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Prevailing Status of Agricultural Trade between India and European Union

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ABSTRACT

This study analysed the current scenario of India-EU trade, composition of trade, growth and instability of agricultural commodities during the period 1997-98 to 2021-22. India's agricultural export to the EU was US $ 4.7 billion and imported US $ 1.3 billion from the EU in 2021-22. Netherlands, Italy and Germany were three most important EU members for Indian agricultural trade. India mainly exported fishes and marine products, coffee, tea, meat, spices and cotton to the EU. Vegetable oil, raw hides, skin and leather and animal fodder were imported by India from the EU. Compound Annual Growth Rate (CAGR) and Cuddy-Della Valle Index (CDVI) for instability indicated that the total trade between India and the EU have increased consistently with annual growth rate of 6.59 per cent and instability value of 13.97. This provides impetus to policymakers to establish close trade links with counterparts of EU.

INTRODUCTION

India is the world's fastest growing major economy (EU India Agriculture Forum, 2019). According to International Monetary Fund (IMF) projections for April-June quarter 2022, India has now overtaken the United Kingdom (UK) to become the world's fifth-largest economy and is now behind only the US, China, Japan and Germany. India is engaged in eleven Free Trade Agreements (FTAs) and Regional Trade Agreements (RTAs) along with six limited coverage Preferential Trade Agreements (PTAs). There are few important trade negotiations underwire with, the most important being India-EU Free Trade Agreement. Currently the EU is India's second largest trading partner after US, and the second largest destination for Indian exports (Kim, 2022). According to French Research Institute CEPII EconMap forecasts, India contributes about ten per cent to the overall growth of the world economy and 28 per cent of the overall increase in labour supply from 2015 to 2050 (Felbermayr et. al., 2017). International trade not only brings opportunities and economic growth but also poses several challenges and threats. For instance, free trade agreement with the European Union may expose our unorganised, informal and vulnerable agricultural and fisheries sector dominated by small and fragmented farmers to well entrenched and organised sector (Bhutani, 2011). In seed sector, the FTA's intellectual property (IPR) provisions re-orient agricultural research towards corporate breeder rights thus suppressing grass root innovation and indigenous technologies. In 2016, PepsiCo India had to settle the legal suit against Gujarat potato farmers due to intervention of central government agency of agricultural ministry and also under duress of political clout of farmers and political organizations (Panigrahy & Kalamkar, 2021). Recent outbreak of farmers protest against three farms laws viz. Farmer's Produce Trade and Commerce (Promotion and Facilitation) Act, The Farmer's (Empowerment and Protection) Agreement of Price Assurance and Farm Services Act and The Essential Commodities (Amendment) Act in September, 2020 (The Economic Times, 19th November, 2021). On flip side of the same coin, India has trade potential in several agricultural and marine products like frozen shrimps and prawns,

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molluscs, cashew nuts, grapes, coffee, rice and tobacco (COMTRADE, 2021). Regional integration and globalisation paves way for transfer of technologies, capital flows, generations of new employment opportunities, mobilisation of resources and improvement in productivity**.** In this backdrop it has become indispensable to study the impact of India-EU free trade agreement on Indian agriculture. Specifically this article delves deep into current scenario of India-EU trade, composition of trade, growth and instability of agricultural commodities for the period 1997-98 to 2021-22. The article spans in four sections: Section one provides a brief background setting of the objectives of the study while section two deals with data and methodology. Section three draws the empirical inferences from the results and discussion and lastly section four deals with conclusion and policy implications based on findings of the study.

METHODOLOGY

Secondary data pertaining to period from 1997-98 to 2021-22 on total trade, export and import in million US dollars were taken from Export Import Bank under Ministry of Commerce, Government of India (https://tradestat.commerce.gov.in). Data for trade between the European Union and the world were obtained from International Trade Centre (ITC) trade map website for the same period. Based on triennial ending average (TE) for 2020-21 (i.e. average of values for 2018-19 to 2020-21), top ten trading partners and top ten traded agricultural commodities were identified. To get deeper insights into trade dynamics, shares of three major trading partners for each of these commodities were also carved out. Simple tabular analysis has been done to ascertain broader picture on composition and extent of agricultural trade transacted and pattern of trade between India and the EU.

