TAPPING THE UNTAPPED POTENTIAL:

INDIA-IRELAND TRADE AND INVESTMENT OPPORTUNITIES POST-BREXIT

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NOVEMBER 2022

411
WORKING PAPER

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Abstract

Recent events, particularly Brexit, have propelled India to diversify its trade and investment markets in the European Union (EU). Within the EU, India has trade and investment synergy with Ireland. The paper explores business opportunities between India and Ireland, by analysing their bilateral trade in goods and services, and foreign direct investments. The paper analyses disaggregated bilateral trade data and uses the trade possibilities approach to estimate India's goods trade with Ireland and India's potential exports to Ireland.

It is found that India has an untapped export potential of US$19 billion in the Irish market with the top 50 items accounting for 71 percent of the total potential. Exports of pharmaceuticals, organic chemicals and surgical goods dominate India's goods exports to Ireland, with there being potential to enhance such trade. Further, services are the largest component of India-Ireland trade and there is potential for increasing India's services export to Ireland, especially in business services, education, tourism, and medical services. Foreign direct investments from India to Ireland are predominantly in the manufacturing sector, particularly in manufacturing of medical and pharmaceutical items while FDIs from Ireland to India have been rising especially in business services, with potential to strengthen investment ties further through investments and collaborations in emerging technologies. The paper suggests that further boost to bilateral ties can come from the opportunities that are likely to be unleashed from the forthcoming India-EU free trade agreement and an India-EU bilateral trade and investment agreement.

Keywords: India - Ireland trade; export potential; services trade; foreign direct investment; technology collaborations

JEL classification: C82; F13; F23

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Tapping the Untapped Potential:
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Nisha Taneja, Isha Dayal, Tanu M. Goyal, Sanya Dua

Introduction

The last few years witnessed a colossal transformation of the international trading systems. A few noteworthy events driving the change include the United States (US)-China trade war, the World Trade Organization's (WTO's) reform agenda and Britain's exit from the European Union (Brexit). While all these events have directly or indirectly affected India's international trade prospects, the last one the list has affected India's international trade negotiations with a key trade partner – the European Union (EU) – and has underscored the importance of trade diversification.[1]

Within the EU, Ireland is a key trade and investment partner for India. In the year 2020, India's exports to Ireland accounted for 1.6 per cent of India's total exports to the EU and imports accounted for 1.2 per cent of India's total imports from the EU. India is a net exporter of goods to Ireland and there is potential for increasing trade further.

India's trade in services with Ireland is four times the bilateral trade in goods and there is a potential to increase it further. Ireland is among the top countries in Europe that speaks English as a primary language.[2] There are synergies between the two markets, making Ireland an attractive base for India to access and export services in the EU market, especially after Brexit. In fact, India has historical ties with Ireland, to the extent that certain provisions under the Constitution of India, including the Directive Principles of State Policy, are inspired by the Irish Constitution. Therefore, there is a similarity in the common laws between the two countries.

Motivated by the recent events and the need for trade diversification, this paper explores export and investment opportunities between India and Ireland. The paper is based on secondary data sources and information. The paper is divided in three sections. The first section discusses trade in goods, focusing on bilateral trade trends and key commodities. It also estimates the export potential for goods and examines market access barriers to India's exports. Section two discusses trade in services, focusing on broad trade trends, and discusses key services in which India has performed well. Barriers to enhancing exports in services trade potential are also discussed in this section. Section three discusses bilateral investments and investment potential between the two markets. The last section presents the summary and conclusions.

1. Trade in Goods

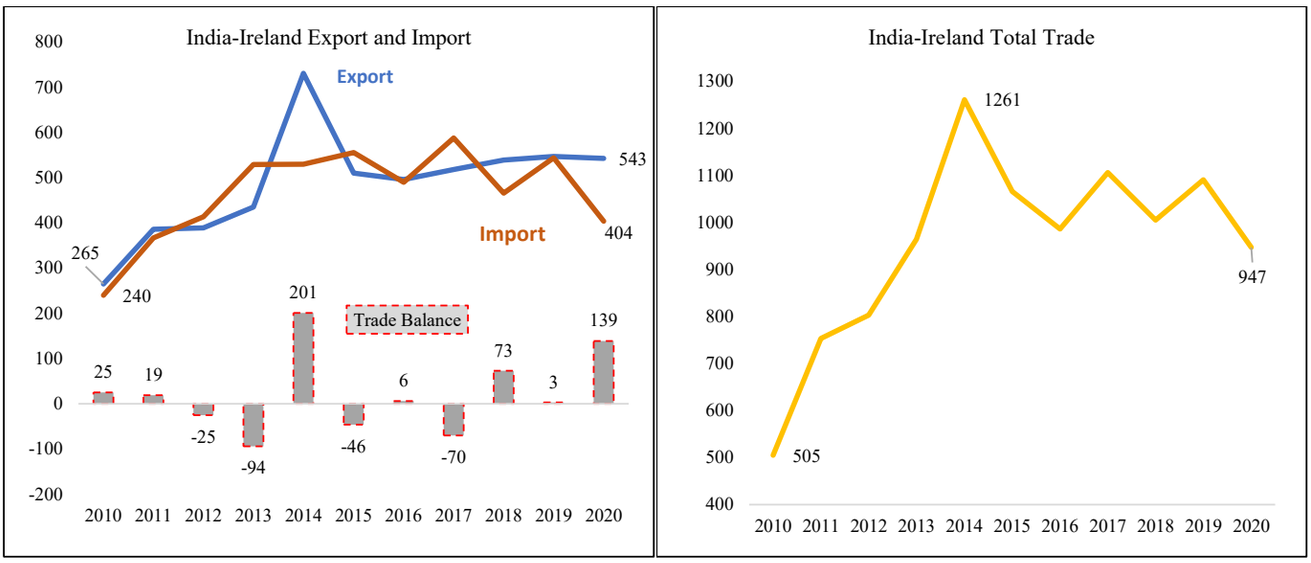
This section analyses trends in bilateral trade in goods between India and Ireland, at an aggregate and disaggregated level and identifies the top sectors and products traded between the two countries. It presents India's export potential to Ireland in products in which India is globally competitive. Tariff and non-tariff barriers faced by Indian exports in potential products are discussed to understand how India can realise the untapped export potential.

1.1 Trends in Bilateral Trade

Trade between India and Ireland increased at the rate of 6.5 percent during the period 2010 to 2020. Bilateral trade peaked in 2014 largely because of export of airplanes and other aircrafts, which accounted for nearly 40 percent of the total exports from India to Ireland in that year. Subsequently over a span of six years, total trade fell from US$1.26 billion to US$947 million.

1 Refers to EU 27.
2 For details see World Population Review, 2022.

Figure 1.1: India's Trade with Ireland (Values in US$ million)



Source: ITC Trade Map

Commodity-wise analysis of export data shows that nearly 38 percent of the value of India's total exports to Ireland in 2020 comprised of organic chemicals, which are the basic raw material for pharmaceutical products while about 33 percent of the value of India's total imports from Ireland in the same year comprised of machinery and mechanical appliances (Table 1.1).

Table 1.1: Share of top products traded between India & Ireland (2020)

Top Commodities Exported by India to Ireland		Top Commodities Imported by India from Ireland	
Product Description	**Share in Total Exports to Ireland (%)**	**Product Description**	**Share in Total Imports from Ireland (%)**
Organic chemicals	37.5	Mechanical App./Machinery	33.4
Mechanical App./Machinery	9.3	Electrical machinery & eqt.	12.6
Apparel and clothing accessories	7.5	Plastics and articles thereof	12.4
Rubber and articles thereof	6.1	Optical or surgical instruments	9.4
Articles of iron or steel	3.5	Misc. edible preparations	5.5
Optical or surgical instruments	2.9	Pharmaceutical products	4.7
Pharmaceutical products	2.9	Essential oils and resinoids	4.1
Electrical machinery and eqt.	2.8	Pulp of wood	3.7
Plastics and articles thereof	2.5	Misc. chemical products	2.3
Other made-up textile articles	2.4	Organic chemicals	2
Aircraft, spacecraft and parts	2.1	Iron and Steel	1.4

Source: ITC Trade Map

Note: Top 30 products at HS 6-digit have been aggregated to HS 2-digit

Further, using the UNCTAD classification of products by technological categories we find that 70 percent of the top 30 products exported are accounted for by high skill and technology intensive items (Table 1.2).

Table 1.2: Classification of top exported products by technological categories

Technological category	India's export to Ireland (in US$ million)	Share in top 30 exports (%)	Number of HS 6-digit Product Lines
High skill & technology intensive	223.6	70.0	17
Medium skill & technology intensive	41.6	13.0	4
Low skill & technology intensive	5.9	1.8	1
Mineral fuels	7.7	2.4	1
Non-fuel primary commodities	12.4	3.9	2
Resource-intensive	21.4	6.7	4
Unclassified products	6.9	2.2	1
Total (Top 30 Exports)	**319.4**	**100**	**30**

Source: Authors' calculations using data from ITC Trade Map (2020), and UNCTAD classification

Note: Product-wise information on top 30 items at HS 6-digit exported from India to Ireland, is provided in Appendix Table A.1

1.2 India's Export Potential to Ireland

Trade possibilities exist in items that the two countries can import from each other instead of from elsewhere in the world. To identify these items and assess the magnitude of trade possibilities between the two countries, products having trade potential are identified as those with adequate demand in the receiving country and adequate supply capabilities in the source country.

To assess India's export possibilities with Ireland, the exercise is conducted by posing India as a supplier.

Potential export for any commodity is given by Min (SE, MI) - ET where SE, MI, and ET are India's global exports, Ireland's global imports, and existing exports from India to Ireland. Items in which India is globally competitive (revealed comparative advantage (RCA) greater than unity) are selected and export potential estimates are prepared accordingly. The analysis is done at Harmonized System (HS) six-digit level.

It is estimated that India's export potential to Ireland, for products in which India is globally competitive, is US$19 billion for the year 2020. Of this, 71 per cent accrues to the top 50 products with US$ 13.5 billion export potential (see Table 1.3). Within the top 50 products, 21 products were traded in 2020 (henceforth referred to as currently traded products) accounting for 65 percent of the export potential, while there were 29 products that had potential but were not being traded (new products with export potential) which accounted for 35 percent.

Table 1.3: India's Export Potential to Ireland

S. No.	Export Potential	Export Value in US$ billion
a.	Potential in currently traded products (21)	8.8
b.	Potential in new products (29)	4.7
c.	Potential in Top 50 Products (a+b)	13.5
d.	Total Export Potential (all product lines)	19.0

Source: Authors' calculations using data from ITC Trade Map;

Note: Estimates based on trade data for 2020

Interestingly, out of the 21 items that are currently exported and have high potential, 11 are also among India's top 30 export items to Ireland. This includes pharmaceutical products with 27.3 percent share in the value of top 50 export potential items, followed by organic chemicals, nuclear reactors & machinery, etc. (Table 1.4).

