

# Has India moved up the value-added chain in food trade?

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## Abstract

Recent government initiatives aim to increase agricultural exports with special focus on value added processed food products. Data for total food exports shows that share of primary component has increased due to reliance on cereal exports. However, at the level of food groups some encouraging changes are taking place. Share of processed products has increased in four food groups, namely Meat products, Fruits and vegetables, Cereals and Oilseeds and oils. Similarly certain processed foods have also increased their share in food exports namely Dairy, Cocoa preparation, Sugar and confectionary and Miscellaneous edible preparations. Currently these shares are small and fluctuating. There is thus need for government to nurture and support food processing industries. On the other hand, total food imports recorded rise in share of processed products primarily because of edible oils that accounted for more than 50 percent share. Increased domestic production of edible oil is the need of hour.

**Key words:** Value addition to food; Primary food; Processed food; Food trade; Food groups.

## I: Introduction

Agriculture has been a consistent foreign exchange earner for the country, yet vast majority of farmers live in poor condition. The Government of India declared in 2017 its aim of doubling farmers income by 2022 through remunerative prices, raising productivity, reforming agricultural land policy and relief measures. (The Wire, 2017). Further in pursuance of this objective three new farm bills were passed in September 2020. Dhar and Kishore (2021) note that one of the objectives of these bills is to make India an agricultural export hub, which marks a fundamental policy shift from earlier aim of realization of domestic food security and supporting rural livelihoods. Agricultural exports are seen as playing a pivotal role in helping raise farmer income. Agriculture Export Policy, 2018 has set an ambitious target of achieving \$60 billion exports by 2022 and \$100 billion thereafter. The policy plans to diversify the export basket, destinations and boost high value and value-added agricultural exports including focus on perishables. (Business Standard, 2018). It is thus pertinent to examine how successful have agricultural, especially food, exports been in moving up the value-added chain over time.

Value addition to food products is undertaken in form of primary processing (cleaning, grading, sorting, packaging etc.), secondary processing (modification of the basic product to a stage just before final preparation) and tertiary processing (ready-to-eat, packaged, cooked food and snacks, fruit and vegetable preparations). These activities are carried out under Food Processing Industry (FPI) in both the organized and unorganized sector. It includes diverse activities like milling of flour, rice, dal; slaughtering and processing of meat; preparation of juices, jams, jellies, chutneys, pickles; edible oils and vanaspati; pasteurized milk, ice creams; sugar refining; macaroni noodles to name a few. It stands to reason that higher a country moves up in value added chain greater will its export earnings be.

Besides increasing export earnings and farmers income, value addition to food products has host of other benefits. Food processing increases shelf life of agricultural produce thus leading to a decline in wastage. Ministry of Food Processing Industry (MOFPI), (2020-21), reports that post-harvest losses of major agricultural produces at national level, calculated using production data of 2012-13 at 2014 wholesale prices, were worth Rs. 92,651 crores. The losses varied across crops – Cereals (4 - 6%), Pulses (6.3 – 8.4%), Oilseeds (3 – 10%), Fruits and Vegetables (4.5 – 15.8%), Milk (0.9%), Meat (2.7%) and Poultry (6.7%). Minimization of these losses is akin to increased supply which is important because providing food to millions remains a priority for the Indian government. Moreover, FPI is one of most labor-intensive industry, its share in employment was 12.38% (2017-18) for registered sector and 14.18% (2015-16) for unregistered sector.

India is witnessing growing trend towards greater female participation in work force, urbanization and rising incomes. Economic Survey (2020-21) reports that total female employment increased from 10.85 crore in 2017-18 to 11.77 crore in 2018-19. Data from Agricultural Statistics at a Glance (2020) records a higher average annual growth rate for urban population at 3.18% as against a rural growth rate of 1.23% during 2001-2011. As a result, percentage share of urban population increased from 17.29% in 1951 to 31.14% in 2011. Further, food consumption accounts for single largest item of expenditure with its share in total expenditure being 48.6% in rural areas and 38.5% in urban areas for year 2011-12. Per capita Net National Product at constant 2011-12 price

increased from 63462 (2011-12) to 77803 (2015-16). These developments will make India a large market for processed foods in future as one witnesses a changing consumption pattern in favor of value-added food products.