The compound annual growth rate **(**CAGR) is used as a tool to measure growth during the study period. CAGR unlike annual average growth rates assumes exponential/compound rate of growth over time period and hence the effect of any sudden rise/fall during certain year or crisis is less as compared to latter. The formula for CAGR is:

$$\text{CAGR}\ (\%) = \left[\left\{\frac{Var_{final}}{Var_{initial}}\right\}^{\left(\frac{1}{t}\right)} - 1\right] * 100$$

Where, Var_{final} =Ending value, $Var_{initial}$ = Beginning value, t = Number of periods (months, years, etc.)

The instability or variation is measured by Cuddy-Della Valle Index (Cuddy and Della Valle, 1978). Cuddy-Della Valle Index (CDVI) is improved measure over coefficient of variation which over estimates the instability unlike former which accounts for trend component usually present in time series data (Kumar et al., 2017). CDVI is also better than standard deviation which is a scale dependent measure. Cuddy-Della Valle Index given as

$$CDVI = CV * \sqrt{1 - Adjusted\ R^2}$$

Where, CV = coefficient of variation in percent, Adjusted R^2 = coefficient of determination from a time trend regression adjusted by number of degrees of freedom.

RESULTS AND DISCUSSION

The major agricultural trading partners between India and the EU members have been identified based on triennial ending average, 2020-21 (Figure 1).

Major trade partners

Based on share analysis of total trade which includes both exports and imports for triennium ending average 2020-21 we have found top ten trading partners (Figure 1). The members of the EU viz., Netherlands, Italy and Germany attained first, second and third ranks in agricultural total agricultural trade with India, respectively. The EU member's viz., Portugal, Poland, Greece and Ireland trailed far behind in order of importance in agricultural trade with India. India has skewed agricultural trade relation with the EU members where around 90 per cent of agricultural trade occurs with one third of the EU members. Share analysis of individual EU nation for total agricultural trade identified Netherlands (23%), Italy (16%) and Germany (14%) as top three EU members.

India is net exporter of agricultural commodities with the EU. Specifically members of the EU viz. Netherlands, Italy and Germany attained top three positions with 852.16, 551.32 and 541.62 million US dollars exports making up to 22.31, 14.43 and 14.18 per cent share of India's agricultural exports with the EU,

