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Geoeconomic Fragmentation: Implications for Ireland

Rossen Rozenov and Zhao Zhang

SIP/2025/089

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Geoeconomic Fragmentation: Implications for Ireland

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July 2025

ABSTRACT: Ireland's economy is deeply connected to the global trade network and relies on foreign direct investment (FDI), notably from the US. This paper presents a framework to estimate the impact of geo-economic fragmentation through three channels: (1) supply chain disruptions, (2) trade distortions resulting from tariff increases, and (3) FDI relocation, including driven by tax policy changes. Our findings suggest that while the impact of supply disruptions and higher tariffs would be relatively contained under moderate shock assumptions, potential FDI relocations would be associated with a sizeable loss of value added but more limited impact on the indigenous economy.

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SELECTED ISSUES PAPERS

Geoeconomic Fragmentation: Implications for Ireland

Ireland

Prepared by Rossen Rozenov and Zhao Zhang[1]

[1] The authors would like to thank Santiago Previde (EUR) for excellent research assistance, and the authorities and seminar participants during the Article IV consultation mission and at IMF's European Department for their helpful comments and suggestions.

INTERNATIONAL MONETARY FUND

IRELAND

SELECTED ISSUES

May 20, 2025

Approved By
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Prepared By Rossen Rozenov and Zhao Zhang

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GEOECONOMIC FRAGMENTATION: IMPLICATIONS FOR IRELAND

Ireland's economy is deeply connected to the global trade network and relies on foreign direct investment (FDI), notably from the US. This paper presents a framework to estimate the impact of geo-economic fragmentation through three channels: (1) supply chain disruptions, (2) trade distortions resulting from tariff increases, and (3) FDI relocation, including driven by tax policy changes. Our findings suggest that while the impact of supply disruptions and higher tariffs would be relatively contained under moderate shock assumptions, potential FDI relocations would be associated with a sizeable loss of value added but more limited impact on the indigenous economy.

A. Introduction

1. The global economy is undergoing deep changes. Growing geopolitical divisions are reshaping the international economic relations through trade and capital restrictions, contributing to the formation of regional trading blocks. Supply chain disruptions in the aftermath of the COVID-19 pandemic added to the concerns about excessive reliance on foreign suppliers and revived the interest in industrial policy to strengthen domestic manufacturing and in "friend-shoring", whereby companies move production facilities to locations based on political alignment. These policy-driven reversal of economic integration, referred to as "geoeconomic fragmentation" (GEF), can entail significant economic costs through higher prices and reduced access to goods and services.

2. Geoeconomic fragmentation can affect countries through various channels. Aiyar et al. (2023) explore several such channels and their effects: (i) trade restrictions leading to higher costs and lower efficiency; (ii) obstacles to technology diffusion limiting innovation and lowering productivity; (iii) barriers to labor flows affecting human capital; (iv) capital flows restrictions reducing options to external financing, and (v) higher uncertainty impacting negatively investment decisions. There is growing literature aiming to quantify the economic costs arising from GEF. For example, Bolhuis et al. (2023) develop a multi-country multi-sector model and focus on commodity production and trade linkages. Their results show that output losses can be sizeable, especially for low-income countries. Javorcik et al. (2022) consider the costs of "friend-shoring" modeled by assuming an additional "iceberg"-type trade cost or increase in tariffs, and estimate GDP losses up to 4.6 percent of global GDP. Cerdeiro et al. (2021) focus on the cost of technological decoupling on growth in the context of a global model and conclude that losses could be in the order of 5 percent of GDP for many countries. The effect of GEF on technological innovation is also discussed in Goes and Bekker (2022) through the lens of a general equilibrium model with sector-specific knowledge diffusion. Aiyar et al. (2024) apply a gravity model to a large dataset of bilateral greenfield FDI and show that greater geopolitical distance is associated with lower FDI flows.

3. Deglobalization poses threats to the Irish economic model. Ireland has benefitted significantly from international economic integration, building on its comparative advantages and sound economic policies. Free trade and foreign investment have transformed the economy in the

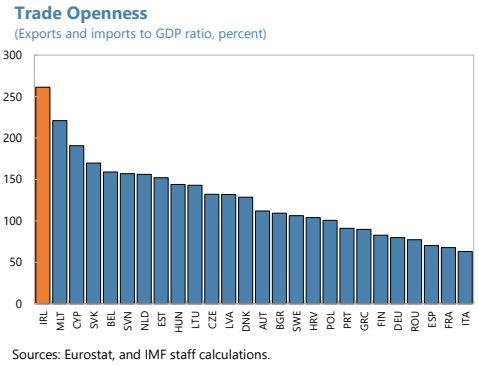
last several decades and have underpinned the remarkable growth and improvement in the standard of living. A retreat from globalization would, therefore, represent a serious headwind for the Irish economy The high dependence on export-oriented activities, dominated by a small number of multinational enterprises (MNEs), makes the economy particularly vulnerable to trade fragmentation. Certain sectors could potentially gain from "near-shoring" or "friend-shoring", but the extent of such gains would depend on a range of factors, including trading partners' policies. For instance, increased use of subsidies, especially by large countries, would make it difficult for small economies like Ireland to attract investment. Financial fragmentation could also have important implications (IMF, 2023a) through cross-border investment, international payment systems, and asset prices. Ireland's large financial sector is mostly externally-oriented but there are important domestic linkages, both direct in terms of lending by non-banks and investment in real estate, and indirect through an ecosystem of firms providing supporting services (e.g., legal, accounting, IT).

4. This paper aims to assess the main channels through which GEF can affect the Irish economy and provide quantitative estimates of the potential output losses. In particular, we identify three main sources of risk: (i) reduced access to critical imported inputs; (ii) increased import tariffs in key trading partners, and (iii) relocation of FDI, especially intangible capital, by MNEs as a result of corporate restructuring, e.g., induced by trade or tax policies. We find that aggregate losses under the first two scenarios are relatively contained under moderate shock assumptions. There is, however, significant heterogeneity across sectors, with some exposed industries incurring more substantial costs. The third scenario, which entails the relocation of FDI, could be associated with a considerable decline in gross value added, with potential spillover effects.