Value addition through food processing activity holds tremendous potential as India is second largest country in terms of arable land (161 million hectare) after US (175 million hectare), 3<sup>rd</sup> in cereal production after US and China, 1<sup>st</sup> in pulses, 2<sup>nd</sup> in fruits and vegetables after China, 1<sup>st</sup> in milk production and 3<sup>rd</sup> in eggs after US and China. It is suitable for the production of a vast variety of tropical and semi tropical fruits, vegetables and food crops. (MOFPI, 2020-21). According to Ghosh (2014), the extent of processing of agricultural products of the combined sector (Organised and Unorganised) are 1.05% for fruits, 1.23% for vegetables, 5.4% for milled pulses, 17.7% for milled coarse cereals, 8.5% for spices, 8.3% for meat, 1.6% for milled rice, 2.05% for milled wheat and 14.1% for fish. These levels are low when compared to processing figures in other countries e.g., fruits and vegetables processing stood at 80% in USA, 70% in France, 80% in Malaysia and 30% in Thailand.

The following paper is organized as follows. Section II describes data sources and methodology, while Section III looks at trend in total primary and processed foods over time. Share of processed foods in selected food groups is examined in Section IV and share of selected processed food groups in food trade is presented in Section V. Section VI presents main conclusions of the paper.

## II. Data Source and methodology

A thirty-year period from 1990 to 2019 has been studied, which begins with onset of liberalization policies in India and stops just before the onset of COVID pandemic which has had wide unforeseen impacts across sectors and countries. United Nations commodity trade (Comtrade) annual data has been used for exports and imports. This data has been accessed from the website of World Integrated Trade Solution (WITS).

The commodity classification used to aggregate data is 2-digit HS 1988-92. Although this classification has been revised periodically, we have used this criterion so that overtime comparison can be carried out. Thus, the latest 2-digit HS 2017 classification does not give comparable data for 2016 or any early periods. Total Food trade has been divided into two components – **Primary products** which includes minimal processing and **Processed products** which includes secondary or tertiary processing. The 2-digit breakup of components is as follows:

**Primary products:** (02) Meat and edible meat offal; (03) Fish and crustaceans, mollusks and other aquatic invertebrates (07) Edible vegetables and certain roots and tubers; (08) Edible fruits and nuts; (10) Cereals; (12) Oilseeds and oleaginous fruits; misc. grains, seeds & fruits

**Processed products:** (04) Dairy produce; birds' eggs; natural honey; (09) Coffee, tea, mate and spices; (11) Products of the milling industry; (15) Animal or vegetable fats and oils and their cleavage products; (16) Preparations of meals of fish or other aquatic invertebrates; (17) Sugar and sugar confectionary; (18) Cocoa and cocoa preparations; (19) Preparations of cereals, flours, starch or milk; (20) Preparations of vegetables, fruits, nuts or other part of plants; (21) Miscellaneous edible preparations; (23) Residues and waste from the food industries; prepared animal fodder

Since the analysis has been conducted at 2-digit there are certain limitations. For example, entire (09) group of Coffee, tea, mate and spices has been included under processed component although it would be correct to separate raw coffee beans, tea leaves and whole spices in primary component. Similarly in group (18) Cocoa beans should be separated from Cocoa preparation. However, such an analysis would require looking at 6-digit and 8-digit data which is beyond the scope of present study. Further since a uniform classification has been maintained an intertemporal comparison would enable us to see if India is moving up the value-added chain or not. For four food groups separation into primary and processed components has been done, namely – Meat and fish (02 and 03) and Meat products (16); Cereals (10) and cereals products (11 and 19); Fresh Fruits and vegetables (07 and 08) and Processed Fruit and vegetables (20); and Oilseeds (12) and oils (15). Five food groups that have been wholly classified as processed are – (04) Dairy; (09) Coffee, tea and spices; (17) Sugar and confectionary; (18) Cocoa and preparation; and (21) Miscellaneous edible preparation.

Due to dependence of agricultural production on natural phenomenon like weather and rainfall, the export-import are subject to wide yearly variations. In order to smoothen out annual fluctuations, three yearly averages have been computed to analyze performance of exports and imports over the entire thirty-year period.

