, nutritionists, industry bodies, industry, NGOs, and consumer bodies. The key players to whom such interventions are applied, include food processors/manufacturers (for example, high taxes, bans on trans-fats/guidelines on reformulation of products, subsidies on reformulated products) and consumers (for example, awareness programmes on healthy nutrition intake).

In this section, we provide some examples of global best practices in policy-making, and the current policy landscape in India, with a focus on a) fiscal measures - taxation and subsidies; b) labelling guidelines focused on nutrition; c) regulations on advertising/marketing; d) policies on food procurement, e) ban on unhealthy food substances; and f) awareness programmes/campaigns.

5.1 Fiscal measures: taxation and subsidies

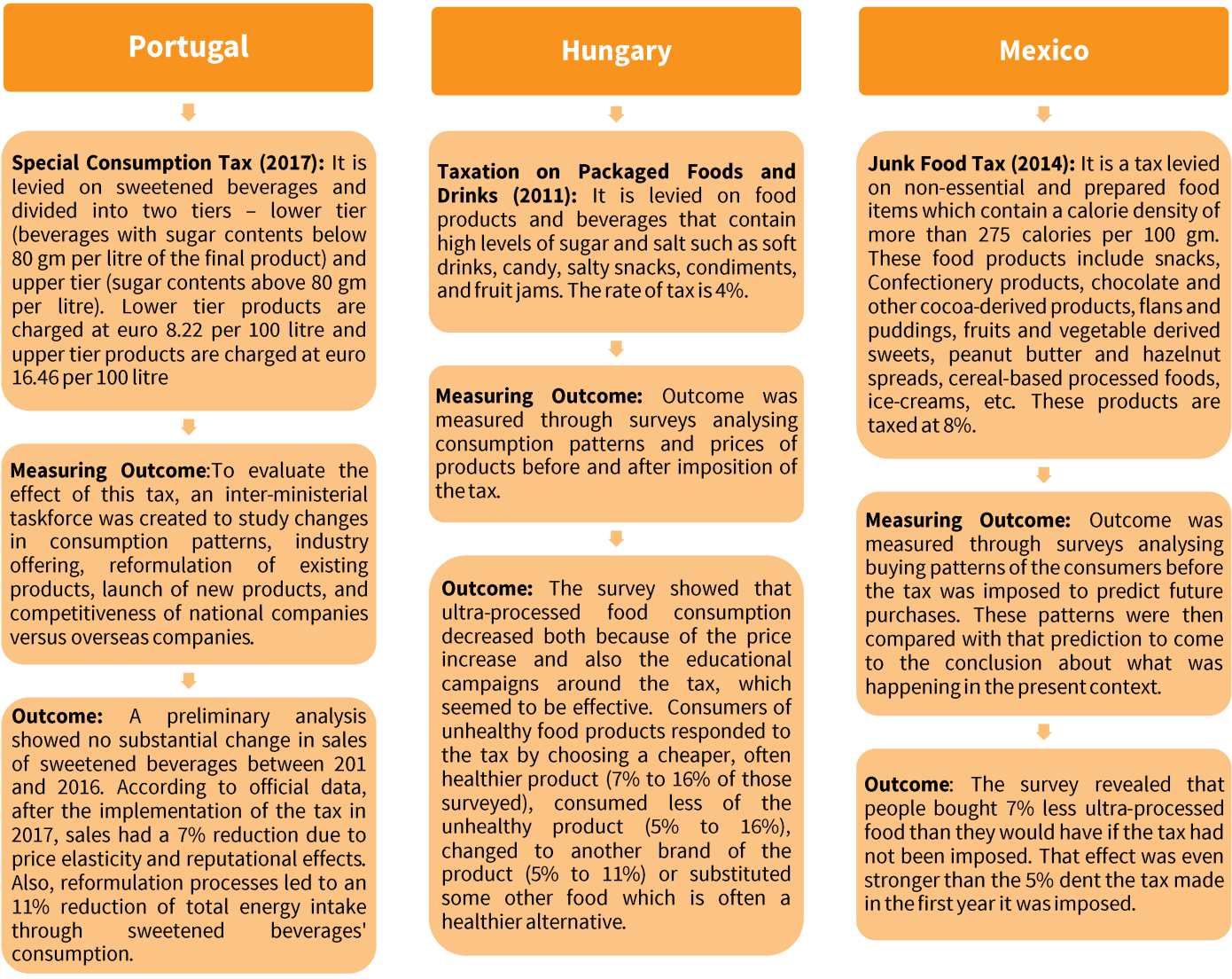
The WHO has recommended adoption of fiscal measures such as higher taxes on HFSS foods (WHO, 2017a) while giving subsidies on food that contribute to a healthy diet (WHO, 2022a) and to reduce the consumption of ultra-processed foods. To discourage consumption and encourage product reformulation, many countries have moved towards a nutrition-based tax model, focusing on higher taxes for products which have sugar, salt or fat beyond recommended levels and lower taxes for the healthier options. As of 2022, 85 countries have implemented SSB taxes at a national level, three countries at a subnational or municipal level, while 29 countries have implemented national level taxes on less healthy food products (WHO, 2022a). While high tax rates have been adopted by many countries like Denmark, Hungary, France, Finland, Mexico and South Africa (WHO, 2015; WHO, 2020a) their scope and coverage vary from being imposed on specific product categories like SSBs, to across all types of HFSS foods (see Fig. 16). A number of Asian countries too, such as Philippines, Thailand, Brunei and Malaysia are coming up with nutrition-linked taxes to reduce the consumption of HFSS food. Recently, Philippines implemented a specific tiered based tax on beverages like sweetened juice drinks, sweetened tea; all carbonated beverages; flavoured water. The implemented rate was 6 pesos per litre (US$ 0.12) on drinks with sugar and artificial sweeteners and 12 pesos per litre (US$ 0.24) on drinks with high-fructose corn syrup. In Brunei, since 2017, a tax rate of 0.40 Brunei dollars per litre (US$ 0.28) is implemented on SSBs with more than 6g sugar per 100 mL,

22 For more details see https://nutrition.health.gov.lk/wp-content/uploads/2020/11/NNP-English.pdf (accessed 17 May 2023)

malted or chocolate drinks with more than 8 g of total sugar per 100 mL etc. Meanwhile, other countries are yet to implement an SSB tax but are looking into it. For example, the government of Vietnam has proposed an SSB tax to reduce SSB consumption, which is yet to be implemented.[23]

In many countries higher taxes have reduced the consumption of SSBs (see WHO, 2022b). For example, Portugal observed a 7% decrease in consumption of sweetened beverages (see Fig. 16). In Sri Lanka, as the prices of SSBs increased by 30-50%, their demand dropped. While sales volume of carbonated soft drinks (CSDs) declined by 27% in the first quarter of 2018, it also popularised sugar-free alternatives in the local beverage market.[24] However, there are variation in results across countries depending on multiple factors including the availability of substitute products at similar prices and awareness among consumers.

Fig. 16: Select taxation measures taken by countries to limit consumption of ultra-processed foods



Source: Compiled from country-specific government websites, research studies, and WHO reports.

23 Source: https://www.vietnam-briefing.com/news/vietnam-sugar-tax-2023.html/ (last accessed 28 June 2023)
24 Source: https://www.ips.lk/wp-content/uploads/2021/12/Policies-and-Nutrition-in-Sri-Lanka.pdf (last accessed 30 June 2023)

5.1.1 Taxing ultra-processed foods in India

In the case of India, the goods and services tax (GST) rates are not aligned with nutrition content in the food nor are they aligned with the product classification of the FSSAI. As shown in Table 9, chocolates have a higher GST compared to sugar confectionery. Similarly, for salty snacks, all *namkeens* are taxed at 12%, irrespective of their salt content. However, if it is not packaged and labelled, it is taxed at 5%. In the case of beverages, the highest GST rate of 28% along with a sin tax of 12% (total of 40%) is imposed on all carbonated drinks, even on the zero-sugar carbonated drinks. There is also no difference in tax rates between 100% juice with no added sugar or juice which has a higher sugar content (see Table 9).