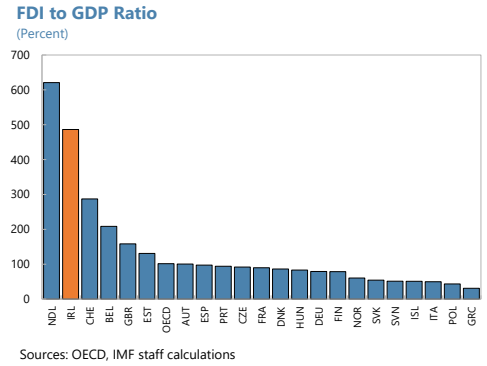
B. Ireland in the Global Economy

5. Ireland has one of the most open economies in the world. Exports and imports of goods and services exceeded 250 percent of GDP in 2024. Services trade has undergone especially rapid growth, doubling as a share of GDP in the last two decades. The degree of Ireland's integration in the global production chain is evident in the high volume of value-added trade— almost two-thirds of domestic value added is being exported. Ireland is also among the largest recipients of FDI in Europe. Foreign-owned firms represent a significant share of the Irish economy, accounting for 31 percent of NNP and 36 percent of wages in 2022 (McQuinn et al., 2024).

Figure 1. Ireland: Openness to Trade and FDI



Sources: Eurostat, and IMF staff calculations.



Sources: OECD, IMF staff calculations

6. The Irish economy is highly integrated in the global production network. Ireland is an important global player in several sectors, including manufacture of pharmaceuticals and computer programming and information services. As shown in Figure 2, most of the Irish-produced pharmaceuticals are exported to the US market. At the same time, the US is also the largest supplier to the Irish pharmaceutical sector through leasing of intellectual property. [1] The main final consumers of Irish computer programming and information services are in the US, France and China, and there are some important intermediate users, notably legal and accounting services, in Ireland, UK and Germany. As in pharmaceuticals, the key input in the production of IT services by a large margin is leased intellectual property (IP) from the US. Network centrality indicators provide useful information about the relative influence of Irish industries in the global economy. Based on the Katz centrality metric, the pharmaceutical sector achieves the highest ranking, followed by computer programming and manufacture of computers and electronics (text figure).[2] Looking at authority and hub scores to assess forward and backward linkages, it is mostly upstream sectors that determine Ireland's position in the global value chains.

Source: IMF staff calculations.

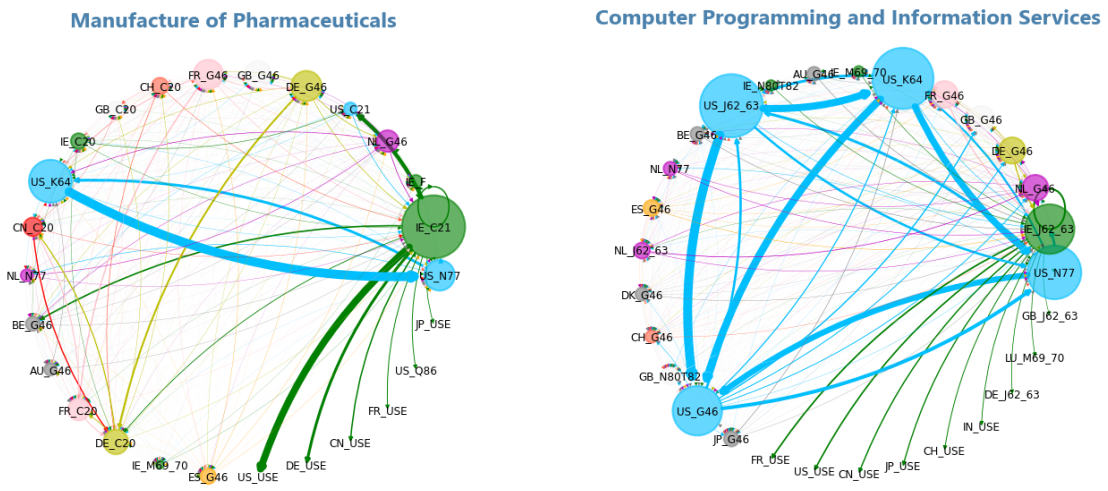
7. High product and market concentration, however, increases vulnerability. Pharmaceuticals and organic chemical products comprise over half of Irish goods exports and similarly, computer services account for more than half of services exports, reflecting Ireland's growing role as a leading digital hub in Europe. Geographic concentration is also high, with

[1] See Annex I for the sector codes and descriptions.

[2] Note that the rankings based on Katz centrality shown in the figure include the "rest of the world" category, an aggregate of countries for which no individual data are reported. Excluding this category, the Irish pharmaceutical sector's rank falls in the top 30 which places it in the highest percentile of country-sectors in terms of significance.

40 percent of goods exports going to EU countries and close to 30 percent to the US. Services imports are dominated by the US (about 50 percent of total), mostly royalties and licensing fees related to the use of IP. The significant dependence of the Irish economy on a small number of products and markets makes it vulnerable to shocks, including shifts in trade related to GEF.

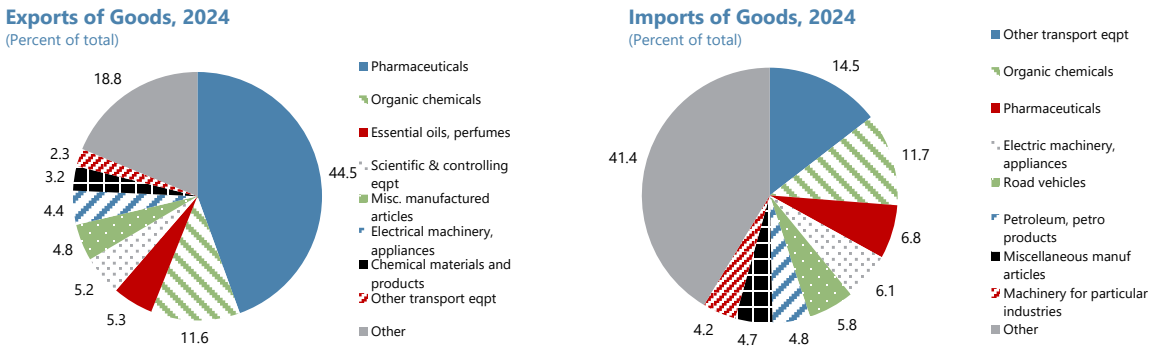
Figure 2. Ireland: Production Networks for Selected Sectors 1/



Sources: FIGARO Project, IMF staff calculations

1/ Production networks for the largest clients and suppliers of Irish sectors with significant international linkages. The labeling of nodes follows the FIGARO IO tables convention – the first two symbols represent the country code, followed by the industry code. Industry codes are listed in Annex I. Clients and suppliers falling into the "Rest of the World" category are not included.

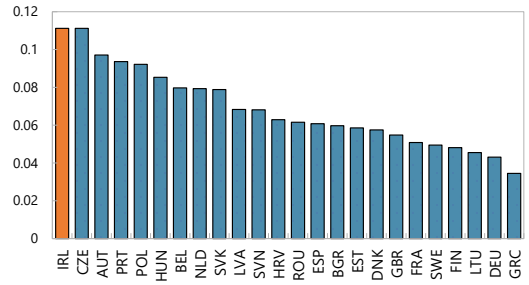
Figure 3. Ireland: Trade Structure



Sources: CSO, Haver Analytics, and IMF staff calculations.