## III. Trend in Primary and Processed Food trade

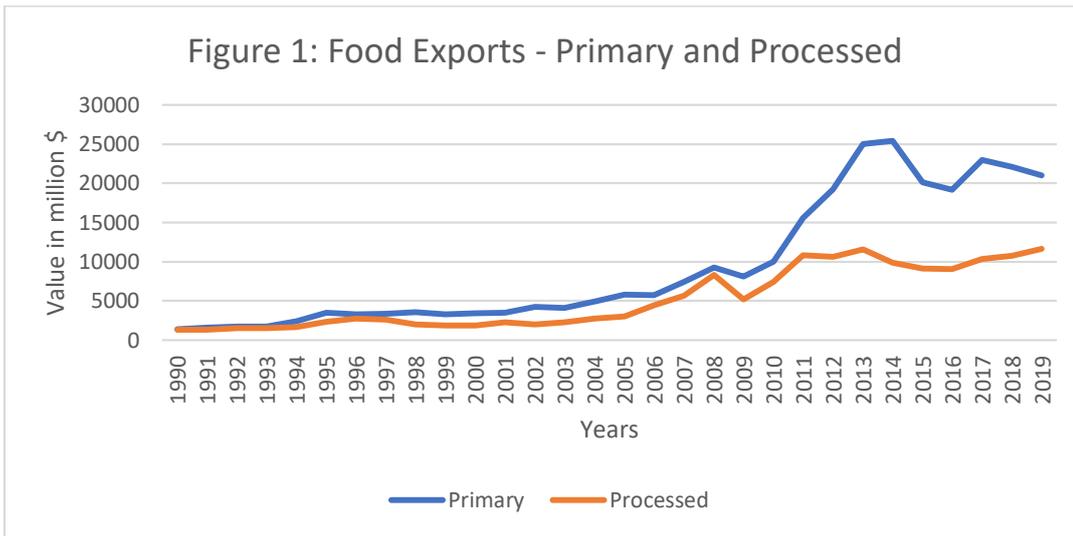
India's success in pushing Agri exports has been limited despite domestic and international trade liberalization. Singh (2021) shows that share of agricultural exports in total exports increased initially to peak of 18.9 percent in 1996 but thereafter declined by more than half to 8 percent in 2009. The average share more recently has fluctuated between 12 and 10 percent. Share of Food imports in Total imports of India has been in single digits throughout the period with an average for 2017-19 years at 4.5 percent. This trend is an outcome of a consistent government policy of striving for self-sufficiency in food. Within this overall trend we look at the performance of primary and processed food products.

Exports: The three yearly average figures in Table 1 show that share of processed products in food trade has declined from 46.4 percent in 1990-92 to 33.1 percent in 2017-19 with fluctuations.

| Year    | Share |
|---------|-------|
| 1990-92 | 46.49 |
| 1995-97 | 42.84 |
| 2000-02 | 35.30 |
| 2005-07 | 40.52 |
| 2011-13 | 36.09 |
| 2017-19 | 33.16 |

Source: Author's own calculations based on UN Comtrade data

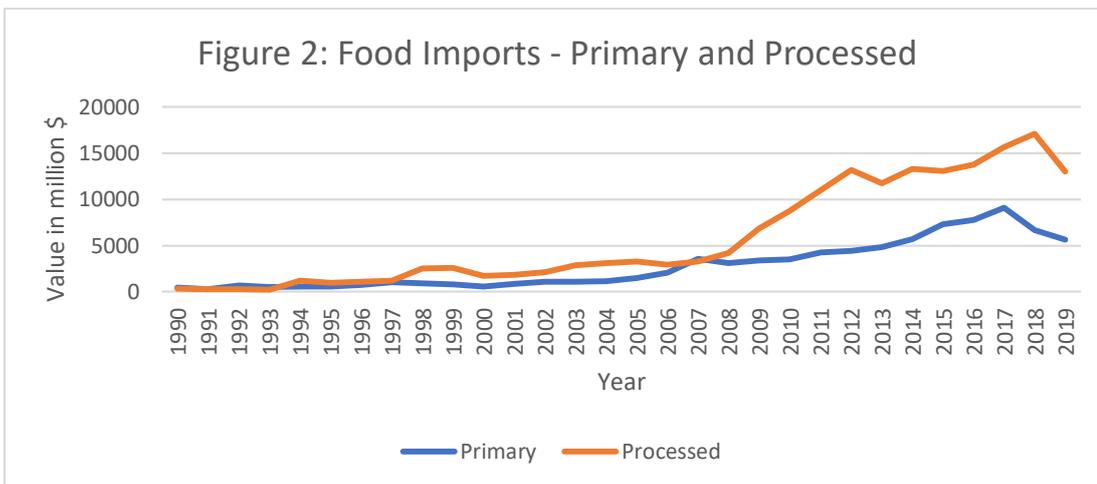
The annual movements in primary and processed food products exports are seen in Figure 1. Although export of primary products was always higher than processed products this difference increased significantly in 2011. The main reason can be traced to the government decision to lift the ban on export of non-basmati rice in 2009. (Economic Times, 2009). As a result, value of primary exports tripled over five years between 2009 (\$8,104 mil) and 2014 (\$25,406 mil). Export of processed food products also increased over the same period but by a smaller magnitude from \$5,171 mil to \$9,888 mil. Indian food exports have struggled to maintain their value after 2014.



