

Introduction and context

The Port of Dover provides the UK's key arterial link with its largest and nearest trading partner, the EU. The Dover-Calais/Dunkirk route is a nationally important transport corridor, handling up to £122 billion or 17% of the UK's entire international trade in goods.

More than half of all HGVs entering or leaving the UK by sea do so via the Port of Dover. The UK's membership of the EU currently allows all RoRo traffic to pass through the Port without stopping to make a declaration or submit to a routine examination.

The Port's ability to handle the current volume of traffic depends on those HGVs passing through without stopping. The uncertainty around the customs and other border controls that may be put in place when the UK leaves the EU in March 2019 has led to concern about possible delays at Dover, and to speculation that traffic may be routed through other ports in order to avoid any queues

In this context, the Port of Dover has asked Oxera to consider the economic costs of diverting cargo traffic away from the port and the impact of delays on existing traffic.

How much traffic is diverted?

For this analysis, we have created two scenarios for traffic diverted from Dover in line with analysis conducted by Peel Ports Group¹ and by PRB Associates on behalf of Associated British Ports.² The two scenarios correspond to the two reports.



¹ Peel Ports Group (2018), 'Brexit unlocked. A Contingency Option Using Uncongested Ports'.

We do not comment on the validity of these scenarios, but instead expand them to examine the economic costs in the event that a diversion of this size were to occur.

Cargo diversion scenarios

The PRB Associates report assesses the available capacity at UK cargo ports and considers whether varying amounts of cargo traffic could be diverted from the Channel crossing (Dover ferry and Eurotunnel) to alternative ports. The volumes tested range between 5% and 20%.

The capacity of UK cargo ports is based on current vessel sailings. The PRB report concludes that, even in the highest diversion scenario where 20% of cargo traffic is diverted from the Channel crossing routes, there would be sufficient capacity across the 23 other UK ports. The total diversion in this scenario would be 848,000 freight units.

Spread of contestable traffic ('000 units)

	5%	10%	15%	20%
East coast	178	357	535	714
South coast	18	36	55	73
West coast	16	30	46	61
Total	212	424	636	848

Note: Rounding errors may occur when summing. Source: PRB Associates (2018).

The report by Peel Ports Group suggests that up to 50% of the traffic using the Channel crossing could switch to become unaccompanied RoRo trailers, but does not specify which ports in particular the traffic could be moved to. In order to generate a diversion scenario, we have assumed that the

² PRB Associates (2018), 'Assessment of the freight traffic flows over the channel crossings that could divert to longer ferry and container service routes', April.

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diversion would be in line with the RoRo capacity quoted in the PRB Associates report.

How do we measure economic costs?

Transporting cargo involves various costs, both financial and non-financial. For the purposes of this assessment we have included the cost of door-to-door transit. This is made up of:

- driver wages for accompanied trailers;
- the time value of freight while in transit;
- the cost of seaborne crossings;
- fuel and operating costs associated with transport to and from the port.

There are also a number of other costs that we are not able to quantify due to data availability. These are described below.

Mode switching

Both the Peel Ports Group and PRB Associates reports suggest that cargo could be switched from RoRo to unaccompanied trailers and loadon/load-off (LoLo) cargo. This would reduce the cost of driver wages, reducing the additional costs that the longer seaborne journeys would otherwise create.

In order to account for this, we have assumed that traffic that was redirected from Dover would switch to LoLo in proportion to the available LoLo capacity at the relevant ports. RoRo traffic could remain accompanied or switch to unaccompanied. The proportions of these are not clear. However, we have assumed that:

- for the PRB Associates scenario, half of the diverted accompanied traffic switches to being unaccompanied;
- for the Peel Ports Group scenario, all of the diverted traffic switches to being unaccompanied.



Origin and destination points

Our analysis covers both the seaborne journeys and the onward travel to the ultimate origin or destination points. This reflects door-to-door transport costs and allows us to reflect the locational advantages of each port. No data is available on the origin and destination points of cargo passing through the Port of Dover. We therefore estimate this based on wider trade patterns.

Each journey involves a UK leg and a continental European leg. For the UK leg of the journey we use the three largest UK cities for the origin and destination of cargo, reflecting the three largest economic centres. For the continental European leg of the journey, we use data on road-based trade between continental European countries and the UK to estimate the share of freight originating from or travelling to different countries.

