



# **Sea change:**

## *How Brexit altered maritime shipping*

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### In Summary

- Brexit caused a 21% decrease in EU-UK roll-on roll-off (Ro-Ro) cargo volumes between 2021 and 2024, and a 60% decrease in Ireland-UK Ro-Ro volumes.
- This was accompanied by an 88% increase in Ro-Ro cargo volumes between Ireland and France, pointing to a significant short-term diversion of cargo from the UK land-bridge to direct routes between Ireland and mainland Europe.
- While the direct sea route is longer, fuel consumption and carbon emissions associated with this freight transport would be lower on the direct route by roughly a third.

## 1 Introduction

The decision by the United Kingdom (UK) to leave the European Union (EU) in the 2016 Brexit referendum set in motion a significant shift in trade dynamics. While much has been discussed about the economic impacts of joining a free trade agreement, less is understood about the consequences of leaving one. This paper summarises recent research [1] that examined the short-term effects of Brexit on maritime shipping, specifically focusing on how new trade barriers have impacted cargo volumes.<sup>1</sup> Of significance to Irish policymakers, Brexit generated unintended consequences for shipping routes between Ireland and mainland Europe.

The UK formally withdrew from the EU on 31 January 2020 and departed from the EU Single Market and Customs Union on 31 December 2020 following a period of high-profile negotiations. A new trade relationship based on the EU-UK Trade and Cooperation Agreement commenced on 1 January 2021. While the Agreement avoided new tariffs or quotas

being applied to EU-UK trade, Brexit nonetheless introduced ‘non-tariff’ barriers to trade such as customs inspections and new documentation requirements.

Brexit represents an unprecedented experiment involving one of the world’s most developed economies departing from one of the world’s largest free trade areas. It is a case study in how these non-tariff barriers can affect maritime freight transport. In particular, this research examined the effect on the trade route known as the ‘UK land-bridge’. This overland corridor transports goods between Ireland and mainland Europe via Great Britain, and Brexit’s impact on it reveals a significant external effect on freight transport between two third-party countries.

## 2 Data and methods

This research addressed 2 key questions:

1. Has the widely observed reduction in EU-UK trade flows due to Brexit extended to maritime cargo volumes?
2. Has Brexit caused a diversion of maritime cargo from the UK land-bridge route between Ireland and mainland Europe to direct sea routes?

<sup>1</sup>This paper summarises the findings from: Ciarán Mac Domhnaill (2025), ‘All at sea? Externalities and cargo diversion in the wake of Brexit’, *Oxford Bulletin of Economics and Statistics*. Available at: [onlinelibrary.wiley.com/doi/full/10.1111/obes.12690](https://onlinelibrary.wiley.com/doi/full/10.1111/obes.12690)

## Glossary of Terms

**EU Customs Unions:** Single customs territory where no tariffs or non-tariff barriers are applied to trade between members, and where a common external tariff is imposed on all goods entering the union from non-member countries. Also known as the internal or common market.

**EU Single Market:** Area consisting mainly of the 27 EU member states where goods, services and capital can move freely and people can travel without barriers.

**EU-UK Trade and Cooperation Agreement (TCA):** Free trade agreement signed on 30 December 2020 between the EU and the UK. Provisionally applied from 1 January 2021 before formally coming into force on 1 May 2021.

**Non-tariff barrier to trade:** Any measure, other than an import or export tariff, that acts as a barrier to international trade. These can include quotas, customs procedures, safety standards, certification procedures, embargoes, and sanitary measures.

**Roll-on roll-off (Ro-Ro) cargo:** A method of cargo transportation where wheeled vehicles (such as lorries) are driven directly on and off specialised vessels, rather than being lifted by cranes. A method of cargo transportation where wheeled vehicles (such as lorries) are driven directly on and off specialised vessels, rather than being lifted by cranes.

To answer these questions, changes in cargo volumes over time were compared between EU-UK trade and unaffected trade between the EU and the rest of the world. The data used for this task measure the weight of cargo handled by each major European port in every quarter between 2013Q3 and 2024Q2 and are available from Eurostat. The paper focused on 'roll-on roll-off' (Ro-Ro) cargo, which refers to containers driven directly onto and off ships by lorries. This form of cargo is known for its speed and flexibility on shorter routes and is the predominant form of cargo between

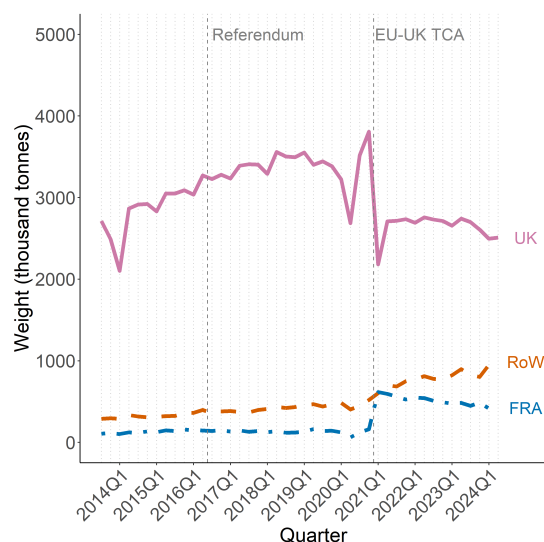


Figure 1: Ro-Ro cargo volumes by partner entity, Irish main ports 2013-2024. 'RoW' denotes Rest of World. Brexit referendum held in June 2016, EU-UK Trade and Cooperation Agreement (TCA) effective from January 2021. Source: author's analysis; Eurostat

## Ireland and the UK.<sup>2</sup>

Figure 1 compares Ireland-UK, Ireland-France and Ireland-Rest of World Ro-Ro cargo volumes over time, showing a substantial decrease in Ireland-UK volumes, but a marked increase in Ireland-France volumes, immediately after the UK's departure from the Single Market. This study estimated how much of these changes in cargo volumes could be attributed specifically to Brexit.<sup>3</sup> Importantly, this approach helped isolate the specific impact of Brexit from other factors like the COVID-19 pandemic or currency fluctuations.