Source: Author's own calculations based on UN Comtrade data

While primary exports fell to \$20,975 mil the processed products managed to increase their value marginally to \$11,634 mil in 2019. Thus, urgent steps are required to be undertaken by government because the target of \$60 billion agricultural export implies roughly doubling the export earnings of 2019.

**Imports:** In contrast to exports processed food imports have been greater than primary imports barring the first four years up to 1993 as seen in Figure 2. Moreover, processed imports have increased at a significantly faster pace after 2008 leading to a larger gap between the two components. The main reason behind this trend has been India's continued dependence on imports



Source: Author's own calculations based on UN Comtrade data

of Animal and Vegetable fats and oils which have more than 50 percent share in total food imports. (Singh, 2021). It is not surprising therefore that in August 2021 PM Modi announced a Rs. 11,000 crores outlay on new edible oil mission to make India self-sufficient (The Hindu, 2021). Imports of both primary and processed components dipped in 2019.

#### IV. Share of primary and processed products within food groups

**Exports:** From figures in Table 2 it is heartening to note that all four food groups have shown an increase in share of prepared products over time. However, only in case of Fruits and vegetables this rise has been consistent from 4.12 percent (1990-92) to 17.7 percent (2017-19). For remaining three groups the share of processed products has been fluctuating. In case of Meat, it dropped sharply from 7.7 percent in 2005-07 to 1.7 percent in 2011-13 and showed partial recovery to 5 percent in 2017-19. Prepared cereal products doubled their share from 4.7 percent (1990-92) to 9.4 percent (1995-97) but it fell thereafter recovering in last triennium. Similarly in case of Oils the share has fluctuated in 40 percent range between 1995 and 2019. Secondly, given the low shares of value-added component for Meat (7%), Cereals (9%) and Fruits and Vegetables (17%) there is a lot of potential that can be tapped. Only in case of Oils is it significant at around 45 percent.

| Group          | 1990-92 | 1995-97 | 2000-02 | 2005-07 | 2011-13 | 2017-19 |
|----------------|---------|---------|---------|---------|---------|---------|
| <b>EXPORTS</b> |         |         |         |         |         |         |
| Meat           | 0.16    | 0.37    | 0.60    | 7.76    | 1.77    | 5.05    |
| Fruits & Veg.  | 4.12    | 5.16    | 6.97    | 10.71   | 13.45   | 17.70   |
| Cereals        | 4.79    | 9.41    | 8.28    | 7.76    | 7.37    | 9.93    |
| Oilseed & oils | 33.45   | 44.37   | 43.34   | 45.31   | 41.13   | 45.05   |
| <b>IMPORTS</b> |         |         |         |         |         |         |
| Meat           | 19.01   | 0.62    | 4.84    | 7.05    | 6.40    | 5.66    |
| Fruits & Veg.  | 0.00    | 0.16    | 1.41    | 1.61    | 1.73    | 2.12    |
| Cereals        | 59.58   | 37.94   | 83.65   | 36.03   | 82.85   | 43.04   |
| Oilseed & oils | 92.25   | 98.18   | 98.29   | 96.63   | 97.73   | 95.61   |

Source: Author's own calculations based on UN Comtrade data

**Imports:** Over 90 percent Oil imports are processed highlighting India's dependence on rest of world for this commodity. The share of processed meat was high to begin with at 19 percent which dropped to below 1 percent in 1995-97 but has increased since then with some fluctuations. In case of Fruits and vegetables there has been a consistent rise indicating that there is unmet domestic demand for processed fruits and vegetables. For Cereals share of processed products in imports is significantly higher which is a reflection of the government policy of prioritizing self-sufficiency in primary food items.