Table 1.4: Export Potential of Current & New Export Products

HS 2-digit	Product Description	Current Products			New Products		
		No. of Products (at HS 6-digit)	Potential in US$ million	Share in Top 50 (%)	No. of Products (at HS 6-digit)	Potential in US$ million	Share in Top 50 (%)
30	Pharmaceutical	2	3,719	***27.3***	3	654	***4.8***
29	Organic chemicals	7	2,217	***16.3***	4	629	***4.6***
84	Nuclear reactors & machinery	1	1,387	***10.2***	3	192	***1.4***
71	Gems & Jewellery	1	479	***3.5***	0	-	***-***
88	Aircraft & spacecraft	1	255	***1.9***	0	-	***-***
61	Apparel: knitted/crocheted	3	237	***1.7***	0	-	***-***
87	Vehicles	1	206	***1.5***	2	564	***4.1***
94	Furniture; mattresses	2	150	***1.1***	0	-	***-***
39	Plastics and articles thereof	1	84	***0.6***	2	109	***0.8***
62	Apparel: not knitted/ crocheted	1	49	***0.4***	3	177	***1.3***
13	Lac; vegetable extracts	1	46	***0.3***	0	-	***-***
27	Mineral fuels	***Currently not traded***			3	1,514	***11.1***
23	Food industries				1	272	***2.0***
19	Preparations of cereals				1	129	***0.9***
70	Glass and glassware				1	117	***0.9***
11	Products of milling				1	99	***0.7***
40	Rubber				1	69	***0.5***
85	Electrical machinery				1	69	***0.5***
17	Sugars and confec.				1	66	***0.5***
76	Aluminium				1	58	***0.4***
63	Textiles & made-up articles				1	52	***0.4***
Total		**21**	**8,829**	***65***	**29**	**4,770**	***35***

Source: Authors' calculations using data from ITC Trade Map

Note: Estimates based on trade data for 2020; Product-wise details for all 50 items of export potential to Ireland are provided in Appendix Table A.2

Within these items, there are also new product lines which account for 17 percent of the top 50 export potential. Remaining 18 percent of the export potential in new products comprises of products like mineral fuels, food industries, electrical machinery, textile, and made-up articles.

1.3. Trade Barriers

Identifying and addressing tariff and non-tariff barriers faced by potential export products will help 'scale-up' trade in products which are currently exported from India to Ireland and facilitate diversification of India's export basket to Ireland by 'opening-up' avenues in products which are currently not traded between the two countries.

Data on tariffs has been sourced the from the WTO database. Further, to identify measures which affect products with export potential, we have examined the data provided on 'Non-Tariff Measures' (NTMs) compiled by World Trade Organization database and UNCTAD TRAINS database.

Tariff Barriers

As a member of the European Union, Ireland needs to abide by the EU rules regarding the tariffs it applies on imports from other countries. Although the MFN tariffs are indiscriminatory, some countries may still gain from preferential treatment if they are a member of preferential or free trade agreement with the EU or enjoy 'duty free quota free access' as part of the preferential treatment extended by the EU to certain lesser developed countries.

Considering that India does not have any preferential tariff access into the EU, and therefore into the Irish market, certain resource (or labour) intensive manufactures potentially lose out due to competition from other low-cost labour abundant developing countries like Vietnam and Bangladesh.

Several textiles, furnishing, apparel items and motor vehicles in which India is globally competitive has significant export potential from India to Ireland. However, these items face high tariffs, ranging from

10 to 12 percent (Table 1.5). Therefore, push for an India-EU trade agreement, which also considers liberalization of tariffs on such exports from India could help India's exports gain cost competitiveness and thus potentially increase India's exports to Ireland.

Table 1.5: Tariffs on products with export potential from India to Ireland

Section Description	Potential (US$ million)	Tariff Range (%)
Chemical & Pharma Products	7,219	0-6.5
Machinery and Electronic appliances	1,648	1.7-4.2
Mineral products	1,514	0-3.8
Vehicles, aircraft, transport equipment	**1,025**	**2.7-10**
Textiles and textile articles	**515**	**10.5-12**
Gems & Jewellery	479	2.5
Prepared foodstuffs; beverages; tobacco	467	0
Plastics, rubber and articles thereof	262	4.5-6.5
Miscellaneous manufactured articles	150	0-3.7
Vegetable Products	145	0-1.5
Articles of stone, plaster, cement; glass	117	5
Base metals and articles of base metal	58	6

Source: Authors' calculations; Information on tariffs data from WTO Database

Note: Top 50 products at HS 6-digit have been aggregated to Section-Wise Commodity Classification as per the Indian trade classification in Appendix A.6

Non-Tariff Barriers

With MFN tariffs gradually declining among the developed countries, non-tariff measures – particularly those associated with product quality and standards – are a bigger obstacle for the developing countries to export to the developed markets (ITC 2016[3]). Technology is the hardware and software of our production systems, and the stringency of product quality and standards has increased hand in hand with technological advancements.

Among India's top 50 products with export potential to Ireland, many products are skill and technology intensive manufactures. While tariffs may be low or even zero, several non-tariff measures apply to these products[4], indicating that India's technology intensive manufacturers – although competitive and exportable to several other countries – are possibly unable to meet the EU / Irish product standards, to ensure the safety and protection of human health and the environment in the EU market.

Pharmaceutical products are one of the top export potential items. Over the last few years, public expenditure on pharmaceutical products is rising in the EU and in Ireland. According to a report, state expenditure on medicines in Ireland is about EUR 2.7 billion per annum.[5] To address this, the Irish government has been taking cost containment measures and there are delays in reimbursement decisions[6]. Access to new drugs is also subject to a lengthy decision-making process.

Recently, the European Commission notified that it will adopt emergency measures in order to restrict or prohibit the use and/or the sale of an approved active substance or a plant protection product if it is likely to constitute a serious risk to human or animal health or the environment. This regulation is likely to affect Active Pharmaceutical Ingredients (APIs) used as raw materials in the manufacture of medicinal products.

Items like petroleum oils, bituminous mineral oils (HS27), and rubber products (HS40) are also subject to strict regulation. According to a notification from the European Parliament in 2014, the EU prohibits goods that contain fluorinated greenhouse gases. For India to be able to tap potential in petroleum/

3 ITC Report available at: https://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/Navigating_Non_Tariff_Measures_ITC_EC finally w-res(1).pdf; accessed on 27 Sept.'21. In particular, see pp.20-21.

4 EPRS Report available at: https://www.europarl.europa.eu/RegData/etudes/STUD/2020/642841/EPRS_STU(2020)642841_EN.pdf; accessed on 27 Sept.'21. Of particular interest are figures from p.58 onwards.

5 Global Legal Insights accessible at https://www.globallegalinsights.com/practice-areas/pricing-and-reimbursement-laws-and-regulations/ireland

6 For details see United States Trade Representative's (USTR's) Foreign Trade Barriers Report https://ustr.gov/sites/default/files/files/reports/2021/2021NTE.pdf

bituminous and rubber products, it should comply with EU regulation on fluorinated greenhouse gases.

There are a few top potential export products from India to Ireland that are subject to strict SPS measures. The import of foodstuffs into the EU must comply with EU legislation designed to ensure that food placed on the market is safe to eat and does not contain contaminants at levels that could endanger human health. The import country needs to be cautious that food contamination can occur during any stage of food production, packaging, transit, or storage (including with fruits and vegetables, meat, fish, cereals, spices, dairy products, etc.), as well as during environmental contamination.

Broadly potential export items are primarily subject to technical barriers to trade (TBT), sanitary and phytosanitary measures (SPS), quantitative restrictions and other prohibitions concerning the environment (Table 1.6). Addressing these barriers would be necessary for India to be able to improve its market access into the Irish market.

Table 1.6: Non-Tariff Measures on products with export potential from India to Ireland

Sector Description	Nature of NTM*	No. of NTMs
Chemical & Pharma Products	• QR, SPS and TBT for protection and safety of human health, environment, and species of wild flora and fauna	**383**
Machinery & Elec. Appliances	• TBT for electromagnetic compatibility, low voltage electrical equipment, machinery and safety components and for parts of civil aircrafts	**36**
Mineral products	• TBT covering marketing requirements for dangerous chemicals, pesticides and biocides • Prohibition of products containing fluorinated greenhouse gases	**8**
Vehicles, aircraft, transport eqp.	• TBT measure covering marketing of products containing fluorinated greenhouse gases • QR for placing HFCs on the market • Prohibition of imports of products containing ozone-depleting substances into the EU	**88**
Textiles & textile articles	• TBT related to labelling and technical standards for personal protective equipment • Prohibition on imports of skins of certain seal pups	**11**
Gems & Jewellery	• Restriction on the use of certain chemical substances in jewellery products	**1**
Prepared foodstuffs; beverages; tobacco	• SPS: Health control of feeding stuffs of non-animal origin • Organic products from third countries may only be placed on the EU market • Control of contaminants in foodstuffs • Microbiological criteria for certain products	**137**
Plastics, rubber & articles thereof	• TBT covering packaging requirements • Customs inspection and plant health checks • Procedure and criteria for the approval of active substances	**38**
Misc. manufactured goods	• Control on illegal timber and timber products	**6**
Vegetable Products	• Control of contaminants in food, Health control of food of non-animal origin	**64**
Articles of stone, glassware	• Special rules for materials and articles intended to come into contact with foodstuffs • Labelling Requirements	**1**
Base metals & articles thereof	• Producers are obliged to place only safe products on the market • Labelling requirements	**3**

Source: Information on Non-Tariff Measures (NTMs) from WTO Database; UNCTAD TRAINS Database; USTR Report on National Trade Estimate Report on Foreign Trade Barriers (2021)

Note: Details of sector-wise non-tariff measures are provided in Appendix Table A.3; Top 50 products at HS 6-digit are aggregated to Section-Wise commodity classification as per the Indian trade classification in Appendix Table A.6

2. Trade in Services

This section analyses bilateral trade in services between India and Ireland. Disaggregated data for bilateral, sector-wise trade in services is not readily available for India. For that reason, data for India-Ireland bilateral trade in services is extracted from Central Statistics Office, Ireland and the Indian perspective is presented using mirror statistics. While this data has been a useful source to collate aggregate bilateral services data, unavailability of disaggregated sector-wise data has hampered a thorough analysis. Yet, we have tried to make the best use of the trends evident in the available data to present the findings and provide avenues for strengthening bilateral trade in services, particularly in tourism, education, and medical services.

2.1 Trend in Bilateral Trade

India's total trade in services with Ireland in 2020 was nearly four times India's total trade in goods with the country in the same year. Bilateral services trade has increased over the years between India and Ireland; however, the balance of trade is in favour of Ireland. India's exports to Ireland have increased from US$ 108 million in 2010 to US$ 1.4 billion in 2020, while India's imports have gone up from US$ 756 million to US$ 2.5 billion (Table 2.1). In the year 2020, with a share of 1.1 per cent in India's trade in services with the world, India's services trade with Ireland was around US$ 4 billion. In the same year, India's trade deficit stood at US$ 1.1 billion.

Globally, both India and Ireland are among the top services traders. In 2020, with a share of 6.2 per cent in total services trade, Ireland was the third largest services traders in the world and India came 10th with a share of 3.5 per cent. Ireland is also the third largest exporter and importer of services, with a trade deficit of US$ 350 billion in total services trade. India is the ninth largest exporter and tenth largest importer, with a trade surplus of close to US$ 50 billion in total trade in services. Thus globally, India is a net exporter of services, while Ireland is a net importer.

Within the EU, with a share of 13 percent in total trade in 2020, Ireland is a significant trade partner for services. The share of Ireland in India's export to the EU was around 8.5 percent in 2020 – yet it is the fourth largest export destination for India in the EU[7]. Compared to this, Ireland was the largest source of services import for India from EU in 2020 with a share of 20.5 percent in India's total services import from the EU.