Table 9: GST rates of ultra-processed food: some examples

Food category	Food item (HS Code)	GST rates (As on 01.04.2023)	
		CSGT/SGST (%)	**IGST (%)**
Chocolate and sugar confectionery	Chocolate and other food preparations containing cocoa (1806)	9	18
	Sugar confectionery (including white chocolate), not containing cocoa (1704)	6	12
	Sweet biscuits (190531)	9	18
	Waffles and wafers coated with chocolate or containing chocolate (190532)	14	28
Salty snacks	Namkeens, bhujia, mixture, chabena and similar edible preparations in ready for consumption form (other than roasted gram) *pre-packaged and labelled* (210690)	6	12
	Namkeens, bhujia, mixture, chabena and similar edible preparations in ready for consumption form (other than roasted gram) *other than those pre-packaged and labelled* (210690)	2.5	5
	Chips [Extruded or expanded products, savoury or salty] (19059030)	9	18
Beverages	Waters, including natural or artificial mineral waters and aerated waters, not containing added sugar or other sweetening matter nor flavoured (2201)	6	12
	Waters, including natural or artificial mineral waters and aerated waters, not containing added sugar or other sweetening matter nor flavoured *other than drinking water packed in 20 litre bottles* (2201)	9	18
	Carbonated Beverages of Fruit Drink or Carbonated Beverages with Fruit Juice (2202)	14	28*
	Beverages containing milk (22029930)	6	12
	Fruit or nut juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter (2009)	6	12
	Tender coconut water *pre-packaged and labelled* (2009 89 90)	6	12
	Tender coconut water *other than pre-packaged and labelled* (2009 89 90)	0	0

Ready-made and convenience food	Soups and broths and preparations therefor; homogenized composite food preparations (2104)	9	18
	Other vegetables prepared or preserved otherwise than by vinegar or acetic acid, frozen (2004)	6	12
Breakfast cereals	All goods, that is, corn flakes, bulgar wheat, prepared foods obtained from cereal flakes (1904 other than 190420)	9	18

*Note: * A compensation cess of 12% is added*

#CSGT = SGST

#IGST = CGST + SGST

Source: Compiled from https://cbic-gst.gov.in/gst-goods-services-rates.html (accessed 17 May 2023)

There are several issues arising due to the lack of alignment of the GST rates with the nutrition content in food products. First, companies have no incentives for product reformulation as the reformulated products, such as zero sugar carbonated drinks, face high (40%) taxes. Second, there is a large unorganised sector in India which does not pay taxes and is growing. High taxes shift consumers to this sector and hence, company sales in the organised sector declines. The government too, loses out on revenue. Third, reformulated products are generally costlier than standard products and high taxes further makes reformulation of the products costly. Therefore, such products are consumed mostly by high and high-middle-income consumers, while low-income groups continue to consume the HFSS products, shifting the burden of taxes for some product categories like CSDs to low-income groups (for examples, see Mukherjee, Mukherjee and Menon, 2022). Fourth, certain products like sweet biscuits (GST 18%) or chips (GST 18%), whose sales are growing, can have equally adverse health impacts like carbonated SSB but have a lower tax rate, which may be pushing unhealthy food consumption. Fifth, the GST rates are fixed without looking at the sales trends of ultra-processed food and their nutrition content, leading to a loss in revenue collection. For example, while there are products with different sugar content, there is 40 per cent GST on all carbonated drinks, irrespective of sugar content, while juices with high sugar content face a lower GST. Since the growth of carbonated beverages have slowed down while other sugar sweetening beverages are growing, this may adversely impact both the health of consumers and revenue collections. Thus, taxes not linked to nutrition can adversely impact product reformulation.

5.1.2 Positive fiscal interventions/subsidies for product reformulation and healthy diet

Subsidies and other fiscal incentives can be given to manufacturers for making healthy products and to consumers to encourage consumption. Collating the fiscal measures of different countries, WHO (2022a) found that subsidies on healthier foods and beverages were very few - it was reported by nine countries in the WHO Global Nutrition Policy Review 2016-2017. These were mainly in the form of price discounts or vouchers (exchangeable for healthy foods) in retail spaces, applicable to various healthy foods and beverages sold in supermarkets, cafeterias, vending machines, farmers' markets, restaurants or organic food stores. For example, in a number of social welfare programmes in high-income countries such as the USA, UK and Canada, subsidies on healthy foods are included as an

There is a lack of nutrition-linked taxation. Multiple GST rates applicable within ultra-processed food categories, with similar adverse health impacts. Tax rates are imposed without taking into consideration (a) packaging size; (b) reformulated products/ nutrition levels.

There is a large unorganized sector (80%) which does not adhere to nutritional and health guidelines, or nutrition-package labeling.

Tax revenue collections are lower than potential.

Taxation is adversely impacting the processed food industry in terms of innovation and product reformulation.

Lower product reformulation will impact future exports.

important component. In middle-income countries such as South Africa, subsidies on fruits and vegetables are part of private health insurance programmes.

Through subsidies, there can be changes in the consumer behaviour which, in turn, can act as incentives for producers to introduce reformulated and/or new products in the market (WHO, 2022b). On the supply side, it is important to incentivise producers and manufacturers, such that they can reformulate the products and align them with the nutritional requirements and standards set by the WHO/country's nodal agencies. Subsidies to promote reformulation can also encourage investment in the products and ensure their costs remain low. As consumers are used to a certain taste, product reformulation in itself is a risk. Fiscal incentives, in such scenarios, may motivate the producers to take that risk and introduce new products in the market (WHO, 2015).

In India, fiscal incentives given to food manufacturers are not linked to the nutrition content in the food product.

Fiscal incentives are not linked to exports of healthier processed food products, which has growing demand in key export markets.

There is also a need to review the subsidies for ingredients like sugar, palm oil, which can lower the cost of production for HFSS foods.

5.1.3 Positive fiscal interventions/subsidies in India

While India aims to achieve nutrition security, it is yet to come out with a fiscal incentive linked to healthy production. For example, sugar is highly subsidised in India while its alternative has high cost. Hence, use of sugar can reduce the cost of manufacturing and thus lower the final price of the products.

Reformulated products can be encouraged through target subsidies under schemes like the Production Linked Incentive (PLI) [25], which are missing currently. The fiscal incentives given by the MOFPI are not linked to nutrition.

5.2 Labelling guidelines focused on nutrition

An important tool for guiding consumer choices towards healthier food products are labelling guidelines, based on food ingredients and nutrition. It allows consumers to make comparisons between similar food products and opt for healthier choices while purchasing. In 2017, WHO updated its 'Guiding Principles and Framework Manual for Front-of-Pack Labelling for Promoting Healthy Diets', to provide a model framework for countries to develop suitable Front-of-Pack Labelling (FOPL) policies. WHO proposed that, for implementing such policies, governments should assess the population's dietary patterns and diet-

Box 5: What is food labelling?

Food labelling is a part of food safety standards and policies of the governments, which are generally implemented by a nodal agency (for example, the Food and Drug Administration (FDA) in the USA) and are mandatory in most countries. It includes regulations and guidelines related to the product name and manufacturer details, ingredients and food additive details, allergen information, food recall information, shelf life, nutrition facts, among others. In terms of guidelines related to nutritional information labelling, it includes serving size, calorific count, percentage of daily recommended value of calorie intake, nutritional information on amount of saturated fats, trans fats, cholesterol, carbohydrates, protein, sodium, vitamins and mineral content, etc.

related diseases, and then there can be a government-led stakeholder engagement process for developing the FOPL system format and content (WHO, 2017b).

Focusing on country practices, while nutrition-based labelling standards generally form a part of the overall food labelling standards/guidelines, some countries such as Australia, the UK and France have come up with health star rating, nutrition-based colour coding, nutritional scores, specifically focused on providing nutrition-based information to consumers while Chile implemented warning sign labels to guide consumer choices. Asian countries such as Thailand, Philippines, Malaysia and Sri Lanka also have an FoPL system (see Box 6 for details). Sri Lanka's colour coded FoPL, applicable to beverages such as carbonated beverages, along with media campaigns to raise awareness resulted in reduction of sugar content in beverages as well as a drop in sales of carbonated beverages (WHO, 2018b).

It is important to understand the awareness and literacy level of the consumers in the country while finalising the FOPL. There can be language barriers in multi-linguistic countries like India. To resolve these issues, pictorial logos, symbols, star ratings, etc. can be used.

25 Source: https://pib.gov.in/PressReleasePage.aspx?PRID=1708691#:~:text=The%20Union%20Cabinet%20chaired%20by%20the%20Prime%20Minister,markets%20with%20an%20outlay%20of%20Rs.%2010900%20crore (accessed 11 May 2023)

Box 6: Select examples of nutrition-based labelling methods

- **Australia:** The Food Standards Australia and New Zealand launched a Health Star Rating (HSR) system in 2014, which is a voluntary FOPL scheme developed to provide convenient, relevant and readily understood nutrition information and/or guidance on food packs, to assist consumers in making informed food purchases and healthier eating choices. The HSR system complements the nutrition information panel (NIP) of the Australia New Zealand Food Standards Code (FSC) by providing interpretive information on the front of packaged food products. It is based on an algorithm that awards a star rating depending on the quantity of specific food components (such as energy, saturated fats, total sugars, sodium, protein, dietary fibre, fruits, vegetables, nuts and legumes) within the product. The complete HSR system graphic comprises rating, an energy icon, three prescribed nutrient icons, one optional nutrient icon, and further optional interpretive terms such as high and low with respect to the nutrient icons and the percentage daily intake of energy (for the per pack or per serve size).

- **UK:** In the UK, there is a system of front-pack nutritional labelling, over and above the mandatory nutritional information requirement of the Food Information Regulation, 2014. The government uses a format of colour coding resembling the traffic light colours to display nutritional information at a glance. The colour coding shows whether a product is high (red), medium (amber) or low (green) in fats, saturated fats, salt and sugars and how much energy (calories and kilojoules) it provides. Although optional, this helps consumers compare food items and allows them to make healthier choices. Some manufacturers and most major UK supermarkets also use traffic light labelling on pre-packed foods and drinks.