Crossing costs

We have included crossing costs for a representative cargo taken from publicly available sources quoted at the time of writing. Depending on the demand and yield-management processes in place, these prices could differ from those seen here. For our purposes, however, it is the difference between them is that is of most importance.

Port operations

Loading and unloading times can vary across cargo types (e.g. accompanied and unaccompanied RoRo and LoLo). We have obtained indicative timings of these from the Port of Dover and use them to adjust for the different speeds with which cargo can be loaded onto different vessels.

We do not, however, account for any dwell time at the port associated with unaccompanied RoRo or LoLo cargo.



Impact on remaining Dover traffic

The implementation of customs checks once the UK leaves the EU could generate delays at the border. This will lengthen travel times of cargo, and hauliers will incur higher costs as a result. We have modelled additional delays for the average sailing at Dover, after taking into account the diversion of traffic implied by the Peel Ports Group and PRB Associates reports.³

What is not included?

The two ferry operators at the Port of Dover both offer high-frequency services to Calais and Dunkirk, with over 50 sailings per day. The highfrequency service allows hauliers to use the ferry service on a 'turn up and go' basis rather than booking in advance for a specific sailing. This is especially useful if there are landside delays to other legs of the journey, as the knock-on effects on the overall travel schedule can be minimised. This built-in schedule **resilience** is of particular benefit for perishable goods, high-value goods and consignments that are part of just-in-time supply chains.

In general, the alternative ports suggested by the ABP report operate significantly lower-frequency services. As a result, diversion of traffic to these ports would also create a resilience or reliability cost for cargo owners.

It would of course be possible for operators at other ports to increase the frequency of their



³ We assume a 10% enforcement rate and an average duration of 45 minutes for customs checks.

services. However, this would require investment in new vessel capacity. The Channel crossing routes have an inherent geographical advantage due to the short crossing time for these routes. As a result, increasing frequency on a route with a longer sailing time would require more vessel capacity than an equivalent increase in frequency for the Dover Strait.

Cost of additional service frequency

We do not include the cost of additional vessel capacity in the calculations. That said, crossings via the Dover Strait involve shorter crossing times and are able to offer a high-frequency service with around 50 sailings per day.

We are not aware of data on vessel utilisation at the level of individual routes, which would be needed to estimate the total level of new vessel capacity needed for the diverted traffic. Instead, we have undertaken some illustrative analysis of the capital cost that would be associated with adding sufficient vessel capacity for all of the diverted traffic using vessel costs from recent announcements by operators on other routes. The results suggest that the one-off capital cost of this level of vessel capacity would be in the region of £2.2bn-£2.7bn.*

This analysis assumes that vessel capacity is the only area where capital investments are required. If an alternative port were to need refurbishment or other investment in quayside facilities, this could increase the capital cost significantly. Other constraints or restrictions such as the availability of crew or time required to build a new vessel could also affect the ability of operators to increase capapcity.

*Note that this represents a one-off capital cost. It does not include ongoing operational costs.



The PRB Associates report suggests that spare capacity would be available at UK ports to handle 20% of Chanel traffic, although it notes that there would be difficulties in transforming the supply chain to enable this. One of these difficulties is the timing of demand—in particular, whether the spare capacity at alternative ports would be available at the right time.

Demand at Dover is highly variable, with seasonal, weekly and daily peaking. For instance, on average around 7,000 freight vehicles use the port each day, although this usually varies between 4,000 and 10,000 over the course of a week. Demand during the summer months is typically around 25% higher than in mid-winter.

If the availability of spare capacity at alternative ports does not coincide with these demand peaks, the diversion either would not be feasible or would require the re-timing of journeys. This loss of **flexibility** for customers is difficult to quantify, although the high demand for ferry services by freight customers indicates its importance.

Results

Our analysis suggests that there would be significant economic costs associated with diverting traffic away from the Port of Dover and delays at the port.



The Peel scenario (50% diversion, 100% switch to unaccompanied, no switching to LoLo). Remaining 50% of traffic is subject to customs delays.



The ABP scenario (20% diversion, 50% switch to unaccompanied, switch to LoLo). Remaining 80% of traffic is subject to customs delays.