Table 2.1: India's Bilateral Trade in Services with Ireland (in US$ Million)

Year	Export	Import	Trade Balance	Total Trade
2010	108.5	756.5	-648.0	865.0
2011	208.3	989.8	-781.4	1198.1
2012	238.1	1300.8	-1062.7	1538.9
2013	286.1	1463.0	-1177.0	1749.1
2014	129.6	1774.1	-1644.5	1903.7
2015	357.1	2309.8	-1952.6	2666.9
2016	601.0	2543.0	-1942.1	3144.0
2017	721.9	2816.6	-2094.7	3538.6
2018	860.2	3001.9	-2141.8	3862.1
2019	1163.5	2942.4	-1778.9	4105.9
2020	1415.0	2579.5	-1164.5	3994.6

Source: Extracted by authors from Central Statistics Office, Ireland, data accessible at https://www.cso.ie/en/statistics/internationalaccounts/internationaltradeinservices/ (accessed on 26 September 2022).

Note: Original data was available in Euro million and is converted using exchange rate of Euro 1 = US$ 0.96 as on 26 September 2022.

7 Eurostat database.

In terms of the composition of services trade, the top items of export for India in 2020 included professional and management consulting services, computer services and transport services, while Ireland top items of import included research and development services; charges for the use of intellectual property and technical, trade-related, and other business services. Ireland is also a net importer of professional and management consulting services, which is one of the largest export items for India.

2.2 Trade Potential and Strengthening India-Ireland People-to-People Contact

Business services including professional, technical and information supply services, tourism, education, and medical services are integral components of services trade for both India and Ireland. These are also important from an economic as well as a cultural perspective. Enhancing bilateral trade in such services will help strengthen people-to-people contact between India and Ireland, in turn benefitting the two nations economically.

A) Business Services

After Brexit, Ireland is the only large English-speaking country in the EU. Like India, Ireland is a large exporter of information and communication technology services, however, the country currently faces shortage of skilled workers, especially in the technology-oriented services[8]. A report by the Skills and Labour Market Research Unit (SLMRU), SOLAS, Ireland, found demand for skills in sectors including IT and business services continue to rise[9]. About 46 percent of the recruitment agencies surveyed reported difficult in filling positions including IT and engineering workers, especially because globally markets are becoming competitive for these skills and there are insufficient number of skilled candidates within the Irish labour market. This presents an opportunity for Indian skilled and high-skilled workforce, especially in the information technology sector.

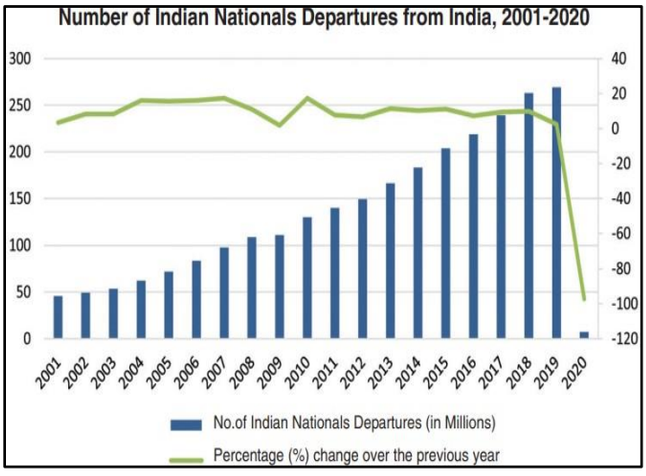
Ireland is a low-tax economy with a business-friendly environment. Some of the top Indian IT companies including Tata Consultancy Services (TCS), Infosys, Wipro, Tech Mahindra and HCLTech are present in Ireland. Most of these companies are moving from traditional IT services to greater value creation and providing value-added services. Thus, there is scope of expanding presence and serving the larger EU market from Ireland.

B) Tourism

i) Tourism from India to Ireland

India is the second most populous country in the World and has a burgeoning middle class, which makes the country a large consumer market for goods and services – at home and abroad. Outward tourism from India has been increasing over the years, as evident in Figure 2.1 below. The top 10 tourism destinations include the United Kingdom.

Figure 2.1: Tourist Departures from India and Popular Destination Countries



Top 10 destination countries for Indian Nationals' Departures during 2020

S.No.	Destination Country	Departures	% Share
1	UNITED ARAB EMIRATES	2477531	33.96
2	UNITED STATES OF AMERICA	592901	8.13
3	SAUDI ARABIA	550353	7.54
4	QATAR	305421	4.19
5	SINGAPORE	289287	3.97
6	OMAN	280673	3.85
7	UNITED KINGDOM	259482	3.56
8	THAILAND	235584	3.23
9	CANADA	227258	3.12
10	KUWAIT	191205	2.62
	Others	1884871	25.84
	Total	7294566	100.00

Source: India Tourism Statistics 2021, Ministry of Tourism, Govt. of India

8 see https://www.schengenvisainfo.com/news/ireland-is-looking-for-foreign-workers-to-fill-in-these-jobs-list/ (accessed on 11 October 2022).

9 https://www.solas.ie/f/70398/x/67ace347ad/solas-difficult-to-fill-vacancies-survey.pdf (accessed on 11 October 2022).

Table 2.2: Indian Tourists to the World and to Ireland

Year	India Outbound Travel	India's Outbound Travel to Ireland
2013	16,630,000	15,000 – 25,000
2014	18,330,000	16,000 – 27,000
2015	20,380,000	20,000 – 30,000
2016	21,870,000	33,000
2017	23,940,000	38,000
2018	26,300,000	40,000 (approx.)

Source: India Market Profile 2020, Tourism Ireland

Notes: i) Top 5 destinations visited by Indian tourists in Europe include United Kingdom (pre-Brexit), Germany, Switzerland, France, and Austria; ii) Ireland recognized India among the strongest contributors to growth in tourists in 2019 (+16,000 tourists), and Indian tourists were noted to record the greatest year-on-year % growth in 2016.

Indian citizens need to apply for a VISA to travel to Ireland. This is a Schengen VISA, which also allows travel around the rest of Europe. Since 2015, the British Irish VISA scheme has become an important facilitator for business and personal travel for Indian citizens to Ireland. Through these travel schemes, Indian citizens, travelling to both Europe and the United Kingdom, can also travel to Ireland.

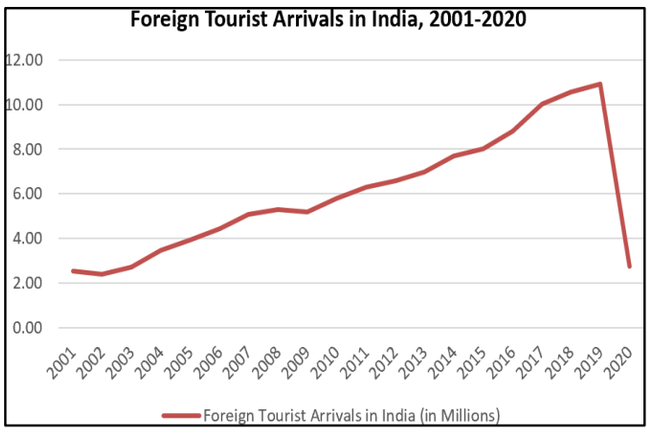
Three trends indicate the prospect of more Indian citizens visiting Ireland in the future: i) Growth in the overall number of Indian tourists (Figure 2.1), ii) UK and European countries emerging among India's most popular tourist destinations (notes under Table 2.2), and iii) a rising number of Indian citizens visiting Ireland (Table 2.2).

Tourism Ireland is the Irish agency responsible for marketing Ireland as a holiday destination in foreign countries. The agency has one sales agent in India, with their office located in the city of Mumbai. Considering the size of the Indian outward tourism market, the agency can consider opening more offices in metropolitan cities, especially in the country's capital, New Delhi. Marketing Irish culture and sites through the mainstream media outlets, along with information on the VISA schemes, can help raise Ireland's attraction as a tourism destination for Indian tourists.

ii) Tourism from Ireland to India

India has marketed itself as an attractive tourist destination through the 'Incredible India' campaign. The number of foreign tourist arrivals is on the rise, with countries in the Europe and the UK emerging among the most popular source countries, that also utilize the e-VISA facility for travelling to India (Figure 2.2; Table 2.3). Electronic Tourist Visa facility was extended to Ireland with effect from 15 Aug 2015[10].

Figure 2.2: Tourist Arrivals into India and Popular Source Countries



Top 10 Source Countries for Foreign Tourist Arrivals in India in 2020

S.No	Source Country	Arrivals	% Share
1	BANGLADESH	549273	20.01
2	UNITED STATES	394092	14.36
3	UNITED KINGDOM	291874	10.63
4	CANADA	122868	4.48
5	RUSSIAN FEDERATION	102166	3.72
6	AUSTRALIA	86758	3.16
7	FRANCE	74243	2.70
8	GERMANY	72558	2.64
9	MALAYSIA	69897	2.55
10	SRI LANKA	68646	2.50
	Others	912391	32.94
	Total	2744766	100.0

Source: India Tourism Statistics 2021, Ministry of Tourism, Govt. of India

10 Source: Indian Embassy in Dublin.

Table 2.3: Top Countries availing Indian e-Tourist Visas

S. No.	Country of Nationality	2019 (No.)	% Share	Jan-March 2020 (No.)	% Share
1	United Kingdom	388605	13.3	123399	14.7
2	United States of America	341871	11.7	92203	11.0
3	China	228945	7.8	24157	2.9
4	France	142125	4.9	46022	5.5
5	Malaysia	139886	4.8	42290	5.0
6	Germany	124159	4.2	37278	4.4
7	Australia	120481	4.1	32230	3.8
8	Russia	119603	4.1	80505	9.6
9	Canada	116510	4.0	44796	5.3
10	Thailand	85200	2.9	31213	3.7
11	Italy	79724	2.7	19317	2.3
12	Singapore	60278	2.1	10227	1.2
13	Spain	55621	1.9	9705	1.2
14	Israel	51966	1.8	13305	1.6
15	Japan	49265	1.7	10998	1.3
	Others	2104239	28.1	220076	26.3
	Total	2928303	100.0	837721	100.0

Source: India Tourism Statistics 2021, Ministry of Tourism, Govt. of India

India Tourism has several overseas offices. Ireland comes under the jurisdiction of the India Tourism office in London, which has also conducted two road shows in Ireland in 2019[11]. Irish citizens can easily avail the e-VISA facility, to apply for an electronic Indian VISA before their travel. However, Ireland does not appear among the popular tourism source countries for India. According to the latest available figures with the Indian Embassy in Dublin, around 44,000 Irish tourists visit India annually, similar to the number of Indian tourists visiting Ireland[12].

While India is attracting a large number of tourists from the World, especially from Europe and the UK, there is scope to promote India as a tourism destination in the Irish market as well. Having a prominent presence of India Tourism's office and marketing events in Ireland can be an important facilitator.

India Tourism office must also consider conducting and documenting research regarding the Irish tourist market, to enable India's tourism industry to cater to the tourists' demands better[13]. These measures can help raise India's attraction as a tourism destination for Irish tourists.

C) Education and Training

iii) India-Ireland Trade in Education Services

Ireland is striving forward in educating and training its students and workforce in emerging technologies. The country boasts of having the highest number of Science, Technology, Engineering, and Mathematics (STEM) graduates per capita in the EU, highest ratio of artificial intelligence (AI) talent across Europe on per capita basis, highest number of personnel per capita employed in MedTech, being the second largest exporter of MedTech products in Europe, and having Cyber security embedded in the Irish education system[14].