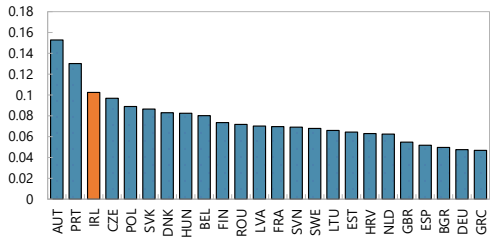
Figure 4. Ireland: Concentration of Trade

Geographic Herfindahl-Hirschman Index for Goods Exports



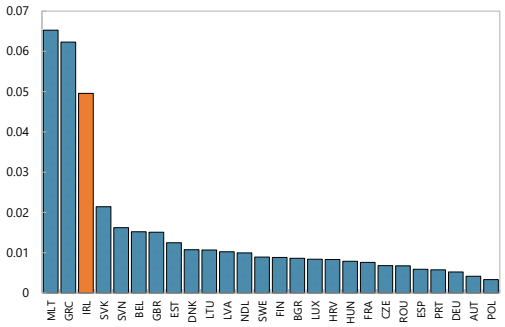
Source: BACI

Geographic Herfindahl-Hirschman Index for Goods Imports



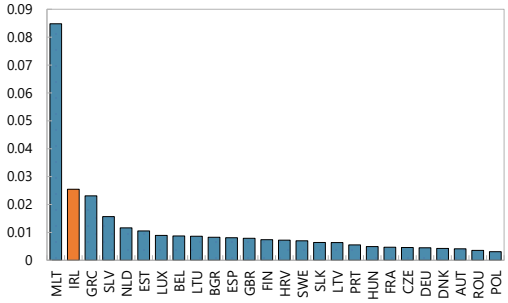
Source: BACI

Product Herfindahl-Hirschman Index for Goods Exports



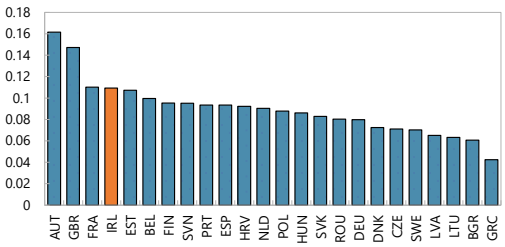
Sources: BACI, IMF staff calculations

Product Herfindahl-Hirschman Index for Goods Imports



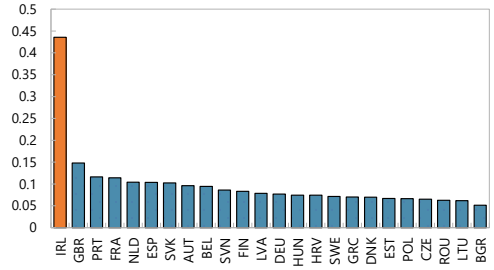
Sources: BACI, IMF staff calculations.

Geographic Herfindahl-Hirschman Index for Service Exports



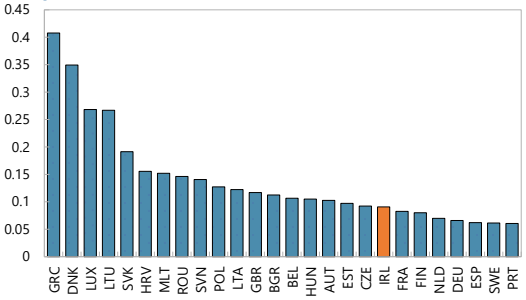
Source: UNCTAD

Geographic Herfindahl-Hirschman Index for Service Imports



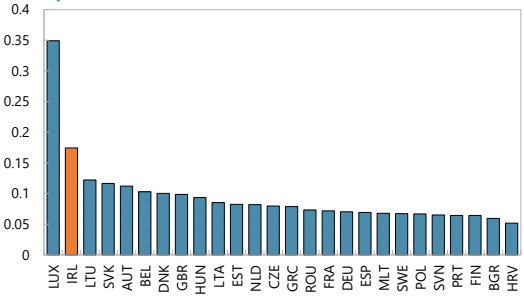
Source: UNCTAD

Product Herfindahl-Hirschman Index for Service Exports



Source: UNCTAD.

Product Herfindahl-Hirschman Index for Service Imports



Source: UNCTAD.

C. Foreign-Dependent Goods and Services

8. In an increasingly fragmented world, trade policy can be used as a tool to control access to essential goods and services. For example, export restrictions motivated by geopolitical reasons can cause major disruptions by limiting the availability of key inputs to production. Vulnerabilities arising from strategic dependencies on foreign products have become a key concern of policy makers, especially after the COVID-19 pandemic. Identifying these dependencies and assessing their impact is an important first step to building resilience. In a methodology considered by the European Commission (European Commission, 2021; see also Korniyenko et al., 2017), foreign-dependent (FD) products are determined based on several indicators: (i) concentration of EU imports from extra EU sources; (ii) importance of extra EU imports in total demand; and (iii) substitutability of extra EU imports with EU production. Thresholds are established for each of these indicators and products for which the calculated indices exceed the thresholds are classified as FD products.

9. A model-based framework can help estimate the impact of reduced access to inputs. Building on the definition of FD products, Borin et al. (2023) propose an approach to evaluate the impact on value added from export restrictions. Their model is based on a Cobb-Douglas production function with capital, labor and intermediate inputs, represented as a constant elasticity of substitution (CES) aggregate of FD and non-FD products. Combining customs data with firm balance sheet information, the authors estimate for Italy a 2 percent loss in GDP following a 50 percent cut of FD products in the baseline calibration, with large heterogeneity across sectors. We apply this framework to the case of Ireland to study the potential impact on output from losing access to critical inputs. Data limitations prevent us from carrying out the analysis at the micro level but the model can be adapted to the sectoral level by aggregating granular trade data and combining them with international input-output tables to evaluate the impact of a supply shock.[3] At the same time, the analysis can be extended to include FD services in addition to goods, given the high importances of services trade for Ireland.

