

SUBJECT I
TRANSFORMING HORTICULTURE FOR SUSTAINABLE GROWTH IN
INDIA

**Impact Analysis of the India-EU Free Trade Agreement on
Indian Horticulture**

Shiv Kumar¹, S. S. Yeligar², P. Venkatesh³, I. Kingsly⁴, Manjeet Singh Nain⁵, R. K. Paul⁶, U. Madhurima⁷ and S. M. Mouzam⁸

ABSTRACT

The paper examines the potential effects of the proposed India-European Union (EU) Free Trade Agreement (FTA) on India's horticultural trade. India, a key player in global horticulture, is exploring the trade benefits and challenges of reducing tariffs with the EU. The study uses the SMART model to simulate the impact of tariff elimination on various trade parameters, comparing the base year 2019 with a counterfactual scenario where tariffs are removed. Results indicate a significant overall trade increase in agriculture (238 per cent), with notable growth in tea, coffee, and spices (357 per cent), vegetables, fruits, and nuts (33 per cent), and cocoa (9 per cent). The findings suggest that the FTA could benefit Indian horticultural stakeholders as trade creation surpasses trade diversion. The study emphasizes the need for policymakers to consider the benefits and challenges of such agreements and to support domestic producers by improving competitiveness, infrastructure, and access to financial and technical resources. While the FTA presents growth opportunities, particularly for EU exports to India, it also highlights concerns for labor-intensive industries like tea and coffee. The research provides critical insights for shaping future trade policies between India and the EU.

Keywords: Trade agreements, EU Free Trade Agreement, horticulture stakeholders

JEL codes: Q11, Q13, Q16

I

INTRODUCTION

The agricultural sector in India plays a multifaceted role in the country's economic development by contributing through various means, encompassing product contribution, factor contribution, employment contribution, and international trade in foreign exchange reserves of the nation (Kuznets, 1963). India has recently engaged in many regional trading agreements (RTAs) to promote exports and expand involvement in global value chains (Aggarwal *et al.*, 2023). One of the most significant underwire agreements is the free trade agreement between India and the European Union. A free-trade agreement (FTA) is a legally enforceable accord entered into by nations to establish a region or domain characterized by trade without tariff distortions (Pasara, 2021). Reduction of imposed tariffs under the Free Trade Agreement (FTA) would result in two main consequences: trade creation and diversion (Mattoo *et al.*, 2022).

¹ICAR-National Institute of Agricultural Economics and Policy Research, New Delhi; ²ICAR-Central Inland Agricultural Research Institute, Port Blair; ³ICAR- Indian Agricultural Research Institute, New Delhi; ⁴ICAR- National Institute of Agricultural Economics and Policy Research, New Delhi; ⁵ICAR- Indian Agricultural Research Institute, New Delhi; ⁶ICAR-Indian Agricultural Statistics Research Institute, New Delhi; ⁷Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu; ⁸Punjab Agricultural University; Ludhiana.

According to Jain and Kumar (2022), a free trade agreement is deemed beneficial to a nation when the volume of trade creation surpasses the volume of trade diversion.

India-EU Agricultural Trade Dynamics

According to Kim (2022), the European Union is India's second most significant total agricultural trading partner, after the USA, and also the second largest importer of agricultural commodities from India. India's agricultural export to the EU is US \$ 4.7 billion and imports US \$ 1.3 billion from the EU in 2021-22 (EXIM Databank, Ministry of Commerce, GoI). According to Felbermayr *et al.* (2017), the FTA between India and the European Union (EU) can increase the trade value between the two parties by about four times. Contrarily, the adoption of the India-EU FTA, which involved a tariff rate of 5.92, resulted in a significant rise in trade diversion rather than trade creation (Polaski *et al.*, 2008; Winters, 2009; Bhutani, 2011 and Rani, 2014). Against this backdrop, examining the potential impact of the FTA between India and the European Union (EU) on the agricultural sector is essential. This study assesses the extent of major horticultural trade creation and diversion, the effect on revenue loss, the influence on the increase in consumer surplus, and the total net effect on the Indian horticultural market. The findings from this research would offer valuable insights to policymakers about trade negotiations and the formulation of measures to address vulnerabilities and leverage advantages within the agriculture sector in general and horticulture in particular.

II

DATA AND METHODOLOGY

Theoretical background of Software for Market Analysis and Restrictions on Trade (SMART)

SMART is a trade database and software suite provided jointly by the United Nations Conference on Trade and Development (UNCTAD) and the World Bank. This model is based on a partial equilibrium framework and analyses a single importer and commodity. SMART software is popularly used for Ex Ante Analysis of tariff liberalization (Rani and Kumar, 2014; Saini and Veeramani, 2010). The SMART model's fundamental theoretical framework (Laird and Yeats 1986) can be summed up in several equations and identities, from which the simulations' formulation is derived. This framework is consistent with that provided by Jammes and Olarreaga (2005).

Data Requirement for SMART Model

For the simulation of an FTA, SMART needs additional data on (i) the amount of each foreign partner's imports, (ii) the tariffs they pay, which are sourced from the UNCTAD, the Common Format for Transient Data Exchange (COMTRADE), the

Trade Analysis and Information System (TRAINS), and the International Trade Centre (ITC). The expert groups and committee reports of the World Trade Organization (WTO) enrich the database. They are fed to the World Integrated Trade Solutions (WITS) portal on (i) the commodity's import demand elasticity, (ii) the commodity's export supply elasticity, and (iii) the substitution elasticity between different kinds of commodities.

III

RESULTS AND DISCUSSION

Table 1 reveals that the purported FTA between India and the EU could have created a potential total trade increase from US\$ 455.26 million to US\$ 1541.2 million, almost a rise of 238.53 per cent in 2019. Trade creation affects 85 per cent of this potential total trade, and the remaining effect is trade diversion (15 per cent) of the potential total trade (Table 1). Similar effects were observed for the India-Sri Lanka Bilateral FTA (Raihan, 2009). It could be inferred that this agreement would benefit India owing to its welfare effect on agriculture and allied sectors since trade creation offsets the diversion effect (Kandogan, 2005; Abdelmalki *et al.*, 2007; Guei *et al.*, (2017).

TABLE 1. TOTAL TRADE EFFECT OF TARIFF ELIMINATION ON MAJOR AGRICULTURAL COMMODITIES

Commodity Name	Trade in base year (2019)	Old Duty Rate	New Duty Rate	Trade Creation	Trade diversion	Trade Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Raw hides and skins and leather	136685	160	0	349592	10051	359643 (163.12)
Animal or vegetable fats and oils	106425	830	0	301511	25141	326652 (206.93)
Beverages spirits and vinegar	92923	2482	0	199392	67172	266564 (186.86)
Tobacco	8825	389	0	73003	2029	75032 (750.18)
Wool	17950	111	0	53915	997	54912 (205.92)
Coffee, tea, meat and spices	7485	1072	0	29913	4263	34175 (356.56)
Vegetable, fruit and nuts	24930	628	0	28313	5056	33369 (33.85)
Cocoa	33206	510	0	27220	7336	34556 (4.07)
Total agricultural commodities	455263			1302127	239075	1541202 (238.53)

Source: Authors' calculation.

Figures in parentheses show a percentage change in total trade over base year trade (2019).

Coffee, tea, meat, and spices exports from the EU to India will increase if India reduces the tariff, which is presently high to zero. The value of coffee, tea, meat, and spices imported from the EU to India was \$ 1.46 million in 2019. If India removes

tariffs on these imports, the value of these EU exports to India is projected to increase by 389.72 per cent to \$19.17 million (Table 2). These findings concur with the conclusions of the India-ASEAN FTA analysis by George and Joseph (2014). Amongst all agricultural products, spices are most affected by stringent European Union food safety measures (Saxena *et al.*, 2022). This tremendous increase in imports from the EU would pose a serious concern specifically to labor-intensive industries like tea and coffee (Sarkar and Schwartz, 2009; Ratna and Kallummal, 2013).

TABLE 2. TRADE CREATION AND TRADE DIVERSION FOR COFFEE AND TEA

Countries	Total trade	Trade creation	Trade diversion	Exports Before	Exports After	(000 US\$) Change
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Germany	17713.93	16629.64	1084.29	1459.34	19173.27	17713.93 (1213.83)
Finland	5282.27	4327.82	954.45	2641.23	7923.499	5282.27 (199.99)
Spain	4454.44	3906.20	548.24	931.761	5386.196	4454.44 (478.07)
Italy	4284.27	3694.34	589.93	1706.377	5990.649	4284.27 (251.07)
Belgium	3884.23	3526.98	357.25	494.715	4378.941	3884.22 (785.14)
Netherlands	2548.40	1225.38	1323.02	1987.118	4535.516	2548.40 (128.25)
Bulgaria	306.28	201.77	104.51	304.327	610.608	306.28 (100.64)
Croatia	299.08	248.97	50.10	156.927	456.002	299.08 (190.58)
Lithuania	281.51	225.18	56.33	150.345	431.849	281.50 (187.24)
Czech Republic	108.22	64.11	44.11	58.505	166.727	108.22 (184.98)
Grand Total	39464.83	34242.67	5222.16	1459.34	19173.27	17713.93 (389.72)

Source: Author's own calculation

Figures in parenthesis are per cent change in EU exports to India if tariff is eliminated

Since India is one of the fastest-growing economies, import demand for vegetables, fruit & nuts will also increase (Goldstein and Khan 1985). On the supply front, the EU is the world's largest exporter of fresh and processed fruits and vegetables (Diop and Jaffee, 2005). Consequently, this trade will increase if India reduces tariffs to zero. In 2019, the import value of preparations of vegetables, fruits, and nuts from the EU to India stood at US\$ 9.86 million. However, in the scenario where India opts to remove tariffs on these imports, it is anticipated that the value of EU exports to India would experience growth of 133.81 per cent, ultimately reaching US\$ 28.41 million (Table 3). Spain, Italy, and Belgium would have a trade creation effect of US\$ 17.24 million, US\$ 4.60 million, and US\$1.87 million, respectively.

TABLE 3. TRADE CREATION AND TRADE DIVERSION FOR VEGETABLES, FRUITS AND NUTS

(000 US\$)						
Countries	Total trade	Trade creation	Trade Diversion	Exports Before	Exports After	Change
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Spain	18544.52	17244.18	1300.34	9861.594	28406.11	18544.52 (188.05)
Italy	5107.079	4591.968	515.111	2638.427	7745.506	5107.08 (193.57)
Belgium	2531.869	1871.146	660.724	2308.122	4839.992	2531.87 (109.69)
Netherlands	2222.12	1106.098	1116.022	4839.44	7061.56	2222.12 (45.92)
France	1905.177	1378.573	526.604	1824.052	3729.229	1905.18 (104.45)
Germany	1297.038	825.916	471.122	1705.193	3002.231	1297.04 (76.06)
Greece	1011.267	857.313	153.954	550.214	1561.481	1011.27 (183.80)
Poland	471.389	228.945	242.444	865.77	1337.158	471.39 (54.45)
Bulgaria	172.362	130.915	41.447	109.839	282.202	172.36 (156.92)
Portugal	73.108	64.564	8.544	158.139	231.248	73.11 (46.23)
Grand Total	33417.31	28347.42	5069.895	9861.594	28406.11	18544.52 (133.81)

Source: Author's own calculation.

Figures in parenthesis show a percentage change in EU exports to India if the tariff is eliminated.

Asia is anticipated to become the world's second-largest consumer market for cocoa-based products, driven by the growth of the middle-upper class and rising incomes among the youth (Voora *et al.*, 2019). Similarly, Skelly (2017) notes that chocolate sales are expected to increase in countries with growing GDP per capita, like China and India, as consumers in these regions gain more disposable income. Cocoa and cocoa products the only agricultural product groups imports in large quantities from the EU than other trade blocs such as ASEAN (Singh *et al.*, 2021). Due to huge domestic demand, if India reduces tariffs on cocoa, India's import value will rise by 105.82 per cent from its 2019 figure of US\$ 32.72 million to approximately US\$67.36 million, assuming the tariffs are reduced to zero (Table 4). Italy, Belgium, and the Netherlands' exports of cocoa and its preparations would increase more through trade creation effect of US\$ 1.41 million, US\$ 9.80 million, and US\$ 4.32 million, respectively.

IV

CONCLUDING REMARKS AND POLICY IMPLICATIONS

India applies one of the highest tariff rates on agricultural commodities. Consequently, the proposed India and the European Union (EU) Free Trade Agreement (FTA) can significantly impact their trade volume.

TABLE 4. TRADE CREATION AND TRADE DIVERSION FOR COCOA (000 US\$)

Countries	Total trade	Trade creation	Trade diversion	Exports Before	Exports After	Change
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Italy	14065.54	11415.28	2650.26	11460.5	25526.04	14065.54 (122.73)
Belgium	11105.28	9806.372	1298.908	4804.604	15909.89	11105.28 (231.14)
Netherlands	6769.86	4320.613	2449.246	12903.77	19673.63	6769.86 (52.46)
Germany	774.832	460.539	314.292	1199.601	1974.433	774.83 (64.59)
France	559.272	477.105	82.167	274.932	834.204	559.27 (203.42)
Poland	424.532	289.644	134.888	615.88	1040.412	424.53 (68.93)
Spain	401.772	136.87	264.902	726.688	1128.46	401.77 (55.29)
Ireland	342.889	236.6	106.29	236.6	579.489	342.89 (144.92)
Denmark	227.228	156.726	70.501	317.777	545.004	227.23 (71.51)
Slovak Republic	147.168	101.478	45.69	205.756	352.924	147.17 (71.53)
Grand Total	34973.29	27507.67	7465.623	32726.43	67356.83	34630.4 (105.82)

Source: Author's own calculation

Figures in parenthesis are per cent change in EU exports to India if the tariff is eliminated

The FTA would increase agricultural trade from the EU to India by US\$1541.2 million if India reduced tariffs on agricultural products from the EU. The trade creation effect, which makes up 85 per cent of the overall trade effect, is anticipated to exceed the trade diversion effect. This implies that India's agricultural and allied sectors will primarily benefit from the FTA. The elimination of tariffs on horticultural goods like coffee, tea and spices, vegetables, roots, and tubers would result in appreciable increases in exports to India, increasing trade and presenting possible growth prospects for EU countries like Germany, Belgium, and Italy possessing strategic port locations and well-developed market infrastructure to carry out Intra EU trade. At the same time, there may be some trade diversion effects, notably in the case of imports of edible fruits and nuts from the EU. India must concentrate on boosting the competitiveness of domestic producers. Subsequently, policies promoting limited liberalization with sensitive lists of agro-commodities strengthen agro-market infrastructure and provide financial access and technical support to various agricultural stakeholders, increasing productivity, efficiency, and profitability, allowing Indian producers to compete successfully with imports.

SMART model is a partial equilibrium model; hence, it does not project a complete picture of how tariff changes affect world agriculture trade dynamics with India and the EU. Harmonised System (HS) codes up to the two-digit level have been examined in this study to obtain a general understanding of agricultural commerce with the EU. Nonetheless, this provides scope for future investigation for specified

commodities in depth by delving up to six-digit HS code value. Both economic and non-economic factors affect international trade relations; however, since the latter cannot be measured, their impact is not considered in this study. When negotiating with the EU, India must consider the benefits and potential difficulties connected with each agricultural commodity. All these inputs become the basis for policymakers to make informed decisions to plan and decide wisely to protect the interests of domestic producers and consumers.

REFERENCES

- Abdelmalki, L., Sandretto, S.M., & Jallab, S. (2007). The Free Trade Agreement between the United States and Morocco: The importance of a gradual and asymmetric agreement. *Journal of Economic Integration*, 22(4), 852–887. <https://dx.doi.org/10.2139/ssrn.988305>
- Aggarwal, S., Chakraborty, D. & Banik, N. (2023). Does Difference in Environmental Standard Influence India's Bilateral IIT Flows? Evidence from GMM Results. *Journal of Emerging Market Finance*, 22(1), 7-30. <https://doi.org/10.1177/09726527221088412>
- Bhutani, S. (2011). The India-EU FTA and its Implications on India's Food and Farm Sector. *Fact Sheet, 1*. <https://www.madhyam.org.in/wp-content/uploads/2014/07/The-India-EU-FTA-and-Implications-on-India-Food-and-Farm.pdf>
- Diop, N. & Jaffee, S.M. (2005). Fruits and vegetables: global trade and competition in fresh and processed product markets. *Global Agricultural Trade and Developing Countries*. World Bank, 237-257. <https://www.rrojasdatabank.info/glbagrtrade05/complete.pdf#page=239>
- Felbermayr, G., Mitra, D., Aichele, R. & Gröschl, J. (2017). *Europe and India: Relaunching a Troubled Trade Relationship* (No. 80), ifoForschungsberichte, Munich. <http://hdl.handle.net/10419/167440>
- George, K.T. and Joseph, J. (2014). Rubber and rubber products tariffs and protection in the ASEAN-India agreement. *Economic and Political Weekly*, 49(1), 22-25.
- Goldstein, M. & Khan, M.S. (1985). Income and price effects in foreign trade. *Handbook of international economics*, 2, 1041-1105. [https://doi.org/10.1016/S1573-4404\(85\)02011-1](https://doi.org/10.1016/S1573-4404(85)02011-1)
- Guei, K.M., Mugano, G., & Le Roux, P. (2017). Revenue, welfare and trade effects of European Union free trade agreement on South Africa. *South African Journal of Economic and Management Sciences*, 20(1), 1-11. <https://hdl.handle.net/10520/EJC-cae23e744>
- Jain, N., & Kumar, S. (2022). Examining the impact of India–USA free trade agreement on agriculture sector: an ante partial equilibrium analysis. *Journal of Economic and Administrative Sciences*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/JEAS-12-2021-0272>
- Jammes, O., & Olarreaga, M. (2005). Explaining smart and GSIM. Working paper, *The World Bank*, Washington, U.S.A. 17 October. http://wits.worldbank.org/witsweb/download/docs/Explaining_SMART_and_GSIM.pdf
- Kandogan, Y. (2005). Trade creation and diversion effects of Europe's Regional Liberalization Agreements. Working paper No. 746, SSRN, Elsevier, Rochester, NY, 17 October. <https://dx.doi.org/10.2139/ssrn.681605>
- Kim, S.Y. (2022). The politics of FTAs in Asia: The role of China and implications for EU trade policy. In: Adriaansen, J., Postnikov, E. (Eds) *A geo-economic turn in trade policy? EU trade agreements in the Asia-Pacific* Cham: Springer International Publishing, 29-53. https://doi.org/10.1007/978-3-030-81281-2_2
- Kuznets, S. (1963). *Economic growth and the contribution of agriculture: notes on measurement*. Oxford University Press, London, NY, pp 38-81. [10.22004/ag.econ.209625](https://doi.org/10.22004/ag.econ.209625)
- Laird, S., & Yeats, A. (1986). The UNCTAD trade policy simulation model. In *United Nations Conference on Trade and Development*, 19. <https://wits.worldbank.org/data/public/SMARTMethodology.pdf>
- Mattoo, A., Mulabdic, A., & Ruta, M. (2022). Trade creation and trade diversion in deep agreements. *Canadian Journal of Economics*, 5(3), 1598-1637. <https://doi.org/10.1111/caje.12611>
- Pasara, M.T. (2021). A WITS-SMART simulation analysis of trade creation, diversion and welfare effects of the African tripartite region. *International Journal of Trade and Global Markets*, 14(1), 31-47. <https://doi.org/10.1504/IJTG.M.2021.113344>
- Polaski, S., Ganesh-Kumar, A., McDonald, S., Panda, M., & Robinson, S. (2008). India's Trade Policy Choices. Carnegie Endowment. United States of America. Retrieved from <https://policycommons.net/artifacts/434080/indias-trade-policy-choices/1405133> on 17 Oct 2023.
- Raihan, S. (2009). India's PTAs and their Economic Impacts: Quantitative Assessments using a Partial Equilibrium Modeling Framework. Munich Personal RePEc Archive. <https://mpra.ub.uni-muenchen.de/id/eprint/37899>