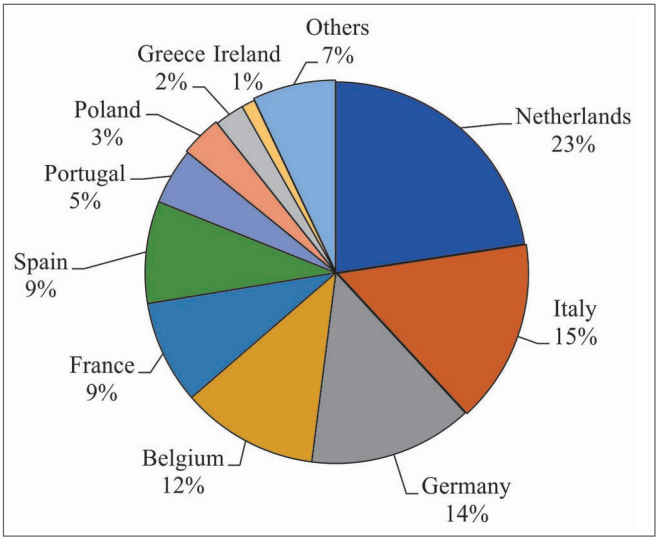

Figure 1. Share of India's total agricultural trade during TE 2020-21

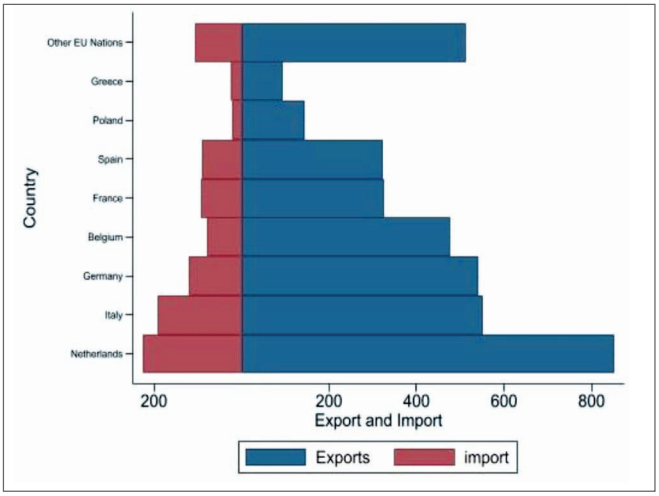

Figure 2. Top EU trading partners of India (TE 2020-21)

respectively (Figure 2). India's agricultural imports from the EU show similar hierarchy with Netherlands, Italy and Germany being India's largest importers among the EU members (Figure 2). These three EU members accounted more than half of total agricultural imports of value 953.57 million US dollars in TE 2020-21 from the EU (EXIM Bank, Ministry of Commerce, 2022). India imports 92.73 per cent of its agricultural imports from the EU, primarily from ten EU members which shows that India has skewed relationship with the EU in imports too.

Major exported agricultural commodities from India to the EU

Perusal of Table 1 provides insights on India's major exported agricultural commodities to the EU wherein Fishes (HS code 3), coffee and tea (HS code 9) and cotton (HS code 52) are three most exported agricultural commodities to the EU with 689.44 (18.05%), 501.33 (13.12%) and 426.88 (11.17%) million US dollars of trade respectively. These results are in concurrence with findings of Bhutani (2011) that the EU is biggest buyer of Indian fishes. Out of total fish export of the country to the EU, India exports fishes with 21.96 per cent, 18.56 per cent and 16.29 per cent to Spain, Italy and Belgium respectively. Although India with 28 million total fishermen population (Mir, 2022) met 2.5 per cent of the EU import demand in 2020, the supply of India's fishes matches with consumption pattern of importing countries as part of their cultural food habits (FAO, 2020). In case of total coffee and tea exports of India to the EU, its share to Italy, Germany and Belgium are 28.19 per cent, 26.85 per cent and 11.25 per cent respectively. In tea, India is second largest producer and exporter after China (Ghosh et al., 2017; Panda et al., 2022). Indian Coffee has created a niche for itself in these markets mainly due to i) preference of good blending quality of Indian Robusta and (ii) Indian Robusta being the only coffee producing origin whose coffees are fully shade grown, entirely handpicked and completely sun dried (Deepika, 2021). Cotton ranks third among exported agricultural commodities in which Portugal, Germany and Italy emerged as top three exporting destinations with 33.70 per cent, 19.00 per cent and 17.27 per cent share of total cotton export of India to the EU. India's cotton has been used widely in the European apparel industry due to i) its attributes like versatility, durability, softness, breathability and eco- friendly nature and (ii) cotton fibre is also easy to dye and blend with other fibres. The results of table 1 affirm the fact that the top ten exported agricultural commodities had accounted for 84 per cent of India's total agricultural export value to the EU during TE 2020-21.