10. Identification of FD goods and services that face a high risk of supply disruptions entails assumptions about the likelihood of restrictions imposed by exporters. Two illustrative scenarios are considered: (i) a relatively benign scenario (Scenario1) whereby countries classified as "high-risk" are those that did not support the United Nations General Assembly Resolution ES-11/6 on peace in Ukraine (consistent with Borin et al., 2023) and (ii) an adverse scenario in which every country outside of the EU is considered "high-risk" (Scenario 2). We use the CEPII BACI dataset for trade data and the FIGARO industry-by-industry input-output tables for 2022 (the latest available) to estimate the effects. In 2022, imports of foreign dependent goods comprised about 3.5 percent of the total Irish imports. There were about 200 such products (at the HS6 level), the largest being imports of medicaments not packaged for retail sale (Table 1). Only three categories of services could be classified as foreign-dependent based on the aforementioned methodology (Table 1), but

[3] International trade data at the HS-6 level are sourced from CEPII-BACI and the input-output tables are obtained from the EU FIGARO project database.

their import value is significantly bigger— about half of all imports—driven by licenses for use of R&D. Since the vast majority of such imports originates from the US, the share of FD services coming from "high-risk" countries is negligible in Scenario 1 and close to one in Scenario 2. For goods, the geographical distribution of imports is somewhat less concentrated and FD products from "high-risk" countries account for about 16 percent of total in Scenario 1 and 90 percent in Scenario 2.

Table 1. Ireland: Main Foreign-Dependent Goods and Services

Goods

Product	Value (€ bn)	Share of total imports (%)	Share of high-risk countries (%)	
			Scenario 1	Scenario 2
Total FDP	4.4	3.5	15.9	90.5
of which				
Medicaments (not packaged for retail sale)	0.6	0.5	0.6	70.1
Cyclic amides and their derivatives;	0.5	0.4	24.6	92.5
Oil-cake and other solid residues;	0.4	0.3	0.1	96.6
Coal; bituminous,	0.4	0.3	19.9	98.3
Photographic plates and film;	0.2	0.2	0.0	99.8
Electrical apparatus; photosensitive	0.2	0.2	74.3	86.9
Brewing or distilling dregs and waste	0.2	0.1	0.2	96.8
Aluminium ores and concentrates	0.1	0.1	58.6	100.0
Oils, essential; of lemon	0.1	0.1	0.0	96.5
Vegetable materials and vegetable waste	0.1	0.1	8.8	94.5

Services

Services	Value (€ bn)	Share of total imports (%)	Share of high-risk countries (%)	
			Scenario 1	Scenario 2
Total FDP	141.4	48.4	0.1	99.3
of which				
Licences for the use of R&D	116.2	39.7	0.1	99.5
Other R&D services	14.1	4.8	0.0	98.2
Licences to reproduce/distribute software	11.2	3.8	0.0	98.9

Source: IMF staff calculations

Note: Scenario 1 classifies countries based on the vote of United Nations General Assembly Resolution ES-11/6 of 23 February 2023 on peace in Ukraine. Countries that supported the resolution are classified as "low-risk" and the rest are included in the "high-risk" category. Scenario 2 assumes that all countries outside of the EU are in the "high-risk" group.

11. The impact of reduced supply of foreign-dependent goods and services can be significant in the short term. A key parameter driving the results in the model is the elasticity of substitution between FD and non-FD inputs in the production function. Assumptions and estimates of this elasticity vary widely in the literature—from near 0 in the short run, consistent with a Leontieff technology (Boehm et al., 2019; Corong et al., 2017) to close to 1 for some industries (McKibbin and Wilcoxen, 1999) or higher in the long run (Peter and Ruane, 2023), with more typical values around 0.2–0.5.

Overall, the elasticity of substitution can be expected to be low in the very short run, given that firms need time to adjust to a shock and restructure their supply chains. As an illustration, a 50 percent reduction of imports of FD goods and services could cause a contraction of total value added in Ireland of about 2 percent with elasticity of substitution of 0.02 under Scenario 1, and less than ½ percent for elasticity in the range of 0.1–0.2 (text figure). The impact is highly non-linear — a larger shock, e.g. 75 percent results in almost 5 percent decline in value added. In addition, Also, the elasticity of substitution can be expected to vary significantly across products.

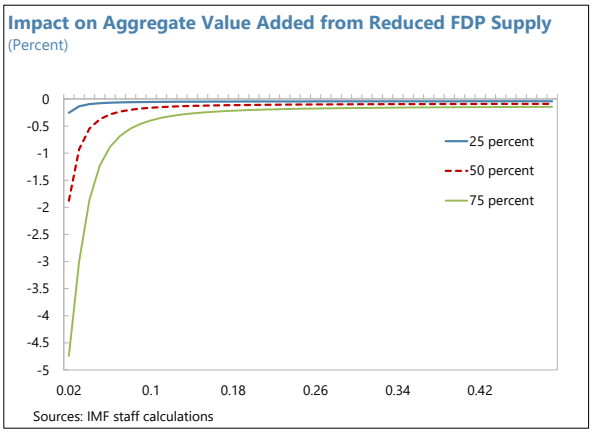
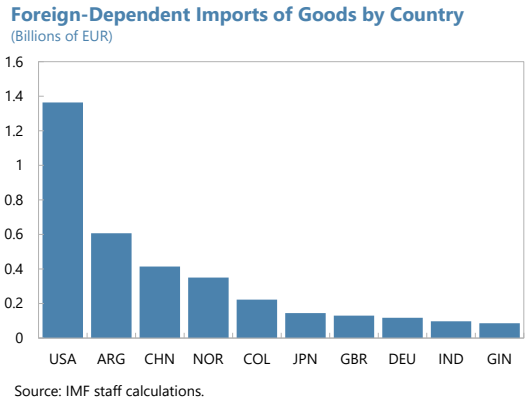
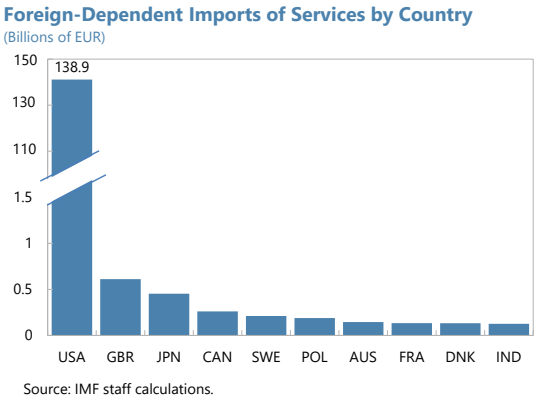