#### V. Share of Processed food groups in total food trade:

**Exports:** Table 3 shows that with the exception of Coffee, tea and spices, share of all four groups in food trade has increased over time but there were fluctuations in between. Share of Dairy in exports rose from 0.2 percent in 1990-92 to a high of 2 percent in 2005-07 but subsequently fell back to 0.79 percent in 2011-13 and rose again in 2017-19. Sugar and confectionary recorded a consistent increase in their share till 2011-13 before falling by one percentage point in 2017-19. Exports of Cocoa preparation have remained below 1 percent throughout the period unlike Miscellaneous edible preparations that also started with 0.88 percent share but managed to increase it to 2.23 percent by 2017-19. Coffee, tea and spices which were a major export item recorded dramatic fall in their shares from 22 percent in 1990-91 to a low of 7.8 percent in 2011-13 with a partial recovery to 9 percent in 2017-19. Studies have found that India is losing its export markets for tea and coffee to rival nations like Sri Lanka.

| Group                | 1990-92 | 1995-97 | 2000-02 | 2005-07 | 2011-13 | 2017-19 |
|----------------------|---------|---------|---------|---------|---------|---------|
| <b>EXPORTS</b>       |         |         |         |         |         |         |
| Dairy                | 0.20    | 0.41    | 0.90    | 2.01    | 0.79    | 1.19    |
| Sugar & conf         | 2.21    | 2.78    | 3.87    | 4.81    | 5.15    | 4.07    |
| Coffee, Tea & Spices | 22.39   | 14.81   | 12.21   | 9.69    | 7.81    | 9.16    |
| Cocoa & preparations | 0.04    | 0.04    | 0.05    | 0.07    | 0.17    | 0.53    |
| Misc. edible prep.   | 0.88    | 1.81    | 2.14    | 1.76    | 1.56    | 2.23    |
| <b>IMPORTS</b>       |         |         |         |         |         |         |
| Dairy                | 1.37    | 0.54    | 0.46    | 0.29    | 0.64    | 0.18    |
| Sugar & conf.        | 0.78    | 3.55    | 1.20    | 2.11    | 2.01    | 3.29    |
| Coffee, tea & spices | 1.87    | 1.83    | 3.38    | 3.92    | 3.66    | 4.63    |
| Cocoa & preparations | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    |
| Misc. edible prep.   | 2.18    | 2.94    | 1.90    | 0.48    | 0.69    | 0.94    |

Source: Author's own calculations based on UN Comtrade data

Imports: Dairy and Miscellaneous preparations have seen a decline in their share overtime reflecting a better performance in domestic market, while Cocoa preparation had a negligible share throughout. Both Sugar and confectionary and Coffee, tea, spices have recorded a rise in their share with fluctuation in between.

## VI. Conclusion

India has not been able to move up the value-added chain for food exports and share of processed products in exports declined from 46 percent in 1990-92 to 33 percent in 2017-19. This is due to continued reliance on cereals exports. Although share of processed products within food groups increased for Meat, Fruits and vegetables, Cereals and Oils the performance was not consistent but marked with fluctuations. Additionally, the shares of processed exports continue to be low for Meat (5%) and Fruits and vegetables (17%) pointing to the potential that can be tapped. The decline in exports of Coffee, tea and spices is a cause for concern which must be addressed by the government. Hussain and Bathla (2021) note that the export of processed food of higher value can be undertaken best by companies having reputed brands that can meet the global standards of Codex. Indian companies have to be cost competitive and adopt the latest technology to enter into the global markets in a big way. As for imports the large share of processed goods is mainly due to continued dependence of the country on imports of vegetable oils which account for more than 50 percent of food import bill. The recent policy announcements addressing this issue are a step in the right direction.

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