- **France:** France has a food score system - the 'Nutri score', which gives a rating to any food (except single-ingredient foods and water) based on the five categories of nutritional quality, indicated via a colour scale ranging from green (grade A) to red (grade E). Grade A indicates the best grade, while grade E indicates the worst. It is also known as the '5-Colour Nutrition Label or 5-CNL,' which employs a nutrient profiling system based on the UK Food Standards Agency model.

- **Chile:** Chile implemented FoPL policies in 2016, requiring ultra-processed food packaging to include a warning label for each nutrition threshold the food product exceeded. The warning labels were designed in black and white, stating 'High in <nutrient>', and the size and location of the warning were also predetermined (Corvalán et al., 2018).

- **Thailand:** Thailand passed its first nutrition label law in 1998, which mandated a display of Nutrition Information Panel (NIP) on foods making health and nutrition claims. In 2011 the guideline daily amount (GDA) FoPL label was introduced. It includes sugar, fat, sodium and energy level and is mandatory for specified product categories like snacks (potato chips, popcorn, wafers, etc.) and certain RTE food items. The Healthier Choice Logo was introduced in 2016 to indicate that a food is healthier, compared to its competitors in the same category (Suya et al., 2022).

- **Malaysia:** There are two FoPL systems in Malaysia, - an energy-only GDA label and the Healthier Choice Logo. The GDA label applies to all packaged food products, other than special-purpose foods and infant formula. The Healthier Choice logos aim to guide consumers towards healthier options and encourage product reformulation (Pettigrew et al., 2022).

- **Sri Lanka:** The FoPL system, called Traffic Light Labelling (TLL), is only applicable to beverages. It aims to provide convenient and easy-to-understand nutritional information to help consumers make informed choices. It also required labelling the sugar content of their products, using traffic light colours.

Source: Compiled from multiple government websites, (https://www.euro.who.int/en/countries/france/news/news/2017/03/france-becomes-one-of-the-first-countries-in-region-to-recommend-colour-coded-front-of-pack-nutrition-labelling-system; https://www.nutrition.org.uk/healthyliving/helpingyoueatwell/324-labels.html?start=3; http://healthstarrating.gov.au/internet/healthstarrating/publishing.nsf/Content/651EEFA223A6A659CA257DA500196046/$File/HSR%20Style%20Guide-v5.pdf, https://www.ips.lk/wp-content/uploads/2021/12/Policies-and-Nutrition-in-Sri-Lanka.pdf (accessed 30 June 2023)

Studies show that FoPL with warning symbols, star ratings, etc. help consumers identify healthy food options and discourage the consumption of ultra-processed food and beverages (Mora-Plazas et al., 2022; Taillie et al., 2020; Egnell et al., 2021). A randomised control experiment involving 8061 Columbians revealed that the Nutri score label system - a colour-coded and letter-rated (A-E) system, was the most efficient in communicating nutritional information and dissuading consumers from purchasing ultra-processed foods (Mora-Plazas et al., 2022).

5.2.1 Labelling guidelines in India

The MoWCD (2015) recommended a color-coded concept for the food being procured and made available in school canteens/as part of meals. For example, green code foods such as vegetables, fruits, legumes, etc., are recommended to be always included in the menus. In the same way, orange code foods such as confectionery items, snacks, and carbonated beverages are not recommended on the canteen menu. This is yet to be implemented. The FSSAI, in 2020, finalised the Food Safety and Standards (Safe Food and balanced diets for Children in School) Regulations, 2020, which restricts food business operators (FBOs) manufacturing HFSS food from advertising and marketing these products to children on school premises or within 50 meters from the school gates.

Labelling guidelines will need a clear and transparent definition of HFSS.

In 2020, in addition to the existing back-of-the-pack labelling, FSSAI's Food Safety and Standards (Labelling and Display) Regulations 2020 laid down the details to provide nutritional information on front-of-the-pack in an easily comprehendible manner to consumers focusing on sugar, salt and fat content. This was followed by the announcement of the Draft Notifications on Food Safety and Standards (Labelling & Display) Amendment Regulations in 2022. In the regulation, an Indian Nutrition Rating has been proposed as a format for FOPL to help consumers to make informed food choices.[29] However, the regulation is yet to come into effect and for it to be effective FSSAI has to first finalise the definition of HFSS, which is part of the same regulation.

5.3 Policies on food procurement

Governments, in a number of countries, are trying to ensure the availability of healthy foods through implementation of efficient food procurement policies. These policies are often directed at people who have a large proportion of their daily diet-intake from a central organisation (for example, schools, workplace, hospitals, care homes, correctional facilities, and government institutions). Efficient procurement policies are relatively inexpensive to implement, have the potential to encourage local production of foods and raise awareness about the importance of a healthy diet if coupled with education (L'Abbé, Sunohara and Wan, 2011). Broad implementation of efficient procurement policies can increase the overall demand for healthier products, drive the reformulation of foods by food manufacturers, and increase the availability of healthier foods to the general public (Niebylski et. al., 2014). In 2021, WHO released 'Action Framework for Developing and Implementing Public Food Procurement and Service Policies for A Healthy Diet' to guide governments, policy makers and programme managers in enacting healthy food procurement policies. The core principles of the document are to limit consumption of ultra-processed foods high in sugar, salt and fats and increase consumption of whole foods.[29] Various countries such as Australia, Brazil and Philippines have food procurement policies in place (see Fig. 17 for examples).

28 Source: https://www.fssai.gov.in/upload/advisories/2022/02/6214c8ca94fedMinutes_FOPL_22_02_2022.pdf (accessed 10 May 2023)
29 Source: https://www.who.int/publications-detail-redirect/9789240018341 (accessed 20 July 2022)

Fig. 17: Food procurement policies in select countries/regions

Australia - National Healthy School Canteens Guidelines (2010)

- It provides national guidance and training to help canteen managers across Australia to make healthier food and drink choices for school canteens. These guidelines build on activities of state and territory governments and encourage a nationally consistent approach to promoting healthy food through Australian school canteens. The guidelines include three components: a national food categorisation system for school canteens; training materials for canteen staff, and an evaluation framework.

Brazil - National School Feeding Programme (2009)

- The programme places great emphasis on the availability of fresh, traditional and minimally processed foods. It mandates a weekly minimum of fruits and vegetables, regulates sodium content, and restricts the availability of sweets in school meals.

EU- Green Public Procurement (GPP) (2008)

- Under GPP for food and catering services, specifications are proposed for a range of products including fruits, vegetables, meat, dairy, beverages, etc. The policy focuses on procuring food products where organic production methods are being used and in minimising packaging waste. It also includes procurement in bulk or in packaging that has high recycled content, and improvement in transport routes and energy efficieny.

Korea- Special Act on the Safety Management of Children's Dietary Life (2009)

- The programme ensured that the school children were given healthy and nurtitious food. Businesses selling ultra-processed food and beverages, which are energy dense with low nutrient levels were prohibited within school canteens.

Philippines - Policy and Guidelines on Healthy Food and Beverages in Schools and in DepEd Offices (2017)

- The guidelines aim at increasing the availability and encouraging consumption of healthier food in government offices and schools. Each school is required to develop a healthy menu keeping in mind nurtitional standards. Further, dept and school canteens are advised to use cooking methods that require less or no fat and the gradually reduce the salt usage. Ultra-processed food and beverages exceeding the threshhold levels of fat/sugar/sodium are prohibited from being sold in these canteens.

Singapore - Healthy Meals in Schools Programme (2017)

- The programme encourages healthier food and beverage choices in schools involving teachers, canteen vendors and students. Under this programme, canteen vendors need to follow food service guidelines which include cutting down fat, sugar and salt; serving whole grains, fruit and vegetables; and serving healthy set meals such as white rice mixed with brown and wholemeal bread sandwiches.

USA- Food Service Guidelines for Federal Facilities (2011)

- The standards in the guidelines are aimed at achieving three primary goals - healthier foods and beverages are available and encouraged at federal facilities, environmentally responsible practices are conducted in federal food service venues, and communities are economically supported through local food sourcing, and food safety practices are followed to minimise the risk of foodborne illnesses.

Source: Compiled from multiple government and international organisations' websites , (https://ec.europa.eu/environment/gpp/what_en.htm#:~:text=Green%20Public%20Procurement%20(GPP)%20is,goods%2C%20services%20and%20works%20with; http://www.fao.org/3/a-h0050e.pdf; https://www1.health.gov.au/internet/main/publishing.nsf/Content/phd-nutrition-canteens; https://www.hpb.gov.sg/docs/default-source/default-document-library/healthy-meals-in-schools-programme-criteria28038bf-6468366dea7adff00000d8c5a.pdf?sfvrsn=0; https://www.cdc.gov/obesity/downloads/guidelines_for_federal_concessions_and_vending_operations.pdf http://depedbohol.org/v2/wp-content/uploads/2017/04/DM-No.-169-s.-2017.pdf https://elaw.klri.re.kr/eng_service/lawView.do?hseq=19679&lang=ENG (accessed on 21 July 2022)

5.3.1 India's food procurement policies

In 2013, the National Food Security Act (NFSA) was enacted to provide food security for all by ensuring access to adequate quantity of food at affordable and subsidised prices through the Public Distribution System (PDS). The NFSA also focussed on the nutrition of pregnant women and children, through

30 Source: https://dfpd.gov.in/nfsa.htm (accessed 18 May 2023)

schemes such as the Integrated Child Development Services (ICDS) and Mid-Day Meal (MDM) schemes.[30] The NFSA (2013) was amended in January 2023, revising the nutritional standards for both women and children, and the type of meal that would help meet the requirements in accordance with the ICDS and Prime Minister's Overarching Scheme for Holistic Nutrition (POSHAN) Scheme. Both, ICDS and POSHAN (National Nutrition Mission) scheme are flagship programmes under the MoWCD. In August 2022, the MoWCD announced POSHAN 2.0, an Integrated Nutrition Support Programme, to ensure sufficient calorie consumption and promote behavioural change towards better nutrition. To meet the daily calorie intake, the scheme promotes consumption of sugar and fat, but it does not address or provide guidelines for overconsumption of HFSS foods.