Major imported agricultural commodities by India from EU

India being largest importer and world's second-largest consumer of vegetable oil, imported around 55 per cent of its domestic demand (NFSM, 2018) from the EU countries. The prevailing literature suggests more increasing dependency of India on the EU mainly due to i) positive expenditure elastic nature of edible (vegetable) oils signifies increase in consumption with rising income of consumer (ii) cheaper international prices of edible oil compared to Indian domestic price (Thomas, 2013) and (iii) high seed cost, low seed replacement rate, dominantly grown under rain fed condition (Kumar, 2021) besides increasing trend of urbanisation and change in food habits and preferences for processed and packaged foods (NFSM, 2018). Perusal of Table 2 deciphers that out of three most imported agricultural commodities, fats and oils (HS code 15) is one among them. The commodities viz. raw hides, skins and leather (HS code 41) and animal fodder (HS code 23) occupied second and third position in order of importance of imported agricultural commodities from the EU. Fats and oils (HS code 15), raw hides, skins and leather (HS code 41) and animal fodder (HS code 23) contributed 172.93 (18.14%), 117.95 (12.37%) and 107.52 (11.28%) million US dollars of import value with India. Netherlands (46.27%), Spain (23.26 per cent) and Germany (8.93%) are major EU members from where India imported oils and fats. The commodity group containing items like raw hides, skin and leather are the second largest imported agricultural commodities by India from the EU. The major EU members viz., Italy, Germany and Spain had exported 60.39 per cent, 8.45 per cent and 7.84 per cent of India's raw hides, skins and leather during TE 2020-21.

India's dependency on import of raw hides, skin and leather from the EU could be attributed due to technology, policy and institutional constraints (Leach & Wilson, 2009). Animal fodder is

Table 1. Composition of India's agricultural export to the EU, TE 2020-21

Commodities	Value of India's export to EU (US $ millions)	Major EU importers from India
Fish and crustaceans, nes*	689.44 (18.05)	Spain (22), Italy (19), Belgium (16)
Coffee, tea, mate and spices	501.33 (13.12)	Italy (29), Germany (27), Belgium (11)
Cotton	426.88 (11.17)	Portugal (34), Germany (19), Italy (17)
Edible fruit and nuts; peel etc.	326.73 (8.55)	Netherlands (64), Spain (10) Germany (9)
Animal, vegetable oils, etc.	264.28 (6.92)	Netherlands (55), France (22), Italy (12)
Oil seed, oleagic fruits, etc.	253.70 (6.64)	Germany (25), Netherlands (22), Italy (9)
Tobacco and its substitutes	229.23 (6.00)	Belgium (64), Netherlands (8), Poland (7)
Animal fodder	225.07 (5.89)	France (35), Germany (26), Netherlands (19)
Cereals	153.40 (4.02)	Netherlands (40), Italy (21), Germany (18)
Raw hides, skins and leather	139.03 (3.64)	Italy (50), Germany (10), Portugal (8)
Total	3820.12	

Note: Computed based on EXIM Databank, Ministry of Commerce, GoI, Figures in parentheses (2nd column) are percentage to the total agricultural export to EU. * nes stands for "not elsewhere specified".

Table 2. Composition of India's agricultural import from the EU, TE 2020-21

Commodities	Value of India's import from EU (US $ millions)	Major EU exporters to India
Animal, vegetable oils, etc.	172.93 (18.14)	Netherlands (46), Spain (23), Germany (9),
Raw hides, skins and leather	117.95 (12.37)	Italy (60), Germany (8), Spain (8)
Beverages, spirits and vinegar	107.52 (11.28)	Belgium (28), Germany (19), France (16)
Animal fodder	91.41 (9.59)	Netherlands (18), Germany (15), France (14)
Edible fruit and nuts; peel etc.	60.32 (6.33)	Italy (59), Poland (17), Spain (6)
Sugars and sugar confectionery	55.52 (5.82)	Netherlands (42), Germany (39), France (7)
Oil seed, oleagic fruits, etc.	54.84 (5.75)	Netherlands (41), Italy (20), France (15)
Miscellaneous edible preparations	44.91 (4.71)	Ireland (40), Netherlands (26), Germany (8)
Cotton	41.44 (4.35)	Greece (26), Netherlands (24), Italy (15)
Cocoa and cocoa preparations	28.20 (2.96)	Netherlands (39), Italy (36), Belgium (10)
Total	953.57	