Engineering is among the most popular professions pursued by Indian students and there is a growing interest among them to pursue higher education

11 These include a tourism 'Road Show' titled "Dekho Apna Desh" (Dublin, 19 Sep 2019) and another 'Tourism Road Show' organised by the Indian Embassy and the India Tourism Office, London (Cork, 11 Dec 2019). Source: MEA Feb 2020, India Ireland Relations. Available at: https://mea.gov.in/Portal/ForeignRelation/Ireland2020.pdf; accessed on 16 Sept.'21.

12 In 2019, around 42,000 Irish nationals visited India and about 45,000 Indians visited Ireland (MEA Feb 2020).

13 Tourism Ireland profiles Ireland's tourism source countries to help their tourism industry cater to the demands of foreign travellers better. The market profile for India is available at: https://www.tourismireland.com/TourismIreland/media/Tourism- Ireland/Press%20Releases/Press%20Releases%202017/Tourism-Ireland-India-2020.pdf?ext=.pdf; accessed on 20 Sept.'21.

14 Source: IDA Ireland: https://www.idaireland.com/doing-business-here/industry-sectors/cyber-security; https://www.idaireland.com/doing-business-here/industry-sectors/medical-technology; accessed on 17 Sept.'21.

abroad. Ireland has become a significant destination for Indian students seeking higher education, particularly post-graduate, doctoral and post-doctoral students in the areas of engineering, technology, medicine, and management. As of 2019, there are about 5,000 Indian students in Irish higher educational institutions[15]. While this raises the prospect of attracting more students in Irish universities, it also indicates the prospect of more research collaborations and student exchanges between Indian and Irish institutes of technology, especially in AI, IoT, MedTech, cyber security and other STEM areas. The institutional support available from the side of the two governments (especially the agreement on scientific and technological cooperation) is an important facilitator in this direction.

iv) Institutions Supporting India-Ireland Collaboration in Science and Technology

With technology being the focus point of collaboration between the two countries, India and Ireland have signed inter-government bilateral agreements, including: Joint Working Group on Information Technology (April 2000[16]), Agreement on Scientific and Technological Cooperation (2006), and Agreement on Cooperation between Science Foundation Ireland (SFI) and Indian National Science Academy (2006).

The agreement on Scientific and Technological Cooperation was signed by the Department of Science and Technology (DST), Government of India, with the Department of Enterprise, Trade and Employment (D/ET&E), Government of Ireland. "Recognising the favourable impact of scientific and technological co-operation on the endeavours of both countries to increase trade and create closer economic co-operation", the Indian and Irish governments agreed to "encourage and promote co-operation between their scientific institutions, research centres, institutions of higher education and enterprises"[17]. Twenty-three joint research and development projects in nano-sciences, sustainable energy and energy efficient technology, medical and health sciences, pharmaceutical sciences and food and agriculture sciences were implemented till 2013 (MEA Feb.2020). According to the information available on the website of the Indian embassy in Dublin, "new forms of science and technology collaborations between India's Department of Science and Technology and Science Foundation, Ireland are being explored".

v) Collaborations between Indian and Irish Higher Education Institutions

India, along with Brazil, China and Japan, is a partner country of the International Strategic Cooperation Award (lSCA) programme, which supports new and existing research-based collaborations between Ireland's Higher Education Institutions (HEls) and partner organisations (MEA Feb.2020)[18].

Major Irish universities, such as Trinity College Dublin, University College Dublin and University College Cork, have offices in India, and have also signed MoUs with Indian institutions. The Trinity College and Thapar University, Patiala have an MOU for joint degree programme in five engineering and science disciplines, to help raise the latter's educational standards to international levels (MEA Feb.2020). Trinity College has also signed an MoU with the Government of Karnataka to set up a Science Gallery in Bengaluru (ibid). Indian Institute of Technology Delhi (IIT-D) signed an academic MoU with University College Dublin, National University of Ireland to encourage exchange of information and publications, academic, research staff and students, and to conduct joint research. It was signed in December 2016 and is valid until December 2021[19].

The above stand to play an important role in supporting and providing a skilled workforce for India's country-wide start-up ecosystem in emerging technologies. This ecosystem is being promoted by the Software Technology Parks of India, in partnership with the State governments and local institutes of engineering and technology (more in Section 3).

Through the route of education and training, Ireland can help in India's socio-economic development and honing the country's technological capabilities.

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15 India Ireland Relations, Ministry of External Affairs, India, p.3: https://mea.gov.in/Portal/ForeignRelation/Ireland2020.pdf; accessed on 16 Sept.'21.

16 Between the Ministry of Communication and Information Technology, Govt. of India, and Minister for Enterprise Trade and Employment, Ireland: https://www.meity.gov.in/content/active-mous; accessed on 28 Sept.'21.

17 About the agreement: https://eurireland.ie/assets/uploads/2017/06/12_Draft-FINAL-ST-Agreement-Ireland-and-India-Jan-12- 2006-Signed-by-the-Government.pdf; accessed on 3 Oct.'21.

18 A Science Foundation Ireland funded science and technology collaboration between the Irish and Indian institutions was announced in 2013. Details available at : https://www.tcd.ie/news_events/articles/new-sfi-funded-programme-to-promote- research-and-education-in-science-and-technology-in-india/; accessed on 1 Oct.'21.

19 Active MoUs at IIT-D: https://home.iitd.ac.in/active-mous.php; accessed on 28 Sept.'21.

D) Medical Services

India is an important destination for medical value travel and receives a large number of international patients, primarily from the neighbouring Asian countries, travelling to the country for availing healthcare services. While India may be a long distance away for Irish citizens to travel to for healthcare, yet there is prospect of a bilateral arrangement between the two countries which can allow Indian medical services to be available in Ireland.

While Ireland is a member of the EU, issues related to visas and work-permits come within the jurisdiction of each individual EU member state. Rather, restrictions on long-term visa and work permits appears among the 'harmful measures' implemented by Ireland, affecting the movement of Indian skilled professionals to Ireland (Global Trade Alerts database). Considering that a shortfall of doctors and nurses is recognized in the Irish community (MEA Feb.2020), there is an opportunity for Ireland to relax its regulations on movement of skilled workers from India, particularly that of doctors and nurses[20]. According to the Organisation for Economic Co-operation and Development's (OECD's) health worker migration data, in 2019, Ireland had an annual inflow of around 1200 nurses trained in India accounting for more than 50 per cent of the total foreign trained nurses in Ireland.

2.3 Barriers to Trade in Services

The nature of barriers imposed on trade in services is different from barriers imposed on trade in goods due to the intangible nature of services (Hoekman & Braga, 1997)[21]. As discussed in the previous section, in the case of trade in goods, these barriers are primarily in form of tariffs and border measures, which are quantifiable and can be linked with the physical quantity of the goods (Dee et al, 2003)[22]. In the case of trade in services, tariffs play no role, and the barriers are largely non-tariff in nature and translate into barriers to the service supplier.

These barriers can broadly be categorized under two categories – one, that restrict entry of foreign service suppliers, which comprise of market access barriers and two, that discriminate against foreign service suppliers once they have entered the market, which result in discriminatory restrictions on national treatment (Dee et al, 2003)[23]. An additional issue that acts as a restriction with respect to the European Union is the non-uniformity in application of regulations. This has an implication on India's services trade and export potential with the EU in general and Ireland in specific.

For instance, there are issues with the application of the EU Directive on intra-corporate transferees (ICT). The Directive sets out the conditions of entry and residence of third-country nationals in the framework of an intra-corporate transfer[24]. Most of India's movement of information and technology services workforce is under the ICT category. The ICT Directive also complements EU Blue Card Initiative and Single Permit Directive. The EU Blue Card allows highly skilled workers from outside the EU to move to another EU country. The Single Permit Directive establishes simplified procedures for application and a single permit for both – right to work and the right to stay in the EU.

While 25 EU member states have transposed the Directive in their legislation, Ireland is one of the few countries, which has not done so. Ireland is not a party to the New Pact on Migration and Asylum[25], which is proposed to set-out a uniform EU-wide scheme for highly qualified third-country workers and it will replace the diverse entry and residence schemes. Ireland also requires a labour market and wage parity test with local employees for certain categories of service suppliers. Additionally, the Visa application process in Ireland is different from the EU Schengen States. Ireland is not a part of Schengen States and thus, the Schengen Visa is not applicable.

This creates divergence in the applicable regulations in Ireland vis-à-vis rest of EU member states and makes Ireland less attractive for those who wish to access other EU member states, especially for providing services. India-Ireland social security agreement (SSA) is still under negotiation. The SSA provides for detachment or exemption from making contributions in host country; totalization or counting services rendered abroad for benefits and portability

20 As of January 2020, the inclusion of nursing among Ireland's critical skills category (which has the provision of giving work- permit to the spouses of critical skill workers) is a facilitator to the decision of movement of skilled professionals (MEA Feb.2020).

21 For details see Hoekman, B. and Braga, C.A.P. (1997), "Protection and Trade in Services: A Survey", Policy Research Working Paper No. WPS1747, World Bank, Washington D.C., April 1997.

22 For details see Dee, P., Hanslow, K. and Phamduc, T. (2003), "Measuring the Cost of Barriers to Trade in Services" in Ito, T. and Krueger, A.O. (Ed.), "Trade in Services in the Asia Pacific Region", NBER East Asia Seminar on Economics (EASE), NBER, University of Chicago Press, Volume 11, January 2003.

23 Ibid.

24 For details see https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0066&from=EN

25 For details see https://ec.europa.eu/info/strategy/priorities-2019-2024/promoting-our-european-way-life/new-pact-migration-and-asylum_en

of benefits.

While education services are a key potential services trade category for India and Ireland, the entry and scholarship norms are different for non-EU students and third-country national, which creates a discriminatory environment. For instance, EU students can apply through the Central Application Office (CAO) in Ireland while the processes are lengthier for non-EU nationals. Moreover, the overall students' fees are lower for EU nationals.

3. Foreign Direct Investments

This section analyses bilateral investment flows between India and Ireland, at an aggregate, sector-wise, and firm level.

Foreign direct investment (FDI) data is found to support each of the countries' respective competitiveness in the trade of goods and services, discussed previously. India's surplus in bilateral goods trade, especially exports of pharmaceuticals and organic chemicals, is supported by the presence of India's medical and pharmaceutical manufacturing investments in Ireland. Likewise, Ireland's surplus in bilateral services trade, especially exports of business services, is supported by Ireland's investments in business services in India. There is scope for further strengthening the investment ties between the two countries through FDI facilitation measures, and especially through promotion of Irish investments in India's 'emerging technologies' start-up ecosystem.

3.1 Trends in Foreign Direct Investments

India's FDI outflows to Ireland have seen a marginal increase over the previous decade, increasing from US$ 82 million in 2011 to US$ 170 million in 2020 (Appendix Table A.4). FDI outflows are concentrated in the manufacturing sector, with companies in the medical and pharmaceutical sector dominating the manufacturing investments (Table 3.1). These companies include: Zydus Cadila Healthcare, Alivira Animal Health, Felix Pharmaceuticals, Alpha Biomed, Unichem laboratories, Sahajanand Medical Technologies, ERBA diagnostics, Mapaex Health and Personalcare (RBI Statistics).