To provide safe and nutritious food to school children, FSSAI introduced the Food Safety and Standards (Safe Food and Balanced diets for Children in School) Regulations, 2020 to focus on the importance of the right eating habits since early childhood. It proposed a 10-point charter, to ensure safe and healthy food for school children. The regulation applies to school authorities, food business operators contracted by school authorities that cater meals, or those contracted by Department of School Education for implementing mid-day meal schemes. The regulation includes banning the sale and provision of HFSS foods in and around school premises along with restricting other forms of promotion of HFSS foods.

There is no published national guideline in India for public procurement of healthier processed food and beverages by government institutes.

However, there is no uniform practice, policy or information available in public domain in India on the procurement process of different organisations like hospitals, government offices, private schools, offices, universities, etc., making it difficult to assess whether such institutes are meeting the nutritional guidelines.

5.4 Ban on ultra-processed foods with trans fats

Manufacturers of ultra-processed foods often use trans fats as they have a longer shelf life than other fats, particularly in South and Southeast Asia (WHO, 2018a). The intake of trans-fatty acids (TFAs) has been linked with increased risk of heart attacks and deaths from CVDs. Given the adverse health impacts, WHO in 2018 released a guideline 'REPLACE' to eliminate industrially produced trans fats from the global supply chain by 2023.[31] Since its release, several countries, including Brazil, Denmark, Saudi Arabia, Thailand and Singapore, have implemented TFA policies to address excess amounts of industrially produced TFA (WHO, 2021). In 2021, India and Philippines became the first and second lower-middle income countries to pass a TFA best practice policy. Subsequently, in January 2022, India's TFA policy came into effect (see subsection 5.4.1.), impacting approximately 1.4 billion people (WHO, 2023b).

5.4.1 Ban/limit on ultra-processed food and trans-fat in India

In a move to limit trans-fat in food products, FSSAI in December 2020, announced that all edible refined oils, margarines or bakery shortenings, vegetable fat spread etc., may only contain up to 3% trans-fat by January 2021, and 2% or less by January 2022. Following this, FSSAI also put a cap on trans-fatty acids in food products, at 2% or less trans-fat by January 2022.[32]

India has the potential to be one of the few countries in South Asia to successfully eliminate the use of trans-fat.

31 For details, see https://www.who.int/news-room/detail/14-05-2018-who-plan-to-eliminate-industrially-produced-trans-fatty-acids-from-global-food-supply (accessed 9 July 2020)

32 Source: https://fssai.gov.in/upload/media/FSSAI_News_TransFat_FNB_18_02_2021.pdf and https://www.fssai.gov.in/upload/media/FSSAI_News_Fats_FNB_08_01_2021.pdf (accessed 25 May 2023)

5.5 Restrictions on advertising and marketing

Governments in many countries have come up with restrictions on advertising and marketing of ultra-processed food and beverages (Dubois, Griffith, and O'Connell, 2018) through various platforms such as TV channels, social media, radio, and websites. In 2010, WHO recommended that advertising and marketing related policies should aim to limit and/or restrict the exposure of children to HFSS foods. These restrictions can range from complete to partial bans. While restrictions may apply to all age groups (for example, prohibition on broadcast advertising of SSBs in Iran and complete prohibition on advertising of ultra-processed foods in Brazil)[33] most are targeted at children below 18 years of age [for example, see Chile (the Law of Nutritional Composition of Food and Advertising, 2012) and Norway (Broadcasting Act No 127, 1992)]. Some countries, like Mexico and Taiwan, have restrictions on the display timings for advertisements of certain food and sweetened beverages, while in other countries, like Turkey, TV channels are required to display health promotional messages.[34]

These regulations and restrictions on TV advertising and marketing of HFSS food and beverages have been found to be a cost-effective intervention by some studies which shows that while there may be an advertising revenue loss in the short run, in the long run greater health benefits will reduce the healthcare costs, for example see Brown et al. (2018). In recent years, social media advertisements are growing, and this is an unregulated area in many countries. As more children now have access to the internet and smart phones, social media can also be an important mode to promote healthier foods or creating awareness about unhealthy foods. Studies (such as Folkvord, Roes and Bevelander, 2020) have found that social influencers or nutritionists can influence consumer choice.

5.5.1 Regulating advertisement and marketing in India

To regulate the advertising and marketing of ultra-processed foods, the FSSAI introduced the 'Food Safety and Standards (Advertising and Claims) Regulations, 2018.' The regulation aims to protect consumer interests, establish fairness in claims and advertisements and hold food businesses accountable for their claims/advertisements.[35] The regulation lays out detailed criteria for claims and advertisements, and emphasises that *advertisements shall also not undermine the importance of unhealthy lifestyle* as a measure to improve nutrition intake and reduce NCDs. In case of violation of the mentioned provisions, the regulation also instructs the food business operator/advertiser to issue a corrective advertisement within 30 days through the same medium. The regulation has been further amended in 2020 and 2022.[36] To ensure that HFSS food is not sold/advertised in/within a school premise, FSSAI introduced the Food Safety and Standards (Safe Food and Healthy Diets for School Children) Regulations, 2020 which bans advertisements of foods which are HFSS in school canteens or mess premises or hostel kitchens or within 50 metres of school campuses.[37]

As both the producers and consumers have access to social media platforms, it is important to monitor the content promoted on these platforms; especially with more children having access to the internet. Along with traditional media like television, social media also needs to be regulated for promotion of unhealthy foods and it can be used to promote healthy diet.

However, one of the core issues in India is advertisements and claims on HFSS products, especially in the context of social media use. As of date, there is no regulation/policy specifically monitoring the use of social media for promotion and this is an issue. Also, social media can be used to promote healthy diet. In

33 Source: https://www.in.gov.br/materia/-/asset_publisher/Kujrw0TZC2Mb/content/id/23174647 (accessed 20 July 2022)

34 A detailed list of countries and their regulations to restrict advertisements is available at https://policydatabase.wcrf.org/level_one?page=nourishing-level-one#step2=3#step3=328 (accessed 18 May 2023) https://commercialalert.org/eight-countries-taking-action-against-harmful-food-marketing/ (accessed 18 May 2023)

this light, the rise of food bloggers and nutritionists on the internet, can be leveraged to promote healthier food choices, as well as raise awareness among the social media users.

5.6 Public awareness programmes

These programmes and campaigns aim of raising consumer awareness, thus changing the consumer behaviour towards the goal to be achieved. These initiatives can be both in the form of positive campaigns aimed towards enhancing and encouraging the demand for healthy foods and meals, and negative campaigns aimed at limiting the consumption demand for ultra-processed foods and other packaged foods. The WHO (2017c) has suggested that mass media campaigns are one of the best instruments for NCDs prevention and control. These campaigns use different awareness-raising techniques (for example, public discourses, materials with information, and social marketing) through health and education talks/ seminars, public relation events/ tours/ demonstrations, social media websites, etc. (Hawkes, 2013). Some examples of awareness campaigns for promoting a healthy lifestyle are presented in Table 10.

Table 10: Examples of select awareness campaigns

Country	Examples of awareness campaigns
Mexico	The campaign 'No te hagas daño tomando bebidas azucaradas' (don't hurt yourself by drinking SSBs) launched by the 'Partnership for Dietary Health' in Mexico raised awareness regarding the health risks associated with heavy intake of these beverages, while simultaneously promoting intake of plain water, sparkling water, skim milk, and sugar-free tea as the best options for hydration.
Australia	The Western Australian Department of Health launched the 'Live Lighter' campaign -public health communication campaign using digital and mass media in 2012 with support from Heart Foundation Victoria and Cancer Foundation Victoria. The campaign created awareness regarding the health implication of consuming unhealthy foods and benefits of regular exercise. A controlled cohort study revealed that the 'Live Lighter' campaign significantly reduced consumption of SSBs, replacing it with increased water consumption. Additionally, the respondents exposed to the campaign had greater knowledge regarding the harmful impacts of consuming SSBs (Morley et al., 2018).