Note: Computed based on EXIM Databank, Ministry of Commerce, Government of India., Figures in parentheses (2nd column) are percentage to the total agricultural export to EU.

third largest imported commodity in India from the EU mostly from Belgium (28.31%), Germany (19.38%) and France (16.34%). India's dependency on import of animal fodder from the EU could be largely attributed due to i) very high animal fodder domestic demand due to large livestock industry, and (ii) the share of animal fodder is produced from only four per cent of total cultivable land resulting in net shortfall of 35.6 per cent green fodder, 10.5 per cent dry crop leftovers and 44 per cent concentrate feed ingredients of domestic demand (Singh, 022; Singh & Mujumdar, 1992; Ramachandra et al., 2007). The results of Table 2 affirm the fact that the top ten imported agricultural commodities had accounted for 81.28 per cent of India's total agricultural imported value from the EU during TE 2020-21.

Trends and instability in agricultural trade between India and European Union

Trade relationship between India and the EU is increasing over the study period of 1997-98 to 2021-22 which could be ascertained from increasing trend in export and import of agricultural commodities (Figure 3). Agricultural trade values between India and the EU indicate the fact that India has been net exporter of agricultural commodities to the EU. This finding is in consonance with results of Diao & Li (2020). Agricultural imports have grown nine folds from US$ 145.54 million in 1997-98 to US$1339.91 million in 2021-22. During this period India's agricultural import from EU has grown at the compound growth rate of 8.93 per cent per annum and also has been fairly stable with instability index value of 3.68. Agricultural exports to the EU have grown three folds from US$ 1463.57 million in 1997-98 to US$ 4271 million in 2021-22. During this period India's agricultural exports to the EU had been grown at compound growth rate of 6.17 per cent per annum with instability index value of 2.14. This instability in export is due to positive increment after WTO. This infers that growth rate of import (in value terms) has increased more than growth rate of export with EU and is evidence with narrowing wedge between import and export curves (Figure 3).

Looking at variation in import and export curves depict abrupt changes and to confirm the existence of structural break, Bai Perron test (Bai & Perron, 2003) was conducted for deciphering point of structural breaks. Two structural breaks in series of

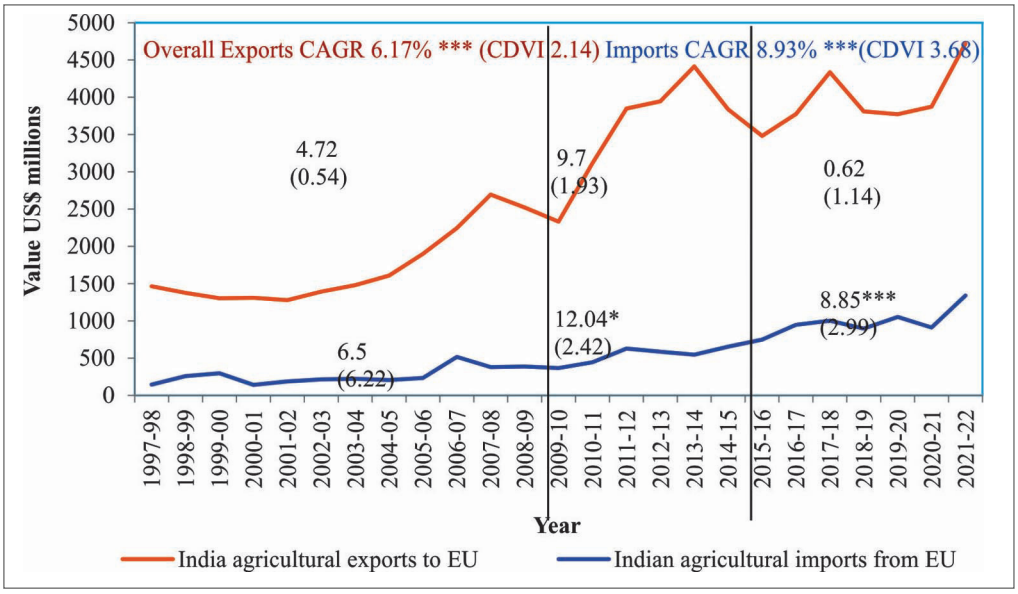

Figure 3. Trend in India's agricultural trade with EU from 1997-2021
*,**,***Depicts significance at 10, 5 and 1 per cent level of significance respectively
Note: Data for 1997-98 is normalised by taking average of 1996-97 to 1998-99.