Figure 5. Ireland: Imports of Foreign-Dependent Goods and Services by Country

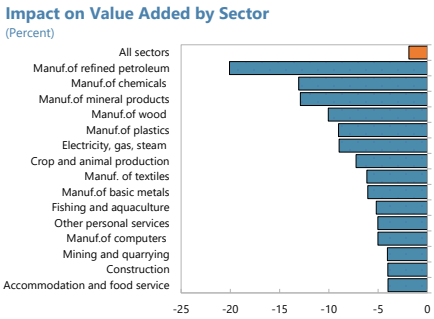




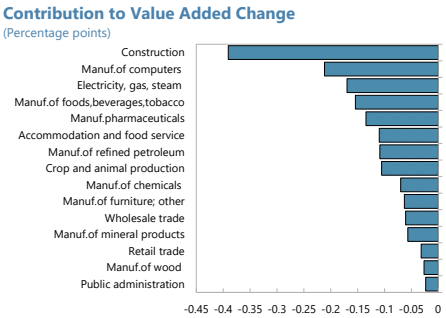
12. To assess the implications of reduced access to FD goods and services, a 50 percent cut in imports from "high-risk" countries is assumed. For the narrower definition of "high-risk" countries (Scenario 1), the elasticity of substitution between FD and non-FD inputs is set at a low value (0.02), whereas in the adverse case where only EU countries are considered "low-risk", the elasticity is assumed to be 0.2. While the overall decline in value added is similar in both scenarios (about 2 percent), there are significant differences in terms of the most affected sectors and the magnitudes of output losses. Manufacture of refined petroleum suffers the largest drop in value added in both scenarios, which is much more pronounced when the elasticity of substitution is low. Because of the sector's relatively low weight in value added, it contributes little to the overall decline. Construction and manufacture of computers, on the other hand, have the largest contributions. In Scenario 2, the main drivers of the value-added contraction are the manufacture of pharmaceuticals, publishing activities (includes software publishing) and air transport, reflecting significant dependence on imported inputs from the US.

Figure 6. Ireland: Impact on Value Added by Sector

Scenario 1 (50 percent FD Inputs Reduction, Elasticity of Substitution of 0.02)

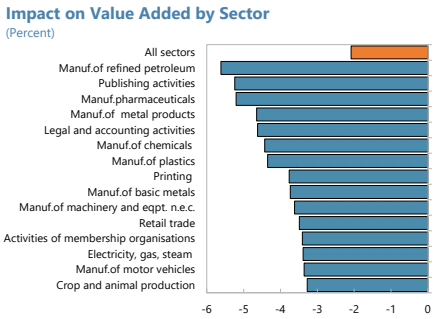


Sources: IMF staff calculations

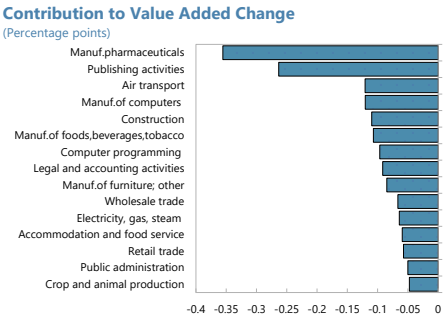


Source: IMF staff calculations

Scenario 2 (50 percent FD Inputs Reduction, Elasticity of Substitution of 0.2)



Source: IMF staff calculations



Source: IMF staff calculations

Note: Scenario 1 classifies countries based on the vote of United Nations General Assembly Resolution ES-11/6 of 23 February 2023 on peace in Ukraine. Countries that supported the resolution are classified as "low-risk" and the rest are included in the "high-risk" category. Scenario 2 assumes that all countries outside of the EU are in the "high-risk" group.

D. The Role of Foreign Direct Investment and Multinational Enterprises

13. Ireland has attracted sizeable FDI over the past few decades. The majority of these investments have been directed toward pharmaceuticals, financial services, and information and communication. Large MNEs in these sectors have established production bases and/or global headquarters in Ireland. Their presence has significantly contributed to the country's employment, gross value added, and tax revenues. In a recent study that quantifies the contributions of domestic and foreign-controlled firms to the Irish economy, O'Grady (2024) finds that the latter are typically more interconnected and have a greater-than-average influence on the broader economy.

14. The reliance on FDI exposes Ireland to geopolitical risks. To assess these risks, we use a geopolitical index which captures the idea that the greater the geopolitical distance between source and host countries, the greater the vulnerability (IMF, 2023b). The index is constructed in two steps. First, it is assumed that geopolitical preferences play a key role as a driver of FDI. The degree of

geopolitical alignment between countries is measured using the "ideal point distance" proposed by Bailey, Strezhnev, and Voeten (2017), which is based on the similarity of voting patterns at the United Nations General Assembly. Second, the geopolitical index is calculated for each host country by multiplying the share of investment from each source country by the geopolitical distance between host and source countries. Ireland has one of the highest geopolitical indices among EU countries, indicating a potential vulnerability to FDI shocks. The country relies significantly on investment from the US, which has a greater geopolitical distance from Ireland compared to the geopolitical distances among countries within the EU. Thus, exposure to geopolitical risks is a function of both geographic concentration and geopolitical differences.

15. MNE activities in Ireland exhibit high sectoral and geographical concentration. OECD's Analytical Activities of MNEs (AMNE) database provides valuable information on the operations of multinationals. Firms are classified into three types: (i) foreign affiliates (firms with at least 50 percent foreign ownership), (ii) domestic MNEs (domestic firms with foreign affiliates), and (iii) domestic firms not engaged in international investment. Their activities, however, are highly concentrated as reflected in both the sectoral and geographic distribution of the controlling entities, as measured by the Herfindahl-Hirschman Index (HHI). To gain a better understanding of the importance of MNEs operating in Ireland at sectoral level, we utilize OECD's Multinational Enterprises and Global Value Chains dataset. It combines the Analytical Activities of MNEs (AMNE) database with the TiVA and OECD Inter-country Inter-Industry Input-Output (ICIO) databases, enabling value-added analysis of MNE activities. Data suggest that MNEs, especially those from the US, play a vital role in key sectors of the Irish economy (Figure 8). In the manufacture of pharmaceuticals, US MNEs contribute 73 percent of value added in the sector, while MNEs from other countries collectively account for another 12 percent. Other sectors where US companies play a dominant role include IT services, where US MNEs generate 85 percent of value added, and IT manufacturing (66 percent). The high dependence on US MNEs leaves the Irish economy vulnerable to shocks that could slow, halt, or reverse foreign direct investment from these companies.