Source: Compiled from country/nodal agency-specific websites on these campaigns

5.6.1 Health and nutrition awareness campaigns in India

On 10 July 2018, FSSAI launched the 'Eat Right India' movement, a multi-sectoral effort to encourage citizens to eat right. One of its key objectives is to reduce the intake of salt, sugar, and saturated fats, specifically focusing on phasing-out trans fats from the diets. On the demand side, the 'Eat Right India' movement focuses on empowering citizens to make the right food choices, while on the supply side, it partners with the food businesses to reformulate their products, provide better nutritional information to consumers and make investments in healthy food. Under the Eat Right India campaign, 'Eat Right' awards have been initiated to recognise the contribution of food businesses who are working towards reformulating their products for healthier options. Some other initiatives by FSSAI are given in Box 7.

35 Source: https://www.fssai.gov.in/upload/uploadfiles/files/Gazette_Notification_Advertising_Claims_27_11_2018.pdf (accessed 2 December 2020)
36 For more details refer to https://fssai.gov.in/upload/notifications/2022/12/63998e33c2ad6Gazette_Notification_Amendment_14_12_2022.pdf (accessed 18 May 2023)
37 Source: https://www.fssai.gov.in/upload/uploadfiles/files/Gazette_Notification_Safe_Food_Children_07_09_2020.pdf (accessed 2 December 2020)
38. Source: https://ddnews.gov.in/health/september-national-nutrition-month-being-celebrated-across-india (accessed 18 May 2023)
39. Source: https://pib.gov.in/PressReleasePage.aspx?PRID=1857221#:~:text=The%20month%20of%20September%20every,Nutrition%20Month%20across%20the%20country (accessed 18 May 2023)

Box 7: Some more initiatives to raise awareness for healthier food choices by FSSAI

- To create awareness about the adverse health effects of trans fat, FSSAI launched 'Heart Attack Rewind' initiative in 2018 through a '30 second Trans Fat Public Service Announcement'. The campaign is targeted towards elimination of industrially produced trans fats in the food supply chain by 2022, as is envisaged by the WHO.
- FSSAI initiated a nation-wide social media campaign called *'Aaj Se Thoda Kam',* to bring about dietary modifications, reduce salt, sugar and fat consumptions and diet-related NCDs, as well as encourage manufactures to reformulate their products.

Source: Compiled from https://fssai.gov.in/cms/eat-right-india.php and https://motherchildnutrition.org/india/food-nutrition-board.htm, https://eatrightindia.gov.in/reduction-fat-sugar-salt.jsp (accessed 11 May 2023)

To raise awareness about malnutrition-related issues like growth stunting, undernutrition, anaemia and low birth weight in children, the MoWCD celebrates the month of September, every year, the 'National Nutrition Month' or 'Rashtriya Poshan Maah'.[38] In September 2022, the Ministry of Rural Development (MoRD) leveraged this occasion to further circulate and raise awareness for positive nutritional behaviours and practices.[39]

5.7 Dietary guidelines

Although several global guidelines on nutrition are available from WHO, all of these need to be adapted to the country context. These guidelines encompass defining HFSS foods, and often provide acceptable levels of consumption of specific nutrients as a percentage of daily requirements. These are often helpful as a guide for healthy diets (WHO, 2017a). However, as availability, access and food consumption vary across regions, nutrition requirements also vary across the populations. It is, thus, important for countries to have specific food-based dietary guidelines based on the population's requirement and access to food. For example, Thailand's Voluntary Guidelines provide guidance for attaining food and nutrition security, and for promoting healthy diets for everyone through SFS.

5.7.1 Nutrition guidelines in India

In 2020, NIN released its updated dietary guidelines for Indians, applicable to all age groups (ICMR-NIN Group of Nutrient Requirements for Indians, 2020). Previously, the 2011 guidelines were divided into 15 broad categories which include recommendations on limiting the use of partially hydrogenated vegetable oils (PHVOs) (like. ghee/vanaspati, etc.), sodium, and HFSS products. Healthy habits including drinking a lot of water, eating more fruits and vegetables, exercising frequently, adhering to right pre-cooking processes and ensuring eating a balanced diet are encouraged. In addition to this, the new guidelines aim to reduce the risks of inadequate/excess intake of nutrients. NIN has also come up with the concept of a balanced thali, representing proportions of different food groups for meeting the required calorie intake per day.

5.8 Policy gaps and issues

To summarise, a number of initiatives have been taken in India aligned with global best practices to support nutrition security and promote consumption of a healthy diet. Yet there are certain challenges and policy gaps which include lack of nutrition-based taxes and subsidies/fiscal incentives for product reformulation. Subsidies in raw materials like sugar may lower the cost of product of HFSS foods. Other issues include

gaps in institutional procurement guidelines, delays in finalisation of HFSS threshold and related FOPL, lack of regulation to restrict the promotion and marketing of HFSS food through traditional media and social media. Some initiatives are voluntary and not mandatory.

Focusing on fiscal incentives and taxes, the lack of nutrition-based tax rates, lack of incentives for product reformulation and the variation in tax rates across products with similar adverse health impacts leads to a situation where (a) companies tend to lobby to put their product in lowest GST slab; (b) companies have no incentive for product reformulation. In addition, India has a large unorganised sector which does not pay taxes. Along with loss in revenue for the government, the unorganised sector may not have any incentive to follow the health and nutrition guidelines, and it is difficult to monitor it.

In developing countries, it is important to build consumer awareness towards a healthy diet. Consumers are often hesitant to shift to new products, may be due to low awareness and/or high prices of healthier products. How to increase awareness and accessibility of healthier products are important policy decisions, which requires multi-stakeholders' engagement.

In a country like India, with quasi-federal governance structure and multiple regulatory bodies at the Centre and the states, collaboration among the stakeholders like policymakers, international organisations, industry bodies, health experts, consumer organisations, nutritionists and academicians will be beneficial to achieve nutrition security. Some areas for multi-stakeholders' consultations and partnerships and policy recommendations are presented in the next section.

6

Key findings, policy recommendations and the way forward

A number of studies on the Indian consumer market have linked the rise in cases of NCDs to an unhealthy diet and increased consumption of ultra-processed or HFSS foods. However, there remains a dearth of evidence and data-based studies on the (a) size of the ultra-processed food market in India; (b) how it has changed pre- and post-COVID-19 pandemic; (c) what is the likely growth in the future; and (d) what kind of policy measures can help India achieve nutrition security.

This report aims to address the lacuna by using Euromonitor International *Passport* dataset for analysing a 10 year-trend in the retail sales of ultra-processed food. Dividing the ultra-processed foods into five categories, namely, (a) chocolate and sugar confectionery, (b) salty snacks, (c) beverages, (d) ready-made and convenience food, and (e) breakfast cereals, the report found that, this sector grew at a CAGR of 13.37% in retail sales value between 2011 to 2021. While the growth declined during the pandemic in 2020, there is a sharp - V-shaped recovery in 2021 and ultra-processed food is projected to have a share of 39% in the total processed food (essential/staple plus ultra-processed) sector by 2032.

In terms of retail sales value, chocolate and sugar confectionery accounted for the maximum market share from 2011 to 2021, followed by ready-made and convenience food and beverages at the second and third place respectively till 2019. In 2021, market share of beverages was overtaken by salty snacks.

The forecasting estimates show that the ultra-processed food sector has a higher growth rate than the growth rate of the GDP or the growth rate of essential/staple foods. Therefore, the ultra-processed food sector needs policy attention to ensure a healthy population.

Any policy intervention across different categories of ultra-processed foods should have some commonality in terms of interventions based on nutrition content/ its adverse health impacts, but at the same time should take into account how such products are reaching the consumers.

The future projected growth (from 2023 to 2032) varies by product subcategories. For example, salty snacks has a high growth rate while ready-made and convenience food and breakfast cereals are slowly becoming more popular. By retail sale channels, even though modern retailing and e-commerce channels have come up, independent small grocers account for over 70% market for retail sales.

6.1 Measures to help India achieve nutrition security

Discussions in Section 5 shows that various policy initiatives and measures have been taken by countries around the world to reduce the consumption of ultra-processed foods and also promote the consumption of healthy foods. India, also, has taken several initiatives aligned with the global best practices to support nutrition security and healthy diet. However, there are certain policy gaps in India. These include lack of: a clear definition of ultra-processed food or HFSS food; an overarching nutrition policy and roadmap; nutrition-based product classification, taxes and incentives; policy/guidelines for procurement of processed food in government institutions; comprehensive advertisement and marketing regulation to name a few. Some initiatives are voluntary and not mandatory. A number of regulations in India are evolving and there are stakeholders' consultations on issues like FOPL. But at the same time, policies and initiatives have

been taken up by various government agencies in a piecemeal way and there is a lack of a comprehensive nutrition policy, target and road map towards ensuring nutrition security. Multi-stakeholders engagement in raising consumer awareness and use of social media platforms to promote healthy diet is limited.