Table 3.1: India's FDI Outflows to Ireland

Total FDI outflows (US$ Mn)		Industry-wise FDI Outflows (US$ Mn)				
Year	Total FDI	Community, Social & Personal Services	Financial, Insurance & Business services	Manufacturing	Transport, Storage & Communication Services	Wholsale, Retail Trade, Restaurants and Hotels
2015	199.2	0.1	93.8	77	28.1	
2016	90.7	0.03	6.2	36.3	47.8	0.28
2017	11.2	0.04	1	9.7		0.38
2018	100.6		6.7	93.7		0.28
2019	117.4	3.74	3.7	109.6	0.02	0.25
2020	170	4.4	44.4	120.8		0.29

Source: RBI Statistics

Note: Appendix Table A.4 also includes data from 2011-2014

Table 3.2: India's FDI Inflows from Ireland

Total FDI Inflows (US$ Mn)		Industry-wise FDI Inflows (US$ Mn)		
Year	Total FDI	Financial, Insurance & Business Services	Manufacturing	Wholesale, Retail Trade, Restaurants & Hotels
2015	16.92	2.7	3.35	0.53
2016	15.81	7.61	3.48	2.94
2017	130.01	103.99	0.77	2.38
2018	68.49	57.7	5.91	4.86
2019	372.62	360.57	4.07	0.15
2020	208.91	185.32		0.08

Source: Department for Promotion of Industry and Internal Trade (DPIIT)

Note: Appendix Table A.5 also includes total FDI inflow data for 2000-2014

On the other hand, India's FDI inflows from Ireland have seen a larger increase from US$ 39 million in 2011 to US$ 209 million in 2020, concentrated in the financial, insurance and business services sector (Appendix Table A.5; Table 3.2). Rather, the increase in FDI flows from Ireland are evidenced through the decadal rise over 2000-2020. During the decade 2000-10, Irish FDI into India totaled US$ 107 million, while during 2011- 20, Irish FDI totaled up to more than US$ 1 billion (Appendix Table A.5).

3.2 Strengthening India-Ireland Trade and Investment Relations

India's FDI inflow from Ireland is concentrated in the financial, insurance and business service sector (predominantly advertising, financial services, computer services). This is also the sector in which India has attracted the highest FDI inflows from the World. Yet, according to the OECD FDI restrictiveness Index, India's business services sector remains the most restrictive towards foreign investments (Table 3.3). Moreover, the Global Trade Alerts database also indicates the presence of 'harmful interventions' implemented by India which affect Irish services trade in management consulting, ICT, legal, accounting and tax services.

Table 3.3: India's Restrictions to FDI

India's FDI Restrictiveness Index (0=open; 1= closed)										
Year	Total	Manufacturing	Business Services	Distribution	Electricity	Financial Services	Media	Education	Telecom	Transport
2015	0.2	0.0	0.6	0.3	0.1	0.3	0.3	0.3	0.2	0.2
2016	0.2	0.0	0.6	0.3	0.1	0.3	0.3	0.2	0.2	0.1
2017	0.2	0.0	0.6	0.3	0.1	0.3	0.3	0.2	0.2	0.1
2018	0.2	0.0	0.6	0.3	0.1	0.3	0.3	0.2	0.2	0.1
2019	0.2	0.0	0.6	0.3	0.1	0.3	0.3	0.2	0.2	0.1
2020	0.2	0.0	0.6	0.3	0.1	0.3	0.3	0.2	0.2	0.1

Source: OECD

i) Institutional Support for Attracting Irish Investment

'Invest India' is the agency responsible for promoting India's attraction as a foreign investment destination. It has set up country specific 'desks' to facilitate FDI from certain countries and has 'partnership engagements' with the bilateral business associations formed between India and several other countries[26].

The increasing Irish FDI into India, particularly in the services sector which is noted to be relatively 'closed' to foreign trade and investments, supports the prospect of setting up an Ireland 'country desk' with Invest India, well as a 'partnership engagement' between 'India Ireland Business Association' and 'India-Ireland Council' with Invest India.

ii) Opportunities Provided by India's Start-up Ecosystem

India's start-up ecosystem provides the potential for further investment opportunities by Irish companies[27]. India has the World's third largest start-up ecosystem: with more than 11,000 start-ups set up over 2014- 20, 1600 start-ups added in 2020 itself, and an increasing number of them leveraging deep tech, including IoT, blockchain, cryptology, robotics, 3D printing, big data and analytics[28]. India improved its position on the Global Start-up Ecosystem Index, ranking 20th out of 100 countries globally in 2021 and the 1st in South Asia[29]. In city-wise rankings, Bangalore, New Delhi and Mumbai emerge among the top 20 global cities[30].

More recently, the Software Technology Parks of

26 Invest India: https://www.investindia.gov.in/invest-india-partners; accessed on 20th Sept.'21

27 Government support for the Start-up eco-system: https://www.startupindia.gov.in/; accessed on 23rd Sept.'21

28 NASSCOM 2020: https://nasscom.in/knowledge-center/publications/indian-tech-start-ecosystem-%E2%80%93-march-trillion- dollar-digital-economy; accessed 1 Oct.'21.

29 Start-up ecosystem Index: https://www.startupblink.com/startupecosystem/india; https://www.thehindubusinessline.com/data-stories/data-focus/india-jumps-3-spots-up-in-global-start-up- ranking/article35038814.ece; accessed on 23rd Sept.'21.

30 The index is released by Startup Blink: https://www.startupblink.com/startups; accessed on 1 Oct.'21.

India (STPI), under the Ministry of Electronics and Information Technology (MEITY), is promoting start-ups by setting up Centres of Entrepreneurship (CoEs) in different Indian cities in partnership with the State governments, technology and engineering institutions, and industry associations[31]. Each CoE is focused on a specific emerging technology, including IoT Open Lab in Bengaluru, MedTech in Lucknow, FinTech in Chennai, Electric Mobility in Pune, AI / Data Analytics in Mohali, Electronics park in Delhi, Blockchain in Gurugram, and Virtual/Alternate Reality in Bhubaneshwar. The number of sectors to which the technological focus is applied to is diverse, including healthcare, banking and insurance, education, mobility and home automation, agriculture etcetera.

To strengthen the start-up ecosystem, STPI has recently signed six MoUs with Bank of Baroda, YES Bank, Mathworks, YourStory, Freshworks and Pontaq[32]. MathWorks will offer one year of free access to its software tools including MATLAB, Simulink and 90 other products for Centres of Entrepreneurship (CoEs). YES Bank, with their knowledge advisory services, will be offering services across areas including-- YES Bank's API Hub Integration with fintech CoE, and will act as an outreach and knowledge partner to STPI's Smart City challenge and STPI CoEs for electric vehicles, blockchain and smart agriculture. Bank of Baroda (BoB) will be providing complete banking solutions to STPI start-ups and give access to start-ups related schemes and benefits from the bank[33].

These start-ups can be of particular interest to the Irish technology-oriented institutions and enterprises, opening the scope for more scientific and technological collaborations and investments between India and Ireland. In the process, Ireland can participate in India's flagship programmes such as "Make in India", "Digital India", and "Smart Cities".

4. Summary and Conclusion

This paper analysed India-Ireland bilateral trade in goods, trade in services and foreign direct investments. The key findings are as follows:

- India has a trade surplus in goods trade with Ireland. Exports of pharmaceuticals, organic chemicals and surgical goods dominate India's goods exports to Ireland, with there being potential to enhance such trade.

- India has an untapped export potential of USD19 billion in the Irish market with the top 50 items accounting for 71 percent of the total potential.

- Ireland has a trade surplus with India in services trade, with potential to expand bilateral trade in tourism, education, and medical services.

- Services are the largest component of India-Ireland Trade and there is potential for increasing India's services export to Ireland, especially in business services, education, tourism, and medical services. However, at present, there are regulatory issues in the case of ICT services and education services that restrict services trade possibilities between the two countries. For instance, current Mode 4-related regulations in Ireland are different from the rest of the EU member states. This adversely affects India's export potential to the country.

- Foreign Direct Investment (FDI) from India to Ireland is predominantly in the manufacturing sector, particularly in the manufacturing of medical and pharmaceutical items.

- FDI from Ireland to India has been rising over the years, especially in business services, with potential to strengthen investment ties further, particularly through investment and collaborations in emerging technologies.

While the India-Ireland bilateral economic relations are strengthening over the years, further facilitation and potential boost to bilateral ties can come from the India-EU free trade agreement and an India-EU bilateral trade and investment agreement. These agreements will help ascertain policy certainty and transparency in India-Ireland trade and investment. The agreements must aim for a deeper engagement through liberalizing trade in goods and services. The liberalizing agenda should particularly support trade and investment in pharmaceuticals, organic chemicals, education, tourism, health, and business services.

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31 STPI CoEs: https://stpi.in/centre-of-entrepreneurship; accessed on 23 Sept.'21.

32 Mathworks and Freshworks are headquartered in the United States.

33 A media article published by Livemint has covered the MoUs and CoEs in much detail: https://www.livemint.com/companies/start-ups/stpi-signs-six-mous-to-strengthen-startup-ecosystem-11626005440583.html; accessed on 23 Sept.'21.

With EU's stringent standards, particularly concerning human health and safety, environment and data security, India and Ireland must explore avenues in technology transfer arrangements and business services (including cyber security). These can help Indian products overcome non-tariff barriers and meet their export potential in the Irish market. At the same time, Irish investments and technological support can help India succeed in its technological transition.

Ireland has carved a niche for itself as a technologically advanced country. The country's industrial and research and development focus is on emerging technologies, supported by a highly skilled workforce which is trained in the country's technologically focused education system. This opens the prospect of R&D collaboration and Irish investments in several Indian industries – such as pharmaceuticals, organic chemicals, and vehicles, where Irish technology can help India's industries to manufacture products of high standards. In turn, India's high technology products will be able to realise their export potential into Ireland.

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APPENDIX

Note A.1: Calculating India's Export Potential to Ireland

The method for calculating trade potential is intuitive and can be presented using the following formula:

Trade Potential= Minimum of (value of India's trade with the World, value of Ireland's trade with the World) – (Bilateral Trade between India and Ireland)

Applying the above to calculate India's export potential to Ireland at a disaggregated product level (HS 6-digit): Export Potential= Minimum of (India X, i, W, Ireland M, i, W) – (India X, i, IR)

Where, India X, i, W = value of India's exports of product 'i' to the World Ireland M, i, W = value of Ireland's imports of product 'i' from the World India X, i, IR = value of India's exports of product 'i' to Ireland Potential trade has been calculated using the latest available trade values for the year 2020.

By totalling the export potential for every product in which India is globally competitive, we arrive at India's total export potential to Ireland. This estimate includes products which India is competitive in exporting to the World, and Ireland imports these from the World too – implying that there is export capacity available with India and a demand for that product in Ireland.

Note A.2: Identifying Exportable Products in which India is Globally Competitive

Following the methodology proposed by Bela Balassa (1965), a country is globally competitive in the export of products for which its Revealed Comparative Advantage (RCA) is greater than 1.