Figure 7. Ireland: Share of Value Added by Owners' Residency

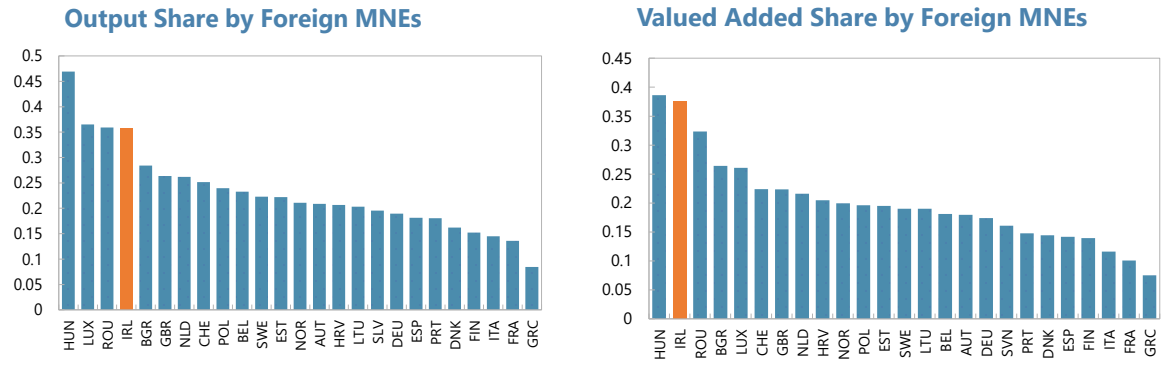
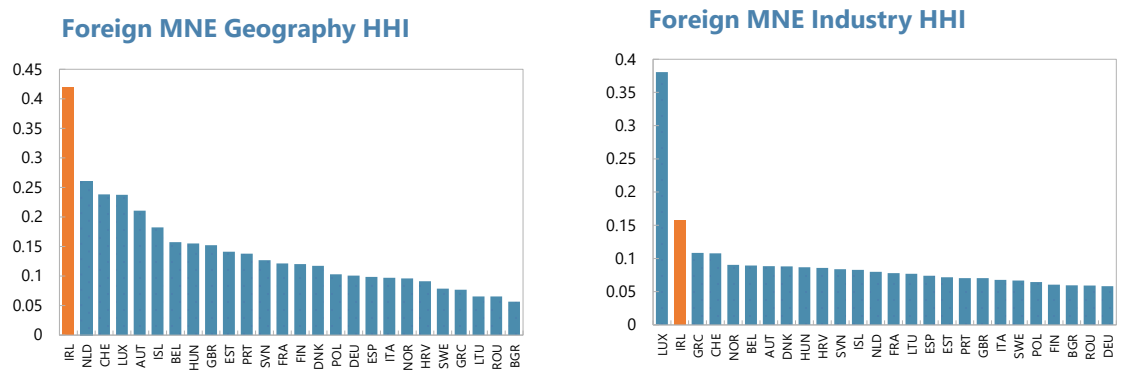


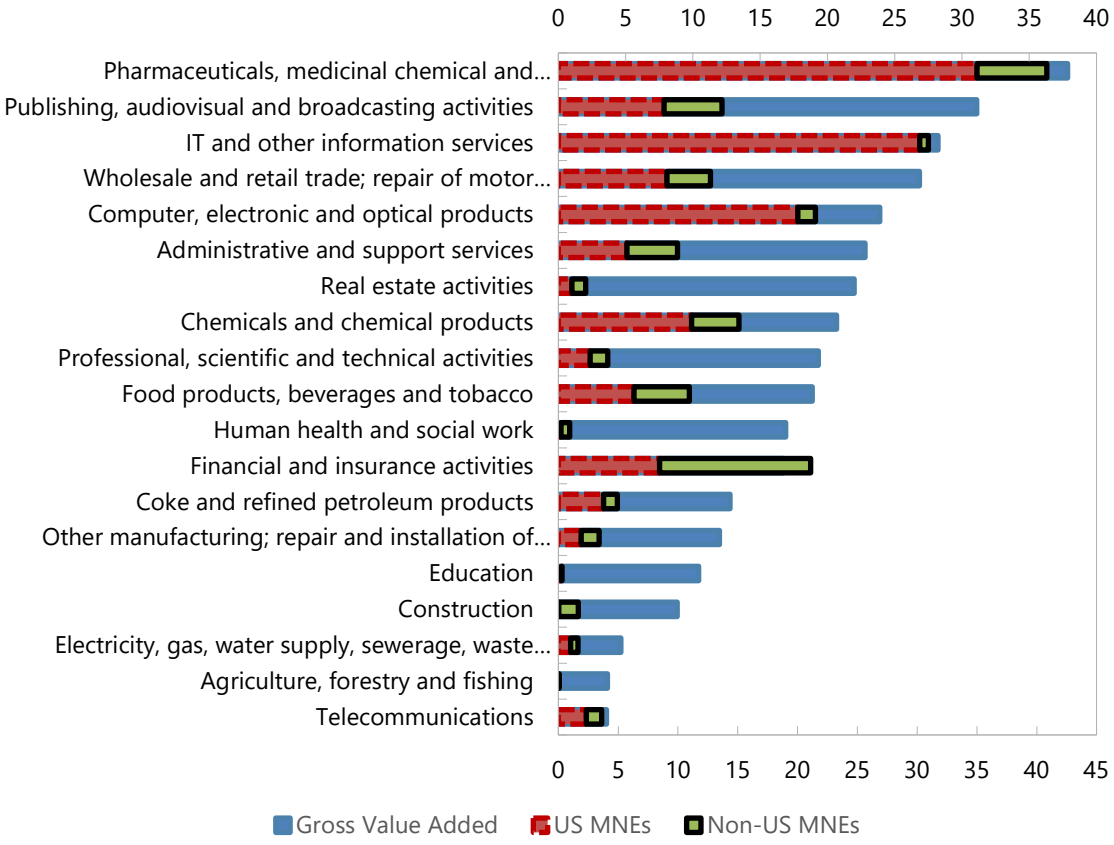
Figure 7. Ireland: Share of Value Added by Owners' Residency (concluded)



Sources: OECD's Multinational enterprises and global value chains dataset and IMF staff calculation

Figure 8. Ireland: Sectoral Importance of Multinational Enterprises

(MNE Value-added by Sector in USD billion)



Source: OECD's Multinational enterprises and global value chains dataset and IMF staff calculation

E. General Equilibrium Analysis

16. To provide a more complete account of the impact on the Irish economy of various GEF scenarios, including spillovers across sectors, a general equilibrium framework is applied. In particular, we adopt the model developed in Huo, Levchenko, and Pandalai-Nayar (2019), Bonadio et al. (2021), and Bonadio et al. (2023), henceforth BHLP model, which allows to estimate changes in the aggregate and sectoral value added in response to shocks. Key features of the model include: (i) a comprehensive labor supply formulation that incorporates traditional trade theories (such as fixed total labor supply that is fully mobile across sectors) and business cycle theories (which allow for flexible total labor supply), along with intermediate options; and (ii) a nested CES structure for both final and intermediate goods bundles, which differentiates elasticities of substitution among inputs and across sourcing countries for identical inputs (Armington assumption). Firms operate in a competitive environment and employ constant return to scale (CRS) technologies, using both domestic labor supply and intermediate inputs, aggregated from various sourcing countries. The model has a number of limitations. First, there is no capital and there is no role for uncertainty. Secondly, as in the case of the supply disruption shock, the magnitude of the impact depends on the calibrated values for the trade elasticities. The results should be interpreted as long run given the absence of frictions other than trade costs.