Given these gaps the following nine recommendations are proposed:

6.1.1 Have a clear and transparent definition of HFSS and product subcategories

The FSSAI in consultation with relevant stakeholders should come up with a clear and transparent definition of HFSS food, along with definitions for different subcategories of ultra-processed food. For example, within beverages products can be classified based on sugar content. Such definitions and classifications can be used by other government ministries/departments/agencies to design nutrition-linked policies. For example, the GST Council can use these definitions and classifications for designing nutrition-linked taxes. Similarly, subsidies can be aligned with healthy food products/reformulated products based on such definitions and product categorisations. The lack of subsidies linked to healthy/reformulated product is adversely impacting product innovation and reformulation. It is also increasing the cost of reformulated products. One such example is the high cost of using sugar substitutes since sugar is highly subsidised.

6.1.2 Strengthen existing policies and programmes to address the dual burden of undernutrition and overnutrition

While India already has come up with policies and programmes such as Poshan 2.0, these do not adequately cover the issue of overnutrition and unhealthy diet related diseases. After consultation with all the stakeholders and taking their views and concerns into account, there is a need to strengthen the existing policies and move towards a comprehensive national nutrition policy which covers both the problems of under and overnutrition, and which clearly specifies the objectives, goals and targets. Countries like Sri Lanka have already come up with a National Nutrition Policy (2021-2030) to address the dual issue of undernutrition and overnutrition. India may look at such examples to design its own policies customised to the needs and requirements of the country.

6.1.3 Have nutrition-linked taxes

While designing fiscal interventions such as taxes, it is important to consider the type of tax, the tax rate, the taxable products, and the nutrient profile model used to define taxable products, as well as possible substitution effects of the tax. Higher taxes may discourage consumption if there are substitutes available but if the substitutes like reformulated products have an even higher price, consumers may not shift their consumption to such products. In case of a country like India, where there is a large informal market, consumers may shift their purchases from the organised to the unorganised sector. This may also reduce the government revenue. In such scenarios, tax policies need to be carefully designed, with the highest tax slab for HFSS foods and the lowest tax slab for reformulated and healthy products such that consumption of HFSS food is discouraged, and at the same time people's purchases are guided towards healthier consumption. For this, excise taxes are usually preferred from a public health perspective because they raise the relative price of products like SSBs making the targeted products less affordable. For example, a tiered taxes based on sugar content can encourage industry to reformulate their products. The WHO manual on SSB Taxation notes that SSB taxes should apply to all categories of SSBs

> Reformulated products have to be made affordable. One way for that is reducing taxes on healthier options and the other options include regulations such as the FoPL and restrictions on marketing and advertisement of HFSS products, which will encourage manufacturers to compete to produce heathier versions of the products at competitive prices.

Once HFSS foods have been defined by the FSSAI, the GST council needs to link their tax structure to the HFSS food definitions. Nutrition-linked taxes have to meet three objectives:

a) incentivise manufactures to reformulate their products;

b) make healthy products cheaper for consumers; and

c) discourage production of unhealthy products.

(including sugar-sweetened carbonates, fruit-flavoured drinks, fruit juices, sports and energy drinks, vitamin water drinks, sweetened iced teas and lemonades and sweetened or flavoured milk drinks and yogurts, as well as powders, concentrates or syrups used to make SSBs by adding water or carbonated water) but should exclude bottled water. It is thus imperative for FSSAI to have a clear classification of products by HFSS and for the GST Council to align their tax structure with nutritional content or the product classifications/ definitions as given by the FSSAI.

It is also important for a tax policy to consider the country's ability to attract investment in food processing and its impact on other stakeholders. Taxes can also be used to encourage sourcing from local vendors, thereby promoting the 'Make in India' vision.

6.1.4 Subsidies and fiscal incentives should be linked to nutritional options

Subsidies and other fiscal incentives can drive production, exports and consumption. Hence, these should be linked to nutrition. For example, the PLI scheme by MoFPI can be nutrition-linked instead of being linked to production of certain foods in general. Similarly, the Ministry of Commerce and Industries (MoCI), under the Foreign Trade Policy, can provide support for exports of reformulated and healthy products, the demand for which is rising in key export markets.

On the demand side, global studies show that positive fiscal interventions (for example, subsidies on healthy food) can reduce the prices of the products, making healthy products more accessible to consumers, and also provide an incentive to purchase healthier foods. Positive fiscal incentives, such as food vouchers or coupons, can also can help influence and change consumer behaviour towards consuming healthier foods. However, in a developing country like India with a large population and a huge informal sector for retail sales, effectiveness of positive fiscal interventions, depends on its design and dissemination. For example, retail food vouchers may not work in India while subsidised food in schools, governments offices etc. may be effective. Thus, the effectiveness of a policy to subsidise foods that contribute to a healthy diet will depend on how well they are delivered, and to whom.

To promote exports, targeted goals need to be set. While export-linked incentives cannot be given directly, they may be smartly designed to support the production of healthy products, which have export demand.

Another area for intervention is subsidies on inputs for processing like sugar, which reduces the cost of manufacturing when sugar is used, as compared to other heathier options.

6.1.5 Implement the labelling guidelines

The Draft Notifications on Food Safety and Standards (Labelling & Display) Amendment Regulations, 2022 of FSSAI should be implemented after stakeholders' consultations which should include a clear and transparent definition of HFSS food. Proper monitoring mechanisms have to be in place to ensure that manufacturers adhere to the labelling guidelines and consumers are not misinformed.

6.1.6 Efficiently use advertisement and marketing to ensure nutrition security and restrict advertisement and marketing of unhealthy foods

There is a need for more awareness programmes to simultaneously promote (a) the benefits of healthy eating habits and (b) the harmful impact of unhealthy eating. While awareness programmes related to what the consumer should refrain from can help reduce the consumption of unhealthy foods, it is not sufficient. It is crucial to know what nutrients one needs to be able to inculcate a healthy eating habit. Both traditional media and social media can be used for this purpose.

As the nodal body, FSSAI should onboard multiple stakeholders and work closely with them to address some of the policy gaps like raising awareness with the help of food bloggers, social influencers and nutritionists on the internet.

In a multilingual country like India, advertisement and marketing should be done in different languages covering all age groups of the population through institutes like school, colleges, offices, etc.

6.1.7 Build awareness about healthy eating habits and the harmful impacts of unhealthy eating

The government in collaboration with institutes/forums such as schools, universities, NGOs, as well as food bloggers and nutritionists should actively promote the consumption of fruits and vegetables, and increase awareness of the National Institute of Nutrition's (NIN's) dietary guidelines. Several countries today use social media to promote healthy diet related messages. In India, FSAAI, along with other ministries such as the MoWCD and the Ministry of Information and Broadcasting can introduce policies to increase awareness related to healthy eating habits and nutritious diets using both traditional and social media platforms. The Ministry of Consumer Affairs, Food and Public Distribution plays a key role in raising consumer awareness through country-wide mass media campaign called '*Jago Grahak Jago*'. Such platforms can also be used to increase consumers' awareness. Campaigns such as the 'Heart Attack Rewind' initiative of FSSAI or the POSHAN of MoWCD, which aim to improve the nutritional levels can be further explored to influence the young generation for a greater positive impact. Aside from this, the government can work with nutritionists, and organisations/associations to educate consumers about the benefits associated with consumption of fruits and vegetables, as well as the possible health problems that could arise if one does not have a nutritious diet. Lastly, as both the producers and consumers having increased access to social media, it is important to utilise these resources, and work in collaboration with the food bloggers and social influencers to help raise awareness.

6.1.8 Ensure healthy food procurement in guidelines for procurement of processed food

A clear national guideline for public procurement of healthier food and beverages by the government is needed to ensure uniform procurement process, for various kinds of organisations (like hospitals, schools, government offices, and universities). For this, first there is a need for the government to define the objective and scope of the policy. Second, it needs to identify the stakeholders involved. For the implementation of an efficient food procurement policy, it needs to encompass various government bodies at the centre, state and local level along with schools, workplaces, hospitals, care homes, and government institutions/facilities. Third, there is a need to map the stakeholders. Fourth, there is a need for a detailed survey on the procurement processes of the different organisations involved to understand the current status and gaps. With these, the government can formulate policies on the best

As social media use becomes more prevalent, there is a need for guidelines for food businesses/operators, and other key stakeholders on how to use the platforms to promote a healthier lifestyle and nutrient-rich food.

available evidence, align with the principles of international human rights to safeguard the public interest and take into account the health implications.

6.1.9 Have evidence-based, data-driven policy making

For evidence-based, data driven policy making, data gaps need to be addressed through detailed surveys. It is thus, important to have a thorough data-collecting process, across geographies and by product categories and subcategories to understand the consumption patterns and impact of policy decisions. For example, the data for certain subcategories like *mithai* which account for a significant portion of the Indian consumers' diet or different subcategories of carbonated drinks and biscuits by sugar content is not available. There is hardly any data on reformulated products. The change in consumer preferences and consumption pattern across various products like carbonated SSBs vis-a-vis fruit juices or tea, coffee, based beverages need to be examined. With product proliferation, policy makers need information on product subcategories and surveys help to collect such information.

Surveys can look at the nutrition content of different products by analysing the product labels and claims. There is also need for surveys to see if government run institutes (like government schools, colleges and office canteens) are meeting the required nutritional guidelines in their procurement practices.