Indian agricultural trade with the EU were deciphered at 2006-07 and 2011-12 (Figure 3). The structural breaks in agricultural trade with the EU might be attributed due to transformations in technology, policy and institutions. The smooth growth in agricultural trade in the initial phase (mid 1990s to 2006-07) is attributed due to trade reforms at domestic economic reforms viz. decontrol of fertilizer prices, removal of inter-state grain movement control and at external trade reforms viz. removal of quantitative restrictions on agricultural exports and imports, decanalization of agricultural exports and imports, tariff reduction under WTO Agreements (Kumar et al., 2010*)*. These reforms led to the opening of the agricultural sector to international competition. During this period agricultural exports grown at rate of 4.72 per cent per annum with instability value of 1.71. In second phase (2007-08 to 2011-12), there was persistent and re-emerging inflation in food prices due to bankruptcy of Lehman Brothers (Appelbaum et al., 2012) in United States of America. This collapse of banks created recessionary rippling effect throughout the world economy. International prices of food commodities have surpassed the domestic food prices in India. This emergent scenario propelled Government of India to take policy decisions on export and import of agricultural commodities. On export front, India banned exports of common rice, wheat and corn and also suspended these commodities from futures trading (Kumar et. al., 2010*)*. On import front, India had put restrictions on imports by imposing higher import duties and quantitative restrictions on agricultural commodities (Kannann & Kumar, 2022). These restrictive trade practices led to dip in agricultural trade between 2008-09 to 2010-11. To boost domestic agricultural production and to take advantage of international price rise scenario, GoI launched National Food Security Mission in 2007 and announcing a special agricultural package (Rashtriya Krishi Vikas Yojana) of roughly US$6 billion to rejuvenate its agriculture. These initiatives have not only cool down food inflation at domestic front but also helped in regaining trade on desirable path later on. It could be inferred that India achieved higher export growth rate of 9.7 per cent per annum with least instability (CDVI=1.93). The third phase (2011-12 to 2021-22) of export revealed more fluctuations with least annual growth rate (0.62%) with instability value of 1.14. On the other hand, there was rise in growth of import of agricultural commodities consistently with annual growth rate of 8.85 per cent accompanied with instability value of 2.99. It could be inferred that import growth rate is 10 times more than export growth rate and also instability in import is more than double than that of export. Interestingly overall trade growth rate during this phase is 1.9 per cent per annum with instability value of 9.10. The trade growth rate has declined and trade value has nearly stagnated which is in concurrence with study by Kannan and Kumar (2022). The findings infer that the export and import by India from the EU have increased consistently but stability in export and import is fairly satisfactory. This discerns the fact that India and the EU could be stable and reliable partners in agricultural trade.

CONCLUSION

Netherlands, Italy and Germany have emerged to be India's top three EU partners for agricultural trade. These EU countries have homogenous socio-legal-economic environment and are on strategic port location and well developed infrastructure especially for processing and transportation facilities thus enabling further intra EU trade. India mainly exports fishes and other marine products, coffee, tea, spices, other beverages and cotton to the EU. India imported vegetable oils and fats, raw hides, skins, leather and animal fodder to meet the gap between India's demand and its domestic production. The growth and instability in export and import by India from the EU have increased consistently and is fairly satisfactory. This throws light towards establishing free trade environment. Moreover, this provides clues to our policy makers how to engage to trade agreement and also suggest policy inputs to decide on which agricultural commodity to be taken up first to devote more resources for weakening the weakness and capitalising on strength of naive opportunities between India and the EU.

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