17. The BHLP model allows to simulate how the economy reacts to various shocks. These include productivity changes; fluctuations in trade costs; shifts in consumer preferences; and trade imbalances. Shocks can be tailored to specific countries, sectors, or combinations of country-sector pairs. To estimate the effects of GEF on the Irish economy under these scenarios, we simulate shocks to trading costs and productivity. Specifically, trade in final goods incurs iceberg costs τ^{f}_{mni} to ship good i from country m to country n. Similarly, trade in intermediate inputs is subject to iceberg costs $\tau^{x}_{mi,nj}$ to ship good i from country m to sector j in country n. A tariff increase is thus modeled as an increase in trading cost for both intermediate and final goods. For the purposes of this analysis, the global economy is divided into seven blocks—indigenous Irish firms, foreign-owned firms operating in Ireland, the rest of the European Union, the United States, the United Kingdom, China, and the rest of the world, with 41 economic sectors each. To keep the analysis simpler and more focused, the revenue from tariffs is ignored.

18. Calibration is based on the Multinational Enterprises and Global Value Chains dataset which allows to distinguish between domestic- and foreign-owned firms. The separation of domestic-owned and foreign-owned firms in the inter-country input-output tables is important for Ireland, given the large presence of foreign MNEs. For example, the same decrease in value-added in a foreign-dominated sector as in an indigenous one is likely to have different implications for employment and consumption. With regard to other key parameters, following Chetty et al. (2011), the Frisch labor supply elasticity is set to 2.8, and the sectoral labor supply elasticity is set to 1.5 following Galle, Rodríguez-Clare, and Yi (2023). We further assume that the elasticity of substitution of intermediate inputs across sectors is 0.2.

19. Two scenarios are of main interest in the case of Ireland and are explored below. These are:

- *Higher import tariffs* leading to an increase in trading costs. The underlying assumptions for this scenario are broadly consistent with the tariff announcements as of mid-April 2025.[4] In particular, it assumes a 145 percent tariff on US imports from China, a 125 percent tariff on Chinese imports from the US, a 25 percent tariff on US imports of automobiles, and a 10 percent tariff on US imports of all other goods, except for pharmaceuticals and electronics which are exempt.

- *Relocation of FDI* resulting in a decline of the FDI stock in Ireland. Such a shock can be identified, for example, with a cross-border shift of foreign-owned intangible assets, currently hosted by Ireland, as a result of trade or tax policies in the country of origin or a third country. For purely illustrative purposes, a scenario involving a 50 percent decrease in the stock of FDI in the ICT services sector is assumed. Since there is no capital in the model, this shock is represented as a 30 percent drop in productivity.[5]

20. Simulation results suggest a relatively limited effect of tariffs on value added in Ireland. In the tariff scenario, value added of the indigenous sectors declines by 0.4 percent and that of the MNE-dominated sectors decline by 1 percent. There is significant heterogeneity across industries. The largest losses are counted by the manufacture of pharmaceuticals, agriculture, foods and beverages sectors and computer and electronics sectors. These sectors are among the most exposed to the US in terms of goods trade. Although pharmaceuticals and electronics are exempt from tariffs in this scenario, the demand for these products declines due to the weaker growth in key trading partners after the tariff shock and similarly for some services. The declines are generally larger in the foreign-dominated sector which is mostly externally-oriented. We note that since the model does not have capital, these results do not take into account the effects from possible lower future investment or the impact of higher levels of uncertainty. In a dynamic setting, assuming a 10 percent bilateral (rather than unilateral) tariff on all goods, including pharmaceuticals and electronics, Egan and Roche (2025) estimate a negative impact on Irish GDP of about 2½ percent after seven years.

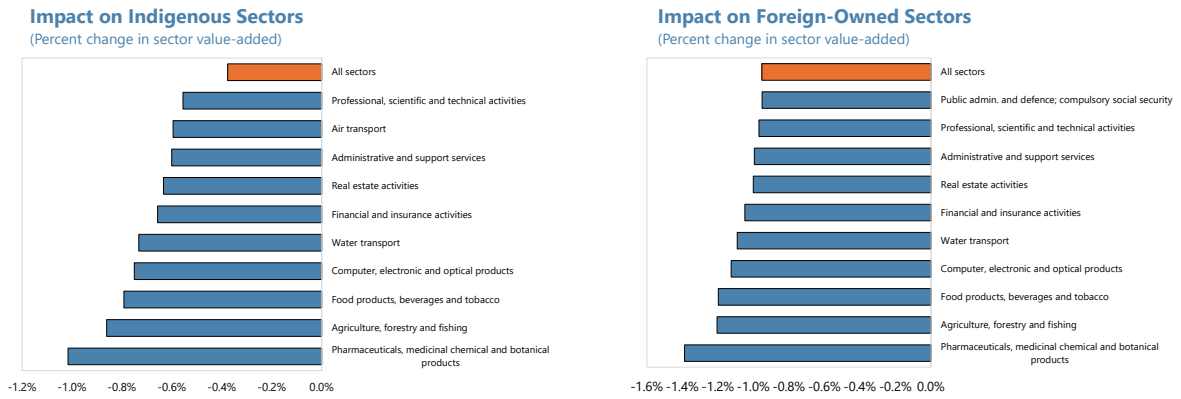
21. The impact of FDI relocation is more significant. In the second scenario, involving 50 percent reduction in the FDI stock in ICT services (simulated as a productivity shock), the foreign-dominated sector would face a 25 percent drop in value added, alongside a 0.7 percent decline in the indigenous segment. The vast difference in outcomes suggests relatively limited spillovers which in part reflects the assumption of no labor reallocation between the two segments of the Irish economy. The decline in GDP is primarily driven by the ICT services sector which is where the FDI

[4] See World Economic Outlook April 2025, p.16.

[5] Assuming a share of capital of 60 percent in a Cobb-Douglas production function, the 30 percent drop in productivity is equivalent to 50 percent decline in capital. The assumption about the capital share is broadly consistent with Eurostat's Multifactor Productivity experimental statistics. It is likely, however, that this share is higher in the MNE sector.