Surveys not only help to design efficient policies they also help to understand its effectiveness and to monitor them. For example, while taxes may help reduce consumption in certain cases, it may not be the case if consumption is price inelastic, and reformulated or healthier products are costlier. A high tax in such cases may will be regressive (with a high burden on low-income groups), reduce the revenue earned, investment and employment in the food processing sector.

Impact of prices on consumption should be studied in-depth through primary surveys, covering different age groups, socio-economic groups, geographies, etc.

Survey can also be used to identify which platforms are the most used and liked for sharing knowledge on nutritious food and how businesses and consumers are using various social media and other platforms.

6.2 Way forward

As India becomes the most populous country, a young demography is the country's greatest strength but an unhealthy population can be a huge concern. With growing incidence of NCDs in the country, focussing on nutrition security is of high importance. Therefore, it is important to have a clear roadmap to ensure nutrition security. In this context, the above nine recommendations, along with possible future research in some areas (see Box 8) can help India achieve nutrition security, reduce the incidences of NCDs, and meet its UNSDG targets by 2030.

Box 8: Areas of future research

- Designing a roadmap for a comprehensive nutrition policy with targets for addressing issues like overweight and obesity
- Subcategory-wise product classification, fiscal and other interventions
- State and district level policy interventions for a healthy diet
- Sales and manufacturing of ultra-processed food through the informal sector/non-branded products

Glossary

Advertising	The paid public presentation and promotion of ideas, goods, or services by a sponsor that is intended to bring a product to the attention of consumers through a variety of media channels such as broadcast and cable television, radio, print, billboards, the Internet, or personal contact.
GST	In effect since 2017, this is a single indirect tax imposed on the supply of goods and services across India, replacing all previous indirect taxes such as value-added-tax (VAT), excise duty, service tax, etc. Hence, barring petroleum products, almost all similar classes of goods and services are taxed at a uniform rate across the country.
HFSS/ultra-processed food	The WHO South-East Asia Region (SEAR) model, classifies processed food and beverage items as food that is more likely to be a part of a healthy diet and food which may contribute to excess consumption of energy, saturated fats, trans fats, sugar or salt. Food items in the second category are, often referred to as foods high in fat, salt and sugar or HFSS foods.
Marketing	Various practices which constitute a commercial communication or message that is designed to, or has the effect of, increasing the recognition, appeal and/or consumption of particular products and services. It comprises anything that acts to advertise or otherwise promote a product or service. The action or business of promoting and selling products or services, including market research and advertising.
Non-sugar sweeteners	Food additives that impart a sweet taste to a food, including artificial non-caloric sweeteners (e.g., aspartame, sucralose, saccharin, and acesulfame potassium); natural non-caloric sweeteners (e.g stevia); and caloric sweeteners such as polyols (e.g., sorbitol, mannitol, lactitol, and isomalt). This category does not include fruit juices, honey, or other food ingredients that can be used as sweeteners.
Off-trade sales	These are volume or value sales of products consumed at home, also called take-home sales.
On-trade sales	These are volume or value sales of products that are consumed on-premises, at foodservice establishments such as hotels, restaurants, bars, catering establishments, etc. They are also known by the acronym HORECA (Hotels, Restaurants, Catering).
Retail Sales Channels	
Convenience Stores	Chained grocery retail outlets selling a wide range of groceries and fitting several of the following characteristics: Extended opening hours •Selling area of less than 400 sq metres •Located in residential neighbourhoods •Handling two or more of the following product categories: audio-visual goods (for sale or rent), foodservice (prepared take-away, made-to-order, and hot foods), newspapers or magazines, cut flowers or pot plants, greetings cards, automotive accessories. Example brands include 7-Eleven, Spar.

E-Commerce	Sales of consumer goods to the general public via the Internet. Please note that this includes sales through mobile phones and tablets. Internet retailing includes sales generated through pure e-commerce web sites and through sites operated by store-based retailers. Sales data is attributed to the country where the consumer is based, rather than where the retailer is based. Also includes orders placed through the web for which payment is then made through a storecard, an online credit account subsequent to delivery or on delivery of the product. This payment may be by any mode of payment including postal cheque, direct debit, standing order or other banking tools. Includes orders paid for cash on delivery. Includes m-commerce: where consumers use smart phones or tablets to connect to Internet and purchase the goods online. Examples include Bofrost (Germany) and Abel & Cole (UK) home delivery Internet orders.
Food/drink/tobacco specialists	Retail outlets specialising in the sale of mainly one category of food, drinks stores and tobacconists. Includes bakers (bread and flour confectionery), butchers (meat and meat products), fishmongers (fish and seafood), greengrocers (fruit and vegetables), drinks stores (alcoholic and non-alcoholic drinks), tobacconists (tobacco products and smokers' accessories), cheesemongers, chocolatiers and other single food categories. Butchers located in food markets are included in Food/drink/tobacco specialists only if the market in question is a permanent building and the butcher is not a market stall (even if permanent), otherwise it would be considered as part of the food market and therefore included in other grocery retailers. Food/drink/tobacco excludes health food stores.
Hypermarkets	Hypermarkets are retail outlets with a selling space of over 2,500 square meters and with a primary focus on selling food/beverages/tobacco and other groceries. Hypermarkets also sell a range of non-grocery merchandise. Hypermarkets are frequently located on out-of-town sites or as the anchor store in a shopping centre. Example brands include Carrefour, Tesco Extra, Géant, E Leclerc, Intermarché, Auchan. Excludes cash and carry, warehouse clubs and mass merchandisers.
Independent Small Grocers/ Kirana Store	Retail outlets selling a wide range of predominantly grocery products. These outlets are usually not chained and if chained will have fewer than 10 retail outlets. Mainly family owned, often referred to as Mom and Pop stores.
Other Grocery Retailers	Other retailers selling predominantly food, beverages and tobacco or a combination of these. Includes kiosks, markets selling predominantly groceries. Includes CTNs and health food stores, Food & drink souvenir stores and regional speciality stores. Please note that direct home delivery, e.g. of milk, meat from farm/dairy is included in Other Grocery Retailers when the consumer visits the farm or a store to order/purchase the product in question. If the order/purchase is made over the phone then this should be included in home-shopping and if the payment is made over the internet, then it should be accounted for in internet retailing. Sari-Sari stores in Philippines and Warung (Waroon) in Indonesia, that can either be markets or kiosks, should be included in Other grocery retailers unless they occupy a separate permanent outlet building, in which case they should be included in Independent small grocers. Outlets located within wet markets in SE Asia (often located in government-owned multi-story buildings) should be counted as separate outlets.
Supermarkets	Retail outlets selling groceries with a selling space of between 400 and 2,500 square metres. Excludes discounters, convenience stores and independent grocery stores. Example brands include Champion, Tesco, Casino.

Sugars	
Added sugars	Added sugars include those added to foods and beverages during processing or preparation. This includes sugars for example, table sugar as well as sugars from honey, molasses, and fruit or vegetable juices and juice concentrates, high-fructose corn syrup, malt syrup, agave syrup, and any other free sugars added to processing or preparation.
Free sugars	Free sugars include sugars added to foods and beverages by the manufacturer, cook or consumer, as well as sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates. Free sugars do not include sugars naturally occurring from milk (lactose and galactose) nor intrinsic sugars (such as those sugars incorporated within the structure of intact fruits and vegetables).
Total sugars	Total sugars include sugars from all sources. This includes added sugars, sugars from milk, and intrinsic sugars.
SSBs	SSBs are non-alcoholic beverages containing sugars.
Trans-fat	A form of fat that results from the hydrogenation of unsaturated fatty acids or occurs naturally in the milk and meat of certain animals.

Source: Compiled from WHO Reports and Euromonitor Database

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Annexure A

Table A1: processed food categories: ultra-processed food

S. No	WHO category	Subcategories	Examples of food items included
1	**Chocolate and sugar confectionery**	Chocolate confectionery	Chocolate pouches and bags, boxed assortments, chocolate with toys, countlines, seasonal chocolate, tablets, other chocolate confectionery
		Gum	Bubble gum, chewing gum
		Sugar confectionery	Boiled sweets, liquorice, lollipops, medicated confectionery, mints, pastilles, gums, jellies and chews, toffees, caramels and nougat, other sugar confectionery
		Ice cream and frozen desserts	Frozen desserts, ice cream, chilled dairy desserts, chilled snacks, shelf stable dairy desserts, flavoured yoghurt
		Snack bars and fruit snacks	Dried fruit, processed fruit snacks, cereal bars, protein/energy bars, fruit and nut bars
		Sweet biscuits	Chocolate coated biscuits, cookies, filled biscuits, plain biscuits, wafers
		Sweet spreads	Chocolate spreads, jams and preserves, nut and seed-based spreads
		Cakes and pastries	Unpackaged cakes, packaged pastries, unpackaged pastries
		Desserts	Dessert mixes
2	**Salty snacks**	Savoury snacks	Nuts, seeds and trail mixes, salty snacks (potato chips, tortilla chips, puffed snacks), savoury biscuits, popcorn, pretzels, other savoury snacks
3	**Beverages**	Flavoured bottled water	Still flavoured bottled water, sparkling flavoured bottled water, functional bottled water
		Soft drinks/ carbonated	Cola carbonates, non-cola carbonates
		Juice	Not from concentrate 100% juice, reconstituted 100% juice, juice drinks (up to 24% juice), nectars, coconut and other plant waters
		RTD tea	Carbonated RTD tea and kombucha, still RTD tea
		Energy drinks	Energy drinks, sports drinks
		Flavoured milk drinks	Dairy only flavoured milk drinks, flavoured milk drinks with fruit juice
4.	**Breakfast cereal**	Hot cereals	Oats and porridge
		RTE cereals	Children's breakfast cereals, flakes, muesli and granola, other RTE cereals