<sup>2</sup>The other forms of cargo considered in this research were liquid bulk, dry bulk and large lift-on lift-off (Lo-Lo) containers.

<sup>3</sup>Specifically, to separate the effect of Brexit from other factors such as COVID-19, changes in EU-UK or Ireland-UK cargo volumes, which were affected by Brexit, were compared with changes in a 'control group' of global EU cargo volumes that were not affected by Brexit. Changes experienced by the control group were used to estimate what would have happened to EU-UK or Ireland-UK cargo volumes had Brexit not occurred, with the effect of Brexit estimated as the difference between actual changes and changes in this hypothetical scenario. This is called a 'difference-in-differences' analysis. When assessing the impact on the UK land-bridge route, the comparison was between Ireland-UK, Ireland-France, and Ireland-Rest of World cargo volumes.



### 3 Key findings

This research revealed several implications of Brexit for maritime shipping:

- **Decrease in EU-UK and Ireland-UK cargo volumes:** Brexit caused a 21% decrease in EU-UK Ro-Ro cargo volumes between 2021 and 2024. Unsurprisingly given the reliance of Irish trade on the UK, Ireland-UK Ro-Ro cargo volumes experienced a much larger decrease of 60% over the same period. These reductions persisted over time and are consistent with the results of previous studies on the decline in the value of EU-UK trade.
- **Diversion to direct routes:** Interestingly, the decrease in Ireland-UK cargo was accompanied by an 88% increase in Ro-Ro cargo volumes between Ireland and France, albeit from a much lower base. This evidence points to a significant short-term diversion of cargo from the UK land-bridge to direct routes between Ireland and mainland Europe. This increase dissipated over time, however, suggesting that this diversion may have only been temporary.
- **Environmental implications:** The shift from the land-bridge route to direct sea routes has environmental benefits. To carry one tonne of cargo over the same distance, a lorry on a motorway will consume a lot more fuel than a ship at sea. While the direct sea route is longer, it is more fuel efficient as it avoids the road-based section of the land-bridge. It was estimated that fuel consumption and carbon emissions associated with this freight transport would be lower on the direct route by roughly a third.
- **Brexit's 'implicit tariff':** The non-tariff barriers (including document checks and customs inspections) introduced by Brexit effectively act as an 'implicit tariff' on the land-bridge route. This study showed that the magnitude of this implicit tariff varies depending on how easily exporting firms can switch between the land-bridge and direct routes.

For goods where switching routes is relatively easy, the implicit tariff was estimated to be around 10% of the land-bridge cost. However, for time-sensitive goods such as agri-food products, where switching routes is more difficult, the implicit tariff could be as high as 90%. This highlights the increased burden on businesses that particularly rely on the relative speed of the land-bridge for specific types of cargo.

### 4 Policy implications

These findings provide additional evidence of the negative economic impact of withdrawing from a free trade agreement. It demonstrates how this detrimental effect is felt in maritime shipping, which transports over 80% of world trade.

There is also a general lesson for transport policymakers in the findings in relation to the land-bridge: when choosing between road-based and sea-based routes, time is of the essence. While the land-bridge has traditionally been more expensive than direct routes once road haulage costs in Great Britain are accounted for, it has proved more popular due to its speed, flexibility and reliability. What Brexit changed was the speed, as additional documentation checks would have led to congestion at ports and reduced the speed advantage of the land-bridge, and this caused a diversion to direct routes.

To reduce transport emissions, the European Commission envisions a transition from road-based freight transport to more efficient modes including sea shipping.<sup>4</sup> The findings of this study show that as policymakers strive to promote sea-based routes over land-based alternatives, transit times on direct shipping routes are a key factor to focus on. For example, these transit times could be targeted through investment in ports and associated infrastructure.

<sup>4</sup>Mobility Strategy - European Commission

## 5 Conclusions

Brexit represents a fascinating case study in leaving a large free trade agreement. At a time when trade tariffs are seemingly back in vogue, Brexit shows us how trade can be hampered even without imposing tariffs or quotas, highlighting the importance of non-tariff trade barriers such as documentation requirements and customs checks.

EU-UK Ro-Ro cargo volumes decreased by 21% due to the UK's departure from the Single Market and Customs Union. Ireland-UK cargo was more severely impacted, with a 60% decrease in Ro-Ro volumes. An 88% increase was evident in Ro-Ro volumes between Ireland and France, revealing a substantial short-term diversion of cargo away from the UK land-bridge overland corridor to direct shipping routes.

Due to the greater fuel efficiency of ships compared to lorries, fuel consumption and carbon emissions associated with transporting cargo between Ireland and France would have been around 30% lower on direct routes than on the land-bridge. This demonstrates the benefits of direct sea-based routes relative to land-based alternatives. The magnitude of the short-term diversion due to Brexit highlights transit times as a key factor for policymakers to focus on when seeking to promote the use of sea-based transport in place of overland corridors.

These changes represent some of the unintended effects of the Brexit referendum, and may warrant further examination from policymakers focused on Ireland's port and shipping infrastructure.

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## References

- [1] Mac Domhnaill, Ciarán. 2025. 'All at sea? Externalities and cargo diversion in the wake of Brexit.' *Oxford Bulletin of Economics and Statistics*. 10.1111/obes.12690