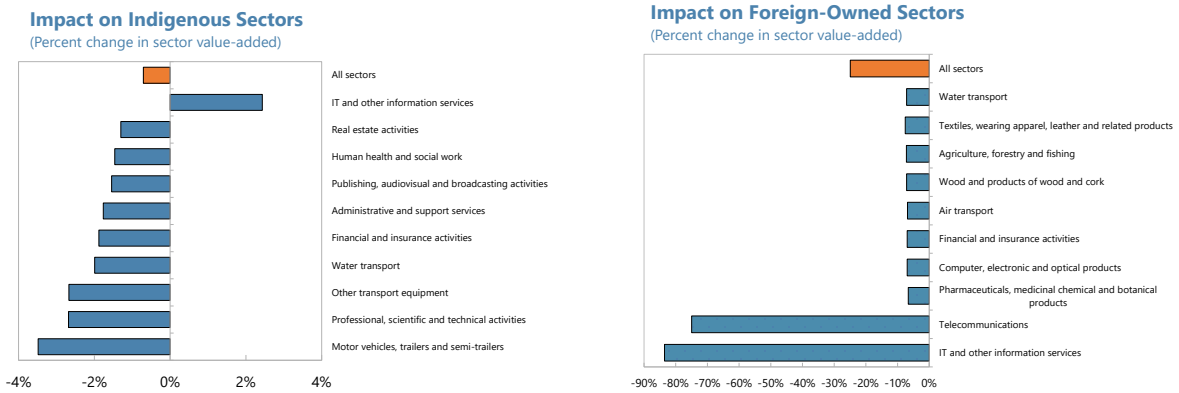
relocation is assumed to take place. The increase in the indigenous ICT services sector is driven by substitution effects, given the substantial decline in the foreign-owned segment. Most other sectors experience contractions which are relatively modest and homogeneous for non-ICT related foreign-owned industries. These are a result from an overall drop in demand because of loss of income in the ICT sector. It is important to note that the model-based results are reported in terms of value added and in Ireland, modified gross national income (GNI*) and modified domestic demand (MDD) are more relevant measures of domestic economic performance. Thus, a sizeable decline in the value added generated in the foreign-owned sector may have a limited impact on these metrics. In addition, the model excludes a fiscal sector and therefore does not capture the negative spillovers to corporate income tax revenue. One can argue that lower gross value added would reduce corporate income tax collections, particularly windfalls which cannot be explained by domestic economic fundamentals.

Figure 9. Ireland: Sectoral Impact of Higher Tariffs



Source: IMF staff calculations

Figure 10. Ireland: FDI Shock



Source: IMF staff calculations

F. Conclusion

22. The multifaceted implications of geoeconomic fragmentation highlight potential challenges to the Irish economy. As geopolitical tensions escalate and economic integration is increasingly reversed, Ireland's economic model, which has relied on free trade and investment, is at risk. Our analysis identifies various channels through which GEF could impact the Irish economy—access to critical imported inputs, increased tariffs by key trading partners, and relocation of FDI by multinational enterprises. While the output losses from the first two scenarios appear manageable on aggregate, sectoral disparities reveal that certain industries may face significant disruptions. A potential relocation of FDI, on the other hand, could be associated with a sizeable decline in gross value added in affected sectors and corporate income tax revenues that could reverberate through the economy.

23. The findings underscore the need for proactive policies aimed at enhancing Ireland's economic resilience. Building fiscal buffers in good times would help mitigate potential decline in fiscal revenue, allowing for a more flexible response to economic fluctuations. In particular, buffers would enable the government to provide focused support facilitating smoother resource reallocations in affected sectors. Promoting linkages between dynamic MNEs and the domestic economy, e.g., through innovation cooperation,[6] and improving infrastructure would bolster competitiveness and make the economy more resilient. Ireland should continue to engage in the EU to further strengthen the single market, including through advancing the Savings and Investments Union.

[6] There are already examples of such collaborations—the Tyndall National Institute brings together leading global companies and Irish SMEs in semiconductors technology and related areas, thus promoting startups and facilitating the creation of high value-added jobs.

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Annex I. NACE Rev. 2 Industries and Codes

Annex I. Table 1. Ireland: List of NACE Rev. 2 Industries and Codes

Industries (NACE Rev.2)	
Code	**Label**
A01	Crop and animal production, hunting and related service activities
A02	Forestry and logging
A03	Fishing and aquaculture
B	Mining and quarrying
C10T12	Manufacture of food products; beverages and tobacco products
C13T15	Manufacture of textiles, wearing apparel, leather and related products
C16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
C17	Manufacture of paper and paper products
C18	Printing and reproduction of recorded media
C19	Manufacture of coke and refined petroleum products
C20	Manufacture of chemicals and chemical products
C21	Manufacture of basic pharmaceutical products and pharmaceutical preparations
C22	Manufacture of rubber and plastic products
C23	Manufacture of other non-metallic mineral products
C24	Manufacture of basic metals
C25	Manufacture of fabricated metal products, except machinery and equipment
C26	Manufacture of computer, electronic and optical products
C27	Manufacture of electrical equipment
C28	Manufacture of machinery and equipment n.e.c.
C29	Manufacture of motor vehicles, trailers and semi-trailers
C30	Manufacture of other transport equipment
C31_32	Manufacture of furniture; other manufacturing
C33	Repair and installation of machinery and equipment
D35	Electricity, gas, steam and air conditioning supply
E36	Water collection, treatment and supply
E37T39	Sewerage, waste management, remediation activities
F	Construction
G45	Wholesale and retail trade and repair of motor vehicles and motorcycles
G46	Wholesale trade, except of motor vehicles and motorcycles
G47	Retail trade, except of motor vehicles and motorcycles
H49	Land transport and transport via pipelines
H50	Water transport
H51	Air transport
H52	Warehousing and support activities for transportation
H53	Postal and courier activities

Annex I. Table 1. Ireland: List of NACE Rev. 2 Industries and Codes (concluded)

Industries (NACE Rev.2)	
Code	**Label**
I	Accommodation and food service activities
J58	Publishing activities
J59_60	Motion picture, video, television programme production; programming and broadcasting activities
J61	Telecommunications
J62_63	Computer programming, consultancy, and information service activities
K64	Financial service activities, except insurance and pension funding
K65	Insurance, reinsurance and pension funding, except compulsory social security
K66	Activities auxiliary to financial services and insurance activities
L	Real estate activities
M69_70	Legal and accounting activities; activities of head offices; management consultancy activities
M71	Architectural and engineering activities; technical testing and analysis
M72	Scientific research and development
M73	Advertising and market research
M74_75	Other professional, scientific and technical activities; veterinary activities
N77	Rental and leasing activities
N78	Employment activities
N79	Travel agency, tour operator and other reservation service and related activities
N80T82	Security and investigation, service and landscape, office administrative and support activities
O84	Public administration and defence; compulsory social security
P85	Education
Q86	Human health activities
Q87_88	Residential care activities and social work activities without accommodation
R90T92	Creative, arts and entertainment activities; libraries, archives, museums and other cultural activities; gambling and betting activities
R93	Sports activities and amusement and recreation activities
S94	Activities of membership organisations
S95	Repair of computers and personal and household goods
S96	Other personal service activities
T	Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use
U	Activities of extraterritorial organisations and bodies

Source: FIGARO Project