S. No	WHO category	Subcategories	Examples of food items included
5	**Ready-made and convenience food**	Ready meals	Shelf stable ready meals, dried ready meals, frozen ready meals, chilled lunch kits, chilled pizza, chilled ready meals, dinner mixes, dried ready meals, frozen pizza, frozen ready meals, frozen baked goods, prepared salads
		Frozen processed fruits and vegetables	Frozen fruit, frozen processed potatoes, frozen processed vegetables
		Chilled/frozen meat	Chilled processed meat, frozen processed red meat, frozen processed poultry
		Frozen seafood	Chilled processed seafood, frozen processed seafood
		Meat and seafood substitutes	Tofu and derivatives, chilled meat and seafood substitutes, frozen meat and seafood substitutes
		Instant noodles	Instant noodle cups, instant noodle pouches
		Sauces/dressings/ condiments	Dry sauces, herbs and spices, monosodium glutamate, pasta sauces, cooking sauces, dips, pickled products, barbecue sauces, fish sauces, ketchup, mayonnaise, mustard, oyster sauces, salad dressings, soy sauces, chili sauces, other table sauces, tomato pastes and purées, yeast-based spreads, other sauces, dressings and condiments
		Soup	Shelf stable soup, dehydrated soup, instant soup, chilled soup, frozen soup
		Milk substitutes and alternatives	Condensed milk, soy drinks, drinking yoghurt

Annexure B

Table B1(a): Forecast of retail sales for ultra-processed foods - optimistic scenario

In ₹ Million

Optimistic scenario (GDP Growth 7.00% and Disposable income growth 7.49%)						
Year	**Chocolate and sugar confectionery**	**Salty snacks**	**Beverages**	**Breakfast cereals**	**Ready-made and convenience food**	**Total ultra-processed food products**
2023	1 042 332	620 056	546 905	44 646	777 941	3 031 880
2024	1 116 754	705 562	600 502	50 459	844 949	3 318 226
2025	1 196 490	802 859	659 351	57 029	917 729	3 633 458
2026	1 281 920	913 573	723 968	64 454	996 777	3 980 692
2027	1 373 449	1 039 555	794 916	72 846	1 082 635	4 363 400
2028	1 471 513	1 182 909	872 818	82 330	1 175 887	4 785 458
2029	1 576 579	1 34 6033	958 354	93 050	1 277 172	5 251 188
2030	1 689 147	1 531 650	1 052 273	105 165	1 387 182	5 765 417
2031	1 809 752	1 742 865	1 155 396	118 857	1 506 666	6 333 537
2032	1 938 968	1 983 206	1 268 625	134 332	1 636 443	6 961 575

Source: Based on Authors' calculation

Table B1(b): Forecast of retail sales for essential/staple foods - optimistic scenario

In ₹ Million

Optimistic scenario (GDP Growth 7.00% and Disposable income growth 7.49%)					
Year	**Dairy products**	**Edible oil**	**Processed cereals**	**Raw and frozen food**	**Total essential food products**
2023	2 118 096	2 034 058	1 013 856	15 197	5 181 206
2024	2 279 914	2 227 543	1 090 553	16 756	5 614 767
2025	2 454 095	2 439 434	1 173 053	18 476	6 085 057
2026	2 641 583	2 671 480	1 261 793	20 371	6 595 227
2027	2 843 394	2 925 599	1 357 246	22 462	7 148 702
2028	3 060 624	3 203 891	1 459 921	24 767	7 749 202
2029	3 294 450	3 508 655	1 570 362	27 308	8 400 775
2030	3 546 139	3 842 409	1 689 158	30 110	9 107 816
2031	3 817 057	4 207 910	1 816 942	33 200	9 875 108
2032	4 108 672	4 608 179	1 954 391	36 607	10 707 849

Source: Based on Authors' calculation

Table B2(a): Forecast of retail sales for ultra-processed foods - realistic scenario

In ₹ Million

Realistic scenario (GDP growth 6.00% and disposable income growth 6.42%)						
Year	**Chocolate and sugar confectionery**	**Salty snacks**	**Beverages**	**Breakfast cereals**	**Ready-made and convenience food**	**Total ultra-processed food products**
2023	1 022 580	598 772	533 048	43 189	760 414	2 958 002
2024	1 085 162	669 547	577 824	48 008	816 555	3 197 096
2025	1 151 573	748 688	626 361	53 366	876 842	3 456 830
2026	1 222 050	837 183	678 975	59 322	941 579	3 739 108
2027	1 296 839	936 138	736 009	65 942	1 011 096	4 046 024
2028	1 376 206	1 046 789	797 834	73 301	1 085 745	4 379 875
2029	1 460 430	1 170 520	864 852	81 482	1 165 905	4 743 188
2030	1 549 808	1 308 875	937 499	90 575	1 251 984	5 138 741
2031	1 644 656	1 463 584	1 016 249	1 00 683	1 344 418	5 569 591
2032	1 745 309	1 636 580	1 101 614	1 11 920	1 443 677	6 039 099

Source: Based on Authors' calculation

Table B2(b): Forecast of retail sales for essential/staple foods - realistic scenario

In ₹ Million

Realistic scenario (GDP growth 6.00% and disposable income growth 6.42%)					
Year	**Dairy products**	**Edible oil**	**Processed cereals**	**Raw and frozen food**	**Total essential/staple food products**
2023	2 075 361	1 983 891	993 586	14 795	5 067 634
2024	2 211 264	2 145 646	1 058 012	16 097	5 431 019
2025	2 356 066	2 320 589	1 126 616	17 513	5 820 783
2026	2 510 351	2 509 795	1 199 668	19 053	6 238 867
2027	2 674 739	2 714 429	1 277 457	20 729	6 687 353
2028	2 849 892	2 935 747	1 360 290	22 552	7 168 480
2029	3 036 514	3 175 111	1 448 493	24 535	7 684 653
2030	3 235 357	3 433 990	1 542 417	26 693	8 238 457
2031	3 447 221	3 713 977	1 642 430	29 041	8 832 669
2032	3 672 959	4 016 792	1 748 929	31 595	9 470 275

Source: Based on Authors' calculation

Table B3(a): Forecast of retail sales for ultra-processed foods - pessimistic scenario

In ₹ Million

Pessimistic scenario (GDP growth 5.00% and disposable income growth 5.35%)						
Year	**Chocolate and sugar confectionery**	**Salty snacks**	**Beverages**	**Breakfast cereals**	**Ready-made and convenience food**	**Total ultra-processed food products**
2023	1 003 017	577 860	519 368	41 755	743 087	2 885 087
2024	1 054 170	634 780	555 723	45 639	788 805	3 079 117
2025	1 107 933	697 305	594 624	49 883	837 336	3 287 082
2026	1 164 438	765 990	636 248	54 522	888 853	3 510 051
2027	1 223 824	841 440	680 785	59 593	943 540	3 749 182
2028	1 286 239	924 322	728 440	65 135	1 001 591	4 005 727
2029	1 351 837	1 015 368	779 431	71 192	1 063 214	4 281 043
2030	1 420 781	1 115 381	833 991	77 813	1 128 629	4 576 595
2031	1 493 241	1 225 246	892 370	85 050	1 198 068	4 893 975
2032	1 569 396	1 345 933	954 836	92 960	1 271 779	5 234 904

Source: Based on Authors' calculation

Table B3(b): Forecast of retail sales for essential/staple foods - pessimistic scenario

In ₹ Million

Pessimistic scenario (GDP growth 5.00% and disposable income growth 5.35%)					
Year	**Dairy products**	**Edible oil**	**Processed cereals**	**Raw and frozen food**	**Total essential food products**
2023	2 033 062	1 934 351	973 521	14 399	4 955 333
2024	2 144 006	2 065 780	1 026 125	15 455	5 251 366
2025	2 261 005	2 206 140	1 081 572	16 588	5 565 304
2026	2 384 388	2 356 036	1 140 014	17 803	5 898 241
2027	2 514 504	2 516 117	1 201 615	19 108	6 251 344
2028	2 651 720	2 687 074	1 266 544	20 509	6 625 847
2029	2 796 425	2 869 647	1 334 982	22 012	7 023 066
2030	2 949 025	3 064 626	1 407 118	23 625	7 444 394
2031	3 109 954	3 272 852	1 483 151	25 357	7 891 314
2032	3 279 664	3 495 226	1 563 293	27 216	8 365 398

Source: Based on Authors' calculation

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Notes

This report analyses trends in sale of ultra-processed foods and provides evidence-based recommendations to frame policies for nutrition security in India through sustainable food systems and access to affordable healthy diet.