The formula for calculating RCA is as follows:

$$RCA = \frac{\text{(Share of product 'i' in India's total exports to the World)}}{\text{(Share of product 'i' in World's total exports to the World)}}$$

$$\text{i.e., } RCA = \frac{\text{(India X, i, W /India X, W)}}{\text{(World X, i, W /World X, W)}}$$

Where, India X, i, W = value of India's exports of product 'i' to the World India X, W = value of India's total exports to the World World X, i, W = value of World's exports of product 'i' to the World World X, W = value of World's total exports to the World

Table A.1: India's Top 30 Exports to Ireland (2020)

S.No.	Product code	Product label	India's exports to Ireland (1000 US$)	Share in Total Exports (%)	Industry	Skill & Technology Intensity
1	294200	Separate chemically defined organic compounds, n.e.s.	40963	7.5	Intermediate	High skill- and technology intensive manufactures
2	841112	Turbojets of a thrust > 25 kN	32015	5.9	Capital	Medium skill- and technology intensive manufactures
3	293399	Heterocyclic compounds with nitrogen hetero-atom[s]	26504	4.9	Intermediate	High skill- and technology intensive manufactures
4	293339	Heterocyclic compounds with nitrogen hetero-atom[s] only, containing an unfused pyridine ring	21235	3.9	Intermediate	High skill- and technology intensive manufactures
5	293499	Nucleic acids and their salts, whether or not chemically defined; heterocyclic compounds	18592	3.4	Intermediate	High skill- and technology intensive manufactures
6	401170	New pneumatic tyres, of rubber, of a kind used on agricultural or forestry vehicles and machines	17381	3.2	Capital	High skill- and technology intensive manufactures
7	293719	Polypeptide hormones, protein hormones and glycoprotein hormones	14629	2.7	Intermediate	High skill- and technology intensive manufactures
8	292229	Amino-naphthols and other amino-phenols, their ethers and esters; salts thereof	14234	2.6	Intermediate	High skill- and technology intensive manufactures
9	300490	Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes	13140	2.4	Consumer	High skill- and technology intensive manufactures
10	291819	Carboxylic acids with additional oxygen function and their anhydrides, halides, peroxides	11384	2.1	Intermediate	High skill- and technology intensive manufactures
11	880330	Parts of aeroplanes or helicopters, n.e.s. (excluding those for gliders)	11159	2.1	Intermediate	High skill- and technology intensive manufactures
12	210120	Extracts, essences and concentrates, of tea or mate, and preparations	8776	1.6	Consumer	Non-fuel primary commodities
13	610831	Women's or girls' nightdresses and pyjamas of cotton, knitted or crocheted	6989	1.3	Consumer	Resource-intensive manufactures
14	630532	Flexible intermediate bulk containers, for the packing of goods, of synthetic or man-made textile	6892	1.3	Consumer	Unclassified products
15	401699	Articles of vulcanised rubber (excluding hard rubber), n.e.s.	6325	1.2	Consumer	Medium skill- and technology intensive manufactures
16	730630	Tubes, pipes and hollow profiles, welded, of circular cross-section, of iron or non-alloy steel	5878	1.1	Intermediate	Low skill- and technology-intensive manufactures
17	293359	Heterocyclic compounds with nitrogen hetero-atom[s] only, containing a pyrimidine ring	5472	1	Intermediate	High skill- and technology intensive manufactures
18	610910	T-shirts, singlets and other vests of cotton, knitted or crocheted	5254	1	Consumer	Resource-intensive manufactures
19	294190	Antibiotics (excluding penicillins and their derivatives with a penicillanic acid structure	5016	0.9	Intermediate	High skill- and technology intensive manufactures

S.No.	Product code	Product label	India's exports to Ireland (1000 US$)	Share in Total Exports (%)	Industry	Skill & Technology Intensity
20	293590	Sulphonamides (excl. perfluorooctane sulphonamides)	4907	0.9	Intermediate	High skill- and technology intensive manufactures
21	841122	Turbopropellers of a power > 1.100 kW	4899	0.9	Capital	Medium skill- and technology intensive manufactures
22	292249	Amino-acids and their esters; salts thereof	4783	0.9	Intermediate	High skill- and technology intensive manufactures
23	392321	Sacks and bags, incl. cones, of polymers of ethylene	4672	0.9	Consumer	Medium skill- and technology intensive manufactures
24	611120	Babies' garments and clothing accessories of cotton, knitted or crocheted (excluding hats)	4600	0.8	Consumer	Resource-intensive manufactures
25	680223	Granite and articles thereof, simply cut or sawn, with a flat or even surface	4569	0.8	Consumer	Resource-intensive manufactures
26	854239	Electronic integrated circuits (excluding such as processors, controllers, memories and amplifiers)	4058	0.7	Capital	High skill- and technology intensive manufactures
27	902190	Articles and appliances, which are worn or carried, or implanted in the body	4040	0.7	Consumer	Mineral fuels
28	292090	Esters of other inorganic acids of non-metals and their salts	3782	0.7	Intermediate	High skill- and technology intensive manufactures
29	901839	Needles, catheters, cannulae and the like, used in medical, surgical, dental or veterinary sectors	3621	0.7	Capital	High skill- and technology intensive manufactures
30	30617	Frozen shrimps and prawns, even smoked, whether in shell or not	3584	0.7	Raw	Non-fuel primary commodities

Source: ITC Trade Map

Table A.2: India's Top 50 Products with Export Potential to Ireland and Trade Barriers

Code	Product Label	India's Exports to Ireland (US$ Mn)	Potential (US$ Mn)	Among top 30 Indian exports to Ireland?	Skill & Technology Intensity	Industry	NTMs (No.)	Tariff Rate (2021, %)
300490	Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes	13	3405	yes	High skill- and technology intensive manufactures	Consumer	16	0
841112	Turbojets of a thrust > 25 kN	32	1387	yes	Medium skill- and technology intensive manufactures	Capital	3	2.7
271019	Medium oils and preparations, of petroleum or bituminous minerals	0	1319	No	Medium skill- and technology intensive manufactures	Consumer	4	2
293399	Heterocyclic compounds with nitrogen hetero-atom[s]	27	612	yes	Medium skill- and technology intensive manufactures	Intermediate	33	4
293499	Nucleic acids and their salts, whether or not chemically defined	19	542	yes	Medium skill- and technology intensive manufactures	Intermediate	33	3.3
711319	Articles of jewellery and parts thereof, of precious metal other than silver	1	479	No	Mineral fuels	Consumer	1	2.5
870322	Motor cars and other motor vehicles principally designed for the transport of persons	0	392	No	Medium skill- and technology intensive manufactures	Consumer	29	10
292429	Cyclic amides, incl. cyclic carbamates, and their derivatives; salts thereof	0	378	No	High skill- and technology intensive manufactures	Intermediate	34	3.3
300220	Vaccines for human medicine	0	362	No	High skill- and technology intensive manufactures	Intermediate	7	0
300390	Medicaments consisting of two or more constituents mixed together for therapeutic or prophylactic purposes	2	314	No	High skill- and technology intensive manufactures	Consumer	8	0
293359	Heterocyclic compounds with nitrogen hetero-atom[s] only, containing a pyrimidine ring	5	311	yes	High skill- and technology intensive manufactures	Intermediate	33	2.2
293339	Heterocyclic compounds with nitrogen hetero-atom[s] only, containing an unfused pyridine ring	21	286	yes	High skill- and technology intensive manufactures	Intermediate	33	0.7
230400	Oilcake and other solid residues, whether or not ground or in the form of pellets	0	272	No	Non-fuel primary commodities	Intermediate	41	0
293590	Sulphonamides (excl. perfluorooctane sulphonamides)	5	256	yes	Medium skill- and technology intensive manufactures	Intermediate	-	3.3
880330	Parts of aeroplanes or helicopters, n.e.s. (excluding those for gliders)	11	255	yes	High skill- and technology intensive manufactures	Intermediate	2	2.7
300420	Medicaments containing antibiotics	0	214	No	High skill- and technology intensive manufactures	Consumer	11	0
870899	Parts and accessories, for tractors, motor vehicles for the transport of ten or more persons	3	206	No	Medium skill- and technology intensive manufactures	Capital	28	3.7
870321	Motor cars and other motor vehicles principally designed for the transport of persons	0	172	No	Medium skill- and technology intensive manufactures	Consumer	29	10
190531	Sweet biscuits	0	129	No	Unclassified products	Consumer	40	0

Code	Product Label	India's Exports to Ireland (US$ Mn)	Potential (US$ Mn)	Among top 30 Indian exports to Ireland?	Skill & Technology Intensity	Industry	NTMs (No.)	Tariff Rate (2021, %)
292250	Amino-alcohol-phenols, amino-acid-phenols and other amino-compounds with oxygen function	1	129	No	High skill- and technology intensive manufactures	Intermediate	33	6.5
293299	Heterocyclic compounds with oxygen hetero-atom[s]	0	125	No	Medium skill- and technology intensive manufactures	Intermediate	34	6.5
610910	T-shirts, singlets and other vests of cotton, knitted or crocheted	5	124	yes	Resource- intensive manufactures	Consumer	1	12
701090	Carboys, bottles, flasks, jars, pots, phials and other containers, of glass	0	117	No	Resource-intensive manufactures	Raw	1	5
271012	Light oils and preparations, of petroleum or bituminous minerals which >= 90% by volume	0	110	No	Medium skill- and technology intensive manufactures	Consumer	4	3.8
940360	Wooden furniture (excluding for offices, kitchens and bedrooms, and seats)	1	107	No	Resource- intensive manufactures	Consumer	4	0
110100	Wheat or meslin flour	0	99	No	Non-fuel primary commodities	Intermediate	53	0
841391	Parts of pumps for liquids, n.e.s.	0	86	No	Medium skill- and technology intensive manufactures	Capital	8	1.7
271600	Electrical energy	0	85	No	Unclassified products	Intermediate	-	0
392329	Sacks and bags, incl. cones, of plastics (excluding those of polymers of ethylene)	2	84	No	Medium skill- and technology intensive manufactures	Consumer	35	6.5
293410	Heterocyclic compounds containing an unfused thiazole ring, whether or not hydrogenated	0	83	No	High skill- and technology intensive manufactures	Intermediate	32	6.5
294190	Antibiotics (excluding penicillins and their derivatives with a penicillanic acid structure	5	81	yes	High skill- and technology intensive manufactures	Intermediate	30	0
300450	Medicaments containing provitamins, vitamins, incl. natural concentrates and derivatives thereof	0	78	No	High skill- and technology intensive manufactures	Consumer	11	0
620342	Men's or boys' trousers, bib and brace overalls, breeches and shorts, of cotton	0	72	No	Resource- intensive manufactures	Consumer	1	12
610990	T-shirts, singlets and other vests of textile materials, knitted or crocheted (excluding cotton)	3	69	No	Resource- intensive manufactures	Consumer	2	12
850213	Generating sets with compression-ignition internal combustion piston engine "diesel or semi-diesel	0	69	No	Medium skill- and technology intensive manufactures	Capital	6	2.7
401120	New pneumatic tyres, of rubber, of a kind used for buses and lorries	0	69	No	Medium skill- and technology intensive manufactures	Consumer	3	4.5
170199	Cane or beet sugar and chemically pure sucrose, in	0	66	No	Non-fuel primary	Consumer	56	0