- Rani, M. (2014). Differential Impact of Euro on Trade: a Trend Analysis. *IIM Journal*, 4(2), 55-69. <https://ssrn.com/abstract=4514112>
- Rani, P., & Kumar, N. R. (2014). Export Performance of Indian Shrimp to European Union under proposed Free Trade Agreement: An Ex-ante Assessment. https://ir.library.oregonstate.edu/concern/conference_proceedings_or_journals/r207tq60s
- Ratna, R.S., & Kallummal, M. (2013). ASEAN–India Free Trade Agreement (FTA) and its impact on India: A case study of fisheries and selected agricultural products. *Foreign Trade Review*, 48(4), 481-497. <https://doi.org/10.1177/0015732513504713>
- Saini, G. K., & Veeramani, C. (2010). Impact of ASEAN-India FTA on India's Plantation Commodities: A Simulation Analysis (No. id: 2477).
- Sarkar, A., & Schwartz, R.A. (2009). Market sidedness: Insights into motives for trade initiation. *The Journal of Finance*, 64(1), 375-423. <https://doi.org/10.1111/j.1540-6261.2008.01437.x>
- Saxena, R., Kumar, A., Singh, R., Paul, R.K., Raman, M.S., Kumar, R., Khan, M.A. & Agarwal, P. (2022). Examining export advantages in Indian horticulture: an approach based on product mapping and seasonality. *Journal of Agribusiness in Developing and Emerging Economies*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/JADEE-12-2021-0310>
- Singh, S., Kumar, S., Dagar, V., Saxena, M., & Rashid, S., (2021). India's agricultural food processing and industry specific trade pattern with EU and ASEAN. *International Journal of Agricultural and Statistical Sciences*, 17(1), 39-51. <https://connectjournals.com/03899.2021.17.39>
- Skelly, J., (2017). The Challenges, Risks, and Opportunities of Chocolate on a Global Scale. Euromonitor International. Retrieved from <https://blog.euromonitor.com/chocolate-global-scale>
- Voora, V., Bermúdez, S., & Larrea, C., (2019). *Global market report: Cocoa* (p. 12). Winnipeg, MB, Canada: International Institute for Sustainable Development. <https://www.jstor.org/stable/pdf/resrep22025.pdf>
- Winters, L.A. (2009), *Innocent Bystanders: Implications of an EU-India free trade agreement for excluded countries*. Commonwealth Secretariat, London, UK.