Code	Product Label	India's Exports to Ireland (US$ Mn)	Potential (US$ Mn)	Among top 30 Indian exports to Ireland?	Skill & Technology Intensity	Industry	NTMs (No.)	Tariff Rate (2021, %)
	solid form				commodities			
392190	Plates, sheets, film, foil and strip, of plastics, reinforced, laminated, supported	0	61	No	High skill- and technology intensive manufactures	Intermediate	-	6.5
841490	Parts of: air or vacuum pumps, air or other gas compressors, fans and ventilating devices	0	60	No	Medium skill- and technology intensive manufactures	Capital	8	2.2
761699	Articles of aluminium, n.e.s.	0	58	No	Unclassified products	Consumer	3	6
620443	Women's or girls' dresses of synthetic fibres (excluding knitted or crocheted and petticoats)	0	56	No	Resource- intensive manufactures	Consumer	1	12
630231	Bedlinen of cotton (excluding printed, knitted or crocheted)	0	52	No	Resource- intensive manufactures	Consumer	3	12
620520	Men's or boys' shirts of cotton	1	49	No	Resource- intensive manufactures	Consumer	1	12
620640	Women's or girls' blouses, shirts and shirt-blouses of man-made fibres	0	49	No	Resource-intensive manufactures	Consumer	1	12
390210	Polypropylene, in primary forms	0	48	No	High skill- and technology intensive manufactures	Intermediate	-	6.5
130219	Vegetable saps and extracts (excluding liquorice, hops and opium)	1	46	No	Non-fuel primary commodities	Raw	11	1.5
840890	Compression-ignition internal combustion piston engine "diesel or semi-diesel engine"	0	46	No	Medium skill- and technology intensive manufactures	Capital	11	4.2
611120	Babies' garments and clothing accessories of cotton, knitted or crocheted (excluding hats)	5	44	yes	Resource- intensive manufactures	Consumer	1	10.5
293690	Provitamins and mixtures of vitamins, of provitamins or of concentrates	0	43	No	High skill- and technology intensive manufactures	Intermediate	35	0
940490	Articles of bedding and similar furnishing, fitted with springs or stuffed or internally filled	2	43	No	Resource- intensive manufactures	Consumer	2	3.7

Source: Authors' calculations using trade data from ITC Trade Map; product classification tables from WITS and UNCTAD; NTM and tariff data from WTO

Table A.3: Non-Tariff Measures (NTMs) on India's Potential Exports to Ireland

NTM Type:	Quantitative Restrictions [QR], Sanitary and Phytosanitary [SPS], Technical Barriers to Trade [TBT]
Member(s) imposing:	European Union OR Ireland
Partner(s) affected:	India OR World
Date(s):	Data up to 30/06/2021 [measures initiated, in force]
Data source:	WTO [NTMs for the relevant products were found to be imposed by the European Union, affecting all countries of the World]

A) Pharmaceutical products (HS codes: 300220 OR 300390 OR 300420 OR 300450 OR 300490): 18 NTMs

Type	Initiation	Description of Measure / Affected Product	International Commitments	Link
QR	12-Mar-12	Restriction of trade of certain animals and plant species for the protection of species of wild fauna and flora.	Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	docs
QR	30-Sep-16	Restriction of trade in certain animals and plant species for the protection of species of wild fauna and flora.	Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	docs
QR	20-Nov-09	Prohibition of import of controlled substances or of products and equipment containing or relying on controlled substances, where the controlled that deplete the ozone layer.	Montreal Protocol | Stockholm Convention	docs
QR	30-Sep-14	Prohibition of import of controlled substances or of products and equipment containing or relying on controlled substances, where the controlled that deplete the ozone layer.	Montreal Protocol	docs
QR	30-Sep-16	Trade restrictions of certain goods which could be used for capital punishment, torture or other cruel, inhuman or degrading treatment or punishment. In particular: A) Import and export prohibition B) export restrictions		docs
SPS	16-Jun-00	Food supplements and nutrients marketed in dose form.		docs
SPS	13-Oct-00	Pharmacological substances used for animal treatment as well as prohibited substances having an anabolic effect like substances with an hormonal or thyreostatic action or beta-agonists		docs
SPS	3-Nov-00	Live farm and aquaculture animals; meat and meat products		docs
SPS	24-Nov-00	Animal by-products (with the exception of ova, embryos, semen and catering waste) and products derived therefrom, intended for purposes other than human consumption except: raw pet-food from meat retail shops or on-farm slaughtered animals for farmer food use; liquid milk and colostrum disposed of or used on the farm of origin; and animal by-products of wild animals not suspected of being infected with diseases communicable to man or animals		docs
SPS	18-Apr-02	Feed additives (defined as chemically defined substances or micro-organisms not normally used as feed materials which are intentionally added to feeding stuffs or drinking water		docs
SPS	8-Nov-05	Food supplements (foodstuffs aiming to supplement the normal diet consisting on concentrated sources of nutrients or substances with a nutritional effect). CN 2106, 2936 and 3044. ICS 67.220		docs
SPS	3-Apr-08	Food supplements, understood as numerous food products used as complement to normal diet, normally circulating under Chapters 21, 29 and 30, mostly under headings 2106, 2109, 3004)		docs
TBT	15-Jul-15	Biocidal products		docs
TBT	5-Aug-15	Nicotine-containing electronic cigarettes and refill containers		docs
TBT	4-Jan-16	Tobacco products; technical standards for leakage free filling		docs
SPS	29-Jan-16	Live animals and products of animal origin subject to import controls		docs
TBT	17-Nov-17	Protein requirements, composition and labelling requirements for infant formula and follow-on formula		docs
TBT	14-Dec-20	Impact of major events on medicinal products for human use and medical devices		docs

B) Organic Chemicals (HS codes: 292250 OR 292429 OR 293299 OR 293339 OR 293359 OR 293399 OR 293410 OR 293499 OR 293690 OR 294190): 39 NTMs

Type	Initiation	Description of Measure / Affected Product	International Commitments	Link
QR	17-Jul-13	Prohibition or restriction of export of certain hazardous chemicals.	Rotterdam Convention | Stockholm Convention	docs
QR	30-Sep-16	Trade restrictions of certain goods which could be used for capital punishment, torture or other cruel, inhuman or degrading treatment or punishment. In particular: A) Import and export prohibition B) export restrictions		docs
SPS	16-Jun-00	Food supplements and nutrients marketed in dose form.		docs
SPS	17-Jun-03	Food additives other than colours and sweeteners. (ICS 67.220.20)		docs
SPS	2-Dec-03	Processed cereal-based foods and baby foods for infants and young children including goods circulating under CN headings 1901; 2104; 2106. ICS 67.230		docs
SPS	8-Nov-05	Food supplements (foodstuffs aiming to supplement the normal diet consisting on concentrated sources of nutrients or substances with a nutritional effect). CN 2106, 2936 and 3044. ICS 67.220		docs
SPS	10-Aug-06	Food additives, food enzymes and food flavourings. Numerous positions HS Headings 0910, 2103, 2106, 2901 to 2940, 3302, 3507. ICS: 67.220 and foods in which they are used.		docs
SPS	10-Aug-06	Food additives. Numerous HS positions in Chapter 29 (Headings 2901 to 2940) and other headings such as 2106. ICS: 67.220 and the foods in which they are used.		docs
TBT	15-Sep-06	Food additives, food enzymes and food flavourings. Numerous positions within HS: headings 0910, 2103, 2106, 2901 to 2940, 3302, 3507. ICS: 67.220		docs
SPS	3-Apr-08	Food supplements, understood as numerous food products used as complement to normal diet, normally circulating under Chapters 21, 29 and 30, mostly under headings 2106, 2109, 3004)		docs
TBT	24-Jul-08	Krypton; fructose; galactose; lactose; vitamin A; carbon; graphite; certain vegetable and animal oils, fats and waxes; certain fatty acids (from C6 to C24) and their potassium, sodium, calcium and magnesium salts; glycerol; magnesia; certain types of glass and ceramic frits; compost; biogas; substances occurring in nature that are persistent, bio accumulative and toxic or very persistent and very bio accumulative or are of equivalent concern		docs
TBT	21-May-14	Extender oils for the production of tyres or parts of tyres. Phthalates in toys and childcare articles.		docs
TBT	12-Feb-15	Benzene in natural gas		docs
TBT	16-Oct-15	Diaphragms (used in electrolysis installations) that contain asbestos (chrysotile) fibres and the fibres themselves		docs
TBT	27-Nov-15	Cellulose insulation mixtures and articles containing inorganic ammonium salts		docs
SPS	29-Jan-16	Live animals and products of animal origin		docs
TBT	22-Aug-16	Hazardous substances		docs
TBT	4-Oct-17	Chemical substance benzene-1,2,4-tricarboxylic acid 1,2 anhydride (trimellitic anhydride, TMA) (EC No. 209-008-0, CAS No. 552-30-7, HS code 2917.39)		docs
TBT	4-Oct-17	Chemical substance dicyclohexyl phthalate (DCHP) (EC No. 201-545-9, CAS No. 84-61-7, HS code 2917.34)		docs
TBT	12-Oct-17	Hazardous substances		docs
TBT	13-Oct-17	Chemical substances in nanoform/nanomaterials		docs
TBT	18-Dec-17	Chemicals		docs
TBT	29-Jan-18	Chemical substance 1,7,7 -trimethy l-3- (phenylmethylene) bicycle [2.2.1] heptan-2-one (3-benzylidene camphor) (EC No. 239-139-9, CAS No. 15087-24-8, HS code 291439)		docs

Type	Initiation	Description of Measure / Affected Product	International Commitments	Link
TBT	1-Feb-18	Certain carcinogenic, mutagenic or toxic for reproduction (CMR) 1A and 1B substances, listed in Appendix 12, in clothing, related accessories, textiles other than clothing which, under normal or reasonably foreseeable conditions of use, come into contact with human skin to an extent similar to clothing and footwear.		docs
TBT	28-Mar-18	Articles containing plasticised materials that may contain the four phthalates: bis(2-ethylhexyl) phthalate (DEHP), dibutyl phthalate (DBP), benzyl butyl phthalate (BBP) and diisobutyl phthalate (DIBP)		docs
TBT	20-Jul-18	Hazardous substances		docs
TBT	3-Oct-18	(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) silanetriol and any of its mono-, di-or tri-O-(alkyl) derivatives with organic solvents in spray products in a concentration, individually or in any combination, equal to or greater than 2 ppb by weight of the mixtures.		docs
TBT	12-Dec-18	Hazardous substances		docs
TBT	12-Dec-18	Chemical substances		docs
TBT	18-Dec-18	Children's toys, i.e. products designed or intended, whether or not exclusively, for use in play by children under 14 years of age.		docs
TBT	7-Feb-19	Chemical substance 4-tert-butylphenol (PTBP) (EC No. 202-679-0, CAS No. 98-54-4, HS code 29071990		docs
TBT	19-Jul-19	Hazardous substances and mixtures		docs
TBT	9-Sep-19	Chemicals		docs
TBT	5-May-20	Biocidal products		docs
TBT	7-Jul-20	Electrical and electronic equipment		docs
TBT	7-Jul-20	Electrical and electronic equipment		docs
TBT	8-Sep-20	Polycyclic-aromatic hydrocarbons (PAHs) in granules or mulches used as infill materials in synthetic turf pitches or in loose form on playgrounds or in sport applications. (The term 'PAHs' is used as an abbreviation for: (a) Benzo[a]pyrene (BaP) CAS No 50-32-8 (b) Benzo[e]pyrene (BeP) CAS No 192-97-2 (c) Benzo[a]anthracene (BaA) CAS No 56-55-3 (d) Chrysen (CHR) CAS No 218-01-9 (e) Benzo[b]fluoranthene (BbFA) CAS No 205-99-2 (f) Benzo[j]fluoranthene (BjFA) CAS No 205-82-3 (g) Benzo[k]fluoranthene (BkFA) CAS No 207-08-9 (h) DiBenzo[a,h]fluoranthene (DBAhA) CAS No 53-70-3		docs
TBT	8-Sep-20	Children's toys, i.e. products designed or intended, whether or not exclusively, for use in play by children under 14 years of age.		docs
SPS	26-May-21	Food supplements		docs

C) Machinery, Vehicles and parts (HS codes: 401120 OR 840890 OR 841112 OR 841391 OR 841490 OR 850213 OR 870321 OR 870322 OR 870899 OR 880330): 54 NTMs

Type	Initiation	Description of Measure / Affected Product	International Commitments	Link
QR	20-Nov-09	Prohibition of import of controlled substances or of products and equipment containing or relying on controlled substances, where the controlled that deplete the ozone layer.	Montreal Protocol | Stockholm Convention	docs
QR	30-Sep-14	Prohibition of import of controlled substances or of products and equipment containing or relying on controlled substances, where the controlled that deplete the ozone layer.	Montreal Protocol	docs
TBT	26-Oct-95	Technical Barriers to Trade		docs
TBT	26-Oct-95	Technical Barriers to Trade		docs
TBT	24-Jul-96	Motor vehicles		docs
TBT	29-Sep-98	Speedometers for two or three wheel motor vehicles		docs
TBT	11-Feb-99	Space for mounting the rear registration plate of two- or three-wheel motor vehicles		docs
TBT	11-Feb-99	Protective devices intended to prevent the unauthorized use of two- or three-wheel motor vehicles		docs
TBT	11-Feb-99	Statutory markings for two- or three-wheel motor vehicles		docs
TBT	7-May-99	Motor vehicles		docs
TBT	25-Mar-03	Motor vehicles (passenger cars and car-derived vans) up to 2,500 kg (HS 8703) in event of road collision		docs
TBT	11-Jan-08	Refrigeration products and equipment which contain perfluorocarbons or preparations containing perfluorocarbons; Refrigeration and air conditioning products and equipment (other than those contained in motor vehicles), heat pumps, fire protection systems and fire extinguishers, if the respective type of product or equipment contains hydrofluorocarbons or preparations containing hydrofluorocarbons; High voltage switchgear which contains sulphur hexafluoride or preparations containing sulphur hexafluoride; Fluorinated greenhouse gas containers		docs
TBT	4-Feb-08	WCO HS: 85.26; harmonised conditions of spectrum use for the operation of mobile communication services on aircraft		docs
TBT	17-Apr-08	Emissions from motor vehicles and engines (heavy duty vehicles)		docs
TBT	30-Apr-08	Emission performance standards for new passenger cars		docs
TBT	1-Aug-08	General safety of motor vehicles		docs
TBT	1-Sep-08	Motor vehicles and their trailers, systems, components and separate technical units intended for such vehicles		docs
TBT	18-Nov-08	Eco-design requirements for external power supplies		docs
TBT	19-Jan-09	Labelling of tyres with respect to fuel efficiency and other essential parameters		docs
TBT	29-Apr-09	Eco-design requirements for circulators.		docs
TBT	21-Jul-09	Internal combustion engines to be placed on machinery under the scope of Directive 97/68/EC as amended (2002/88/EC & 2004/26/EC).		docs
TBT	14-Aug-09	Technical progress on electric and electronic equipment as defined under Article 3(a) of Directive 2002/95/EC.		docs
TBT	27-Jan-12	Sound level of motor vehicles (passenger cars, light commercial vehicles, buses, light trucks, coaches and trucks).		docs
TBT	13-Feb-12	Internal combustion engines to be placed on machinery covered by Directive 97/68/EC as amended (2002/88/EC, 2004/26/EC).		docs
TBT	27-Feb-12	Harmonisation of the laws of the Member States relating to electromagnetic compatibility.		docs
TBT	11-Jan-13	Eco-design requirements for electrical and electronic household and office equipment (networked products)		docs
TBT	21-May-14	REACH standards for extender oils for the production of tyres or parts of tyres. Phthalates in toys and childcare articles.		docs

Type	Initiation	Description of Measure / Affected Product	International Commitments	Link
TBT	8-Dec-14	Emission limits for internal combustion engines to be installed in non-road mobile machinery		docs
TBT	26-Apr-17	Emissions and fuel consumption of road vehicles in general (ICS: 43.020)		docs
TBT	1-Mar-18	Emission tests for motor vehicles		docs
TBT	11-Jun-18	Approval requirements for new motor vehicles of all categories (passenger cars, light commercial vehicles, trucks and busses, including their trailers, as well as systems, components and separate technical units intended for such vehicles).		docs
TBT	21-Jun-18	Scientific and technological progress in electrical and electronic equipment		docs
TBT	17-Jul-18	Motor vehicles, trailers, two- and three-wheeled vehicles, quadricycles, agricultural and forestry vehicles, systems, components, technical units and engines for use in non-road mobile machinery		docs
TBT	1-Aug-18	New motor vehicles and systems, components and separate technical units intended for such vehicles		docs
TBT	10-Dec-18	New EASA basic regulation for unmanned aircraft systems		docs
SPS	19-Dec-18	Numerous positions under chapters 6 (Live trees and other plants), 7 (Edible vegetables), 8 (Edible fruit), 44 (Wood and articles of wood), 84 (Machinery) and 87 (Vehicles) on protective measures against the introduction into the Community of organisms harmful to plants and against their spread in the community		docs
TBT	28-Jan-19	Approval for new motor vehicles and their trailers, as well as separate technical units and components intended for such vehicles.		docs
TBT	26-Apr-19	Scientific and technological progress in electrical and electronic equipment		docs
SPS	12-Aug-19	Plants, plant products and other objects, HS Chapters: 06 (live plants), 07 (vegetables), 08 (fruits), 10 (cereals), 12 (seeds), 14 (pollen), 44 (wood), 84 (machinery), 87 (vehicles) as regards protective measures against pests of plants		docs
TBT	14-Aug-19	Scientific and technological progress in electrical and electronic equipment		docs
TBT	14-Aug-19	Scientific and technological progress in electrical and electronic equipment		docs
TBT	8-Oct-19	Administrative requirements for approval of vehicles and their trailers (M-, N- and O-category vehicles), and of systems, components and separate technical units for such vehicles.		docs
TBT	23-Oct-19	End-of-life directives on vehicles (category M 1 or N 1 defined in Annex IIA to Directive 70/156/EEC, and three wheel motor vehicles as defined in Directive 92/61/EEC, but excluding motor tricycles)		docs
TBT	23-Oct-19	End-of-life directives on vehicles (category M 1 or N 1 defined in Annex IIA to Directive 70/156/EEC, and three wheel motor vehicles as defined in Directive 92/61/EEC, but excluding motor tricycles)		docs
TBT	28-Oct-19	Approval procedures for two- and three-wheeled vehicles and quadricycles to Euro 5 / 5+ standards		docs
TBT	14-Jul-20	Approvals for vehicles and their trailers (M-, N- and O-category vehicles), and systems, components and separate technical units intended for such vehicles.		docs
TBT	14-Jul-20	Uniform procedures and technical regulations for vehicles and their trailers (M-, N- and O-category vehicles), and systems, components and separate technical units intended for such vehicles.		docs
TBT	2-Oct-20	Certificate of conformity for vehicles and their trailers (M-, N- and O-category vehicles).		docs
TBT	11-Dec-20	Access to vehicle security and on-board diagnostics information of light- and heavy-duty motor vehicles and their trailers		docs
TBT	17-Dec-20	Emergency lane-keeping system for passenger cars and vans (motor vehicles of categories M1 and N1)		docs
TBT	22-Jan-21	Test procedures and approvals with regard to driver drowsiness and attention warning systems in motor vehicles of categories M and N.		docs
TBT	22-Jan-21	Rules concerning the alcohol interlock installation facilitation in motor vehicles of categories M and N		docs
TBT	22-Mar-21	Standards for recharging points for electric buses		docs
TBT	25-Mar-21	Test procedures and technical requirements for intelligent speed assistance systems in motor vehicles of categories M and N		docs

Table A.4: India's FDI Outflow to Ireland

Total FDI outflows (US$ Mn)		Industry-wise FDI Outflows (US$ Mn)				
Year	Total FDI	Community, Social & Personal Services	Financial, Insurance & Business services	Manufacturing	Transport, Storage & Communication Services	Wholesale, Retail Trade, Restaurants and Hotels
2011	82		0.36	81.6		
2012	75.86		45	31.6	0.02	0.25
2013	124	1.5	7.1	121	0.03	0.4
2014	114.8		21.7	109.6	48.7	
2015	199.2	0.1	93.8	77	28.1	
2016	90.7	0.03	6.2	36.3	47.8	0.28
2017	11.2	0.04	1	9.7		0.38
2018	100.6		6.7	93.7		0.28
2019	117.4	3.74	3.7	109.6	0.02	0.25
2020	170	4.4	44.4	120.8		0.29

Source: RBI Statistics

Note: Key companies investing in the manufacturing sector in Ireland include Zydus Cadila Healthcare, Alivira Animal Health, Felix Pharmaceuticals, Alpha Biomed, Unichem laboratories, Sahajanand Medical Technologies, ERBA diagnostics, Mapaex Health and Personalcare

Table A.5: India's FDI Inflow from Ireland

Year (2000-2010)	FDI Inflow from Ireland (US$ Mn)	Year (2011-2020)	FDI Inflow from Ireland (US$ Mn)
2000	3.88	2011	39.11
2001	1.92	2012	10.93
2002	0.15	2013	150.49
2003	1.03	2014	20.74
2004	0.38	2015	16.92
2005	9.74	2016	15.81
2006	13.78	2017	130.01
2007	4.23	2018	68.49
2008	44.25	2019	372.62
2009	27.3	2020	208.91
2010	0		
Total	**106.66**	**Total**	**1034.03**

Source: Department for Promotion of Industry and Internal Trade (DPIIT)

Table A.6: Section-Wise Commodity Classification

Section	Section Description	Chapter or HS 2-digit
I	Live Animals; Animal Products	01-05
II	Vegetable Products	06-14
III	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waves	15
IV	Prepared foodstuffs; beverages, spirits and vinegar; tobacco and manufactured tobacco substitutes	16-24
V	Mineral products	25-27
VI	Products of the chemical or allied industries	28-38
VII	Plastics and articles thereof, rubber and articles thereof	39-40
VIII	Raw hides and skins, leather, fur skins and articles thereof; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silk-worm gut)	41-43
IX	Wood and articles of wood; wood charcoal; cork and articles of cork; manufacturers of straw, of esparto or of other plating materials; basket ware and wickerwork	44-46
X	Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard; paper and paperboard and articles thereof	47-49
XI	Textiles and textile articles	50-63
XII	Footwear, headgear, umbrellas, sun umbrellas, walking- sticks, eat sticks, whips, riding-crops and parts thereof; prepared feathers and articles made therewith; artificial flowers, articles of human hair	64-67
XIII	Articles of stone, plaster, cement, asbestos, mica or similar materials; ceramic products; glass and glassware	68-70
XIV	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewellery; coin	71
XV	Base metals and articles of base metal	72-83
XVI	Machinery and mechanical appliances; electrical equipment; parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles	84-85
XVII	Vehicles, aircraft, vessels and associated transport equipment	86-89
XVIII	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; clocks and watches; musical instruments; parts and accessories thereof	90-92
XIX	Arms and ammunition; parts and accessories thereof	93
XX	Miscellaneous manufactured articles	94-96
XXI	Works of art, collectors' pieces and antiques	97-99

Source: DGCI&S, Ministry of Commerce & Industry